

AGENCY FOR INTERNATIONAL DEVELOPMENT

JULY/AUGUST 1983

# HORIZONS

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MAKING CITIES EFFICIENT

WID: AID PIONEERS WAY

CHECKING POSTHARVEST LOSS

SPECIAL REPORT:  
Policy Profiles

# HORIZONS

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On the cover: Planning for efficient resource management in Third World small and intermediate-sized cities is part of a pioneering AID pilot project. Article begins on page 13.

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ACCENT ON

# DEVELOPMENT

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**THE ECONOMIC GROWTH** of the developing member countries (DMCs) of the Asian Development Bank was significantly lower in 1982 than in 1981, but the overall growth achieved during the year was much higher than in other developing regions of the world. This may be attributed, according to the bank's recently released Annual Report for 1982, to sound policies and pragmatic measures adopted by member countries in response to several adverse developments in the international economy.

The combined gross domestic product (GDP) of the DMCs grew 3.8% in 1982, a rate of growth well below the rate of 6.4% in 1981. Yet, some of the countries still exceeded the growth of population, resulting in continuation of per capita income growth.

The average rate of inflation in the Asia-Pacific region, meanwhile, declined—a relative price stability that compares favorably with that of other developing regions. This steadily falling increase in consumer prices—from 15.7% in 1980, to 13.1% in 1981, to 8% in 1982—is attributed in part to falling commodity prices and domestic stabilization policies.

Among the 15 DMCs for which such figures were available, only Burma and Pakistan registered higher rates of growth last year. Newly industrializing countries—Republic of China, Hong Kong, Korea and Singapore—too, experienced the nearly universal decline in GDP growth.

The Asian Development Bank completed 1982 with increases in lending, borrowing, and co-financing activities, and took important steps to strengthen its future resources and enhance further development in the region. Although less than previous years, the bank's lending during the year grew by 3.2%, from \$1.67 billion in 1981 to \$1.73 billion in 1982. The agriculture and agro-industry sector received the largest portion—36%—of the bank's loans.

The Bank has recognized the significance of the

private sector in the growth of its member countries. It has established credit lines to development banks sub-lending to small- and medium-scale industries, many of them in the private sector. As of the end of 1982, the Bank had approved \$1.46 billion in loans to 28 development finance institutions in 19 borrowing countries. The funds were farmed out to 7,600 subprojects, 95% in the private sector.



**A PILE OF ROT:** Plantains grown in home gardens fare better than those that are field-tested even when the latter get generous doses of inorganic fertilizers. The home-grown plantains thrive on household refuse—organic mulch—thrown around the plant roots, according to tests by the International Institute of Tropical Agriculture. Plantains that have been mulched show a slight yield increase compared with a marked yield decline of unmulched fertilized plots, also reports *IITA Research Highlights*. After four years, mulched plots produced four times more fruit, harvest time lasted longer, and more plants produced fruits. IITA is working on developing cheap and efficient mulching techniques. Contact them at Oyo Road, PMB 5320, Ibadan, Nigeria for more information.



**DANGER: PEOPLE AT WORK:** Although long working hours are the norm in many developing countries, they can be harmful, a study by the International Labour Organization (ILO) states. In some small restaurants in South-east Asia, working 15-16 hours, seven days per week is a normal work week. Public utility cabs in the same region hire drivers who often work 16 hours daily—"a definite hazard to road safety" the ILO report notes.

The study pinpoints sectors where hours are usually the longest: agriculture, construction,

transport, small businesses and domestic work. Industries employing high proportions of foreign and migrant workers usually have the longest work hours and more overtime.

The long hours of work in developing countries are caused by employer and employee. Managers want to avoid hiring extra workers and need to compensate for enterprise inefficiencies, according to the ILO study. Workers themselves are often eager for overtime because wages are too low to enable them to satisfy basic needs.

A few governments have declared maximum work hours but means of control appear non-existent or ineffective. The trade union movements in LDCs are more concerned with employment and wages rather than the number of hours worked and holidays.

The study concludes, "faced with grim reality of day-to-day life . . . one postpones a reduction of working hours until better times."



### **GENETIC TINKERING** is leading re-

searchers down the path to a cholera vaccine that protects for years, rather than months. The general idea is to give people live cholera, which will provoke antibodies and eventually be discarded. What keeps people from catching the disease, writes Maria Elena Hurtado for *South* magazine, is ingenious genetic tinkering. Building on the work of Richard Finkelstein from the United States, British scientists have been able to eliminate the mechanism producing the active toxin, leaving enough of the original strain to provide long-lasting immunity.

Diarrhea, the characteristic symptom of the disease, occurs when a toxin brings about chemical changes in the intestine where the cholera organism colonizes. To get an effective vaccine, antibodies should attack the cholera toxin itself and the organism. Strides are being made on combatting the former.

The cholera toxin has two parts, "A" subunit, the core, and a ring of five "B" subunits. The B subunits bind the dangerous molecule to a specific receptor on the intestinal wall, enabling the A subunit to penetrate the cell. Both actions have to occur before someone can get cholera.

Since the B subunit stimulates the body's immune system without damaging it, scientists are trying to eliminate the A subunit from the bacteria; then the "bug" could trigger the human defense mechanism but not be toxic. Finkelstein mutated cholera cells until he got a strain that produced only B subunits. Although it caused immunity,

there was also some diarrhea—a major problem for Third World inoculees.

The British team cloned the cholera toxin with *E Coli*, a common bacterium and got it to produce cholera toxin. A piece of DNA, coded only for the "B" subunits by chopping out bits of the gene which code the A subunit, was re-introduced into plasmid which boosted the production of B subunits. The final stage according to team leader David Broadbent of the London School of Hygiene and Tropical Medicine, is how to get the plasmid—circular molecules of DNA with 50 copies instead of one copy per cell—that produces the B subunit into a cholera organism. He estimates it will be another year before laboratory work is completed and several years before the vaccine goes on the market.



**NEED AN EXPERT?** Call INCS, the International Nutrition Communication Service. Sponsored by AID, INCS offers short-term professional expertise to help design, start up, and evaluate education efforts aimed at improving food and nutrition knowledge, attitudes and behavior. Consultants can help put together mass media programs, develop formal school curricula, train teachers and field workers, provide in-service training for health officials, and assist with a host of other tasks related to health and nutrition.

Coordinated by the Educational Development Center of Newton, MA, INCS makes its consultant services available at no cost. Requests may be sent via the USAID Mission to AID Washington in the form of a brief description of services needed. For reference, the AID Project numbers are 931-0065 and 931-1010.

INCS also manages a clearinghouse for nutritional education information. Address inquiries to Ron Israel, Project Manager, INCS, Educational Development Center, 55 Chapel St., Newton, MA 02160, USA, to Dr. Tina Sanghvi or MaryAnn Anderson AID/S&T/N, Washington, DC 20523, USA.



**CHICK-PEAS**, the most important edible seed-bearing crop in Pakistan, provide a cheap and adequate protein source. But recently, plant diseases reduced chick-pea yields and area cultivation. To help restore this protein-rich crop's production, the Pakistani government, in collaboration with the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), is strengthening its chick-pea research program, with a

technical assistance grant from the Asian Development Bank.

The main objective of the grant is to breed chick-pea cultivars resistant to *Ascochyta* blight and also to make them resistant to wilt and root diseases. Once high-yielding and disease resistant varieties are developed, they will be multiplied and distributed to farmers at reasonable prices.

ICRISAT, based in Hyderabad, India, is funded through the Consultative Group in Agricultural Research (CGIAR), which coordinates and funds 13 agricultural research centers. AID, the largest single donor to CGIAR, finances nearly 25% of its annual budget.



### **WORLD BANK REPORT ON CITIES:**

*Learning by Doing: World Bank Lending for Urban Development, 1972-82*, a new report available free-of-charge, looks at the Bank's experience with urban projects in the past decade. The World Bank has provided more than \$2 billion for 62 urban projects in 36 countries between 1972 and 1982. Among the changes the report notes for that period: policy changes have been adopted; major design changes have been accepted; metropolitan areas have used new approaches to programming investments; and cooperation with other agencies has been achieved.

The policy changes adopted in many countries focus on low-cost approaches to providing shelter and essential services such as roads and water. Sites and services and slum improvement are accepted approaches rather than slum removal or public housing. Using private savings, especially from the beneficiaries, rather than public funds also has been adopted in many countries.

Projects are now designed specifically to help the poor, provide land tenure, promote cost recovery, and introduce affordable design standards and procedures.

Among the problems the World Bank has encountered in carrying out urban projects, the most important has been developing institutional capacity. Other problems include difficulties with land acquisition and tenure, cost recovery, shifting designs toward higher standards by project agencies, weak project management, and lack of experience with special components such as health and employment.

More than 90 urban projects, involving lending amounting to \$4 billion for the fiscal years 1982-86, are currently being considered by the Bank. The projects will be carried out in some 50 countries, of which 25 will be borrowing for the first time for urban projects.

The report, prepared by Michael A. Cohen, chief of operations review and support in the Bank's

urban development department, is available from World Bank Publications, PO Box 37525, Washington, DC 20013.



**GOVERNMENT-CONTROLLED** businesses—parastatals—have a role to play in achieving food security for Third World countries. Specifying what that role is for a particular country is the issue, decided a dozen experts at a two-day workshop on "The Role and Management of Parastatals in the Food Sector," sponsored by AID and the Agricultural Development Council.

Parastatal roles vary widely in developing countries. Many are export-commodity oriented. Some exist merely to stabilize prices through regulatory processes. Others hold buffer stocks to control prices or to meet emergency needs.

The effectiveness of parastatals as an instrument of food security is mixed. Management often is the key determinant of success. The role of parastatals may change over time and in different situations in response to political, social or economic conditions.

The experts, associated with such institutions and organizations as the California Institute of Technology, the World Bank, Harvard Business School, Rockefeller Foundation, Winrock International, Chase Manhattan and the International Food Policy Research Institute, said that the appropriate role of parastatals depends on the stage of development of the food sector in developing countries.

They agreed that successful interventions to achieve long-term food security will depend on a thorough understanding of the food sector in a particular country and appropriate roles for parastatals.



### **POSTHARVEST LOSS OF FISH**

rodents and insects may amount to about 3 million tons annually—enough for a one-and-a-half pound meal for every single human being on earth.

Writing in *Kidma*, a journal published by the Israel Chapter of the Society for International Development, Andrew Szabo points out that usual processing, coupled with inadequate control methods, offers little protection against insects. He presents a proposal to reduce or eliminate such waste. Szabo suggests projects assess the social and technological milieu where fish are processed and marketed. Improved handling and processing techniques are needed during the stages of the process where it will do the most good—on fishing vessels, and during drying, smoking, transporting marketing and storage. Ways to measure losses in specific fisheries or geographical areas need to

be developed, as well as improved packaging for dried fish and adequate storage facilities that are economically feasible.

There is a need, Szabo says, for more research for new insecticides that can be safely recommended and applied on a commercial scale without posing health hazards to the consumer. He further advocates technology development and transfer; training and strengthening of extension links and construction of storerooms.

Szabo suggests an Applied Research Center for Problems of Postharvest Losses to advise and help apply modern technology to various prevention operations and to promote new discoveries and effective, rational ways to use them.



**SOUTH-TO-SOUTH BUSINESS:** Investors from developing countries have been setting up shop in other developing countries. *Technology and Third World Multinationals*, a recent study by the International Labour Organization, shows that about 2,000 subsidiaries of Third World-owned enterprises have been identified, half of them manufacturing concerns. The total number may be three or four times as large.

The Third World multinational companies, reports *TCDC News*, provide alternatives for developing countries to technologies made available to them by corporations of the industrialized world. Third World parent firms are able to transfer technologies that have been adapted—usually from Western technologies—to survive in home markets. Labor is substituted for machines; one material—for example, fiberglass for steel in auto bodies—may be substituted for another; or batch processing may replace mass production.

Third World multinationals are usually geared towards the host country's domestic market. Their plants are set up to produce a variety of products, are scaled to small-volume manufacturing, and often use second-hand machinery and local materials. In Thailand, for example, factories owned by parent enterprises in other developing countries imported 39% of their raw materials; locally owned factories, 65%; and factories owned by multinationals from industrialized countries, 76%.

While Third World multinationals scored well in creating jobs in product manufacturing for local use, they did not do as well in providing export markets.



**BRIDGING THE GAP:** Prefabricated, modular wooden bridges, that can be built in less than a week at one-third to one-half the cost of conventional steel-reinforced concrete bridges, were developed in Kenya and are now being used by other countries. After recent flood-

ing in Honduras, for example, the government decided to use the prefabricated models to replace dozens of damaged or destroyed bridges.

The Bailey-type bridges are constructed using light equipment and manpower. They can bear loads up to 40 tons and properly selected or preservative-treated timber ensures a service life of 15 to 25 years which is acceptable for almost all types of roads, but best suited to secondary or access roads, reports *TCDC News*, published by the United Nations Development Program. UNDP emergency funds and the Honduras government are funding the \$430,000 reconstruction project.



**IN 1981, GYPSY MOTHS** stripped a recordbreaking 12 million acres of hardwood forests in the United States. The moths also are found throughout Korea but aren't pests. The Asian Parasite Laboratory in Seoul, Korea is studying why. Entomologists collected the moths from the oak and chestnut forests and along with the eggs, pupae and larvae, they bagged many natural enemies of the moth.

A model for U.S. cooperation with other nations in biological control research is in the making between the U.S. Department of Agriculture's Agricultural Research Service (ARS) and the government of Korea. At the year-old lab, entomologist Robert W. Carlson is working to control exotic pests originally from foreign shores but now living in the United States by identifying, studying and raising the natural enemies left behind. The work can have a profound impact on the environment and save U.S. farmers millions by controlling "imported" insects that ravage crops.

An Asian wasp, for example, is being used to control the Mexican bean beetle, which costs U.S. soybean growers millions of dollars each year. Writing in *Agricultural Research*, an ARS publication, Andrew Walker explains that the wasp lays its eggs in the beetles' destructive larvae. When the eggs hatch, the wasps' larvae eat the beetle. The problem is that the wasps—which were brought from subtropical India—cannot survive American winters. By learning how the wasp survives winter in Korea and colder regions of Asia, the expensive and timely process of raising and releasing wasps each year in the United States could be avoided.

In addition to capturing and raising large numbers of the most promising species of parasites and predators, and forwarding them to U.S. research facilities for further evaluation, scientists at the laboratory study insect behavior, physiology and ecology as well as host ranges, biologies, distribution, rearing, and evaluation techniques.

For more information, contact Robert Carlson, c/o American Embassy (Seoul), APO San Francisco, CA 96301.



Administrator McPherson (right) inspects part of AID's emergency food aid to Peru, with the Augustinian Fathers' Rev. Joe Lawlor (left) and AID mission director John Sanbrailo (center).

## Administrator Assesses Three Latin American Disasters

AID Administrator Peter McPherson, as President Reagan's special coordinator for international disaster assistance, made on-the-scene assessments in three South American countries plagued with floods and drought for the past several months.

In the four-day trip, McPherson visited Bolivia, Peru and Ecuador, meeting with each country's president. About three million people have been seriously affected by the disasters.

Bolivia has been hit by floods and drought, and faces an immediate food crisis. Up to 70% of this year's food crop has been lost. The effects of the drought will be widespread and long-lasting. One quarter of Bolivia's population has been affected, with the disaster area equal in size to the state of Texas.

Ecuador is afflicted with persistent rains, floods and landslides. The Red Cross estimates that over 400,000 people have been affected, with nearly 14,000 homes damaged or destroyed.

Peru is suffering from one of the worst floods in its history in the north and an earth-scorching drought in the south. The heavy rains and flash flooding have been occurring for nearly six months.

McPherson saluted the spirit he witnessed among the people. "The heroic efforts which have been made to build and rebuild river defenses, to repair road damage to maintain minimal emergency transport, to keep minimum essential services of water and power functioning are impressive. It is especially admirable when one understands that successive storms have frequently washed out previous repairs."

AID has provided emergency assistance to each country, including purchasing emergency food and medicines, and providing funds for road repair. In Peru, the Administrator announced additional emergency Food for Peace assistance totaling \$25.6 million for Peru and \$23 million for Bolivia. ■

## U.S. Company Restoring Phones in Lebanon

About 22,000 of West Beirut's 85,000 telephones are out of service because of the effects of war over the past eight years. To rehabilitate and restore the outside plant of eight telephone exchanges in West Beirut, the Lebanese government and Federal Electric Corp. (FEC) of Paramus, N.J. have signed a \$6.5 million contract, financed by AID.

The outside plant consists primarily of buried cables which provide the telephone circuit connections between exchanges. The contract also provides for the procurement of necessary U.S. manufactured equipment and materials, such as construction equip-

ment, trucks, tools and cables.

FEC, a worldwide subsidiary of International Telephone and Telegraph (ITT), has experience in telecommunications systems in Europe, the Near East and South Asia.

Under the contract with Lebanon's Ministry of Posts and Telecommunications, FEC will develop a training program to upgrade the skills of the Lebanese staff.

FEC will conduct a survey for approximately six weeks to determine the most effective way to carry out the project. The company expects to complete the project about six months after the survey. ■

## Grant to Catholic Relief Services Helps Lebanon Rebuild



A \$2.4 million grant agreement was signed by AID and Catholic Relief Services (CRS) to continue the reconstruction and rehabilita-

tion of private health and educational facilities in Lebanon.

CRS, a non-profit, private voluntary agency operating in 77 countries, has been carrying out this humanitarian effort since 1979. To date, AID has provided \$8.7 million in grants to support the CRS programs in Lebanon. With AID assistance, CRS has constructed or rehabilitated more than 35 institutions, including schools, hospitals and clinics throughout Lebanon. These facilities have served more than 100,000 men, women and children. ■

## Consultants As Exports

Major exporting nations are working their way toward ending international subsidy practices, and developing countries are dismayed. The industrial nations that have been providing the subsidies seem earnest in following Washington's hard line on the matter.

The preliminary accord came after months of closed-door consultations and a hectic one-week session in Paris last October—and strong pressure from the Reagan Administration, which threatened to join in an export subsidy war. What emerged was only a limited gentleman's agreement, though, on the part of the

major trading countries of the Organization of Economic Cooperation and Development—the 10 countries of the Organization of Economic Community along with Australia, Austria, Canada, Finland, Japan, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland and the United States.

Developing countries stand to lose the benefits they have enjoyed from government intervention in international transactions. The industrial countries, for their part, see a chance to end a practice that has become unhappily expensive.

The governments of many industrialized nations realized long ago that consultants, architects, engineers and builders working abroad did not bring much back to their economies with their relatively small fees—but that the trade

that arose from their work was another matter entirely. Self-interest dictated that governments support their ventures for the sake of the export sales of materials, equipment and other goods that could result. Thus were born the various special national export financing institutions, and ultimately outright government concessions and subsidies.

The recipients of professional services had their own self-interest in mind, and they played suppliers against each other to win even more concessions. And so technology and quality yielded to financial terms when it came time to choose professionals. Prices for materials and equipment became secondary to interest rates and repayment schedules; project selections followed from the availability of credit and attractive conditions, not from sound development priorities.

Consulting architects/engineers (A/E) are especially familiar with subsidies. Pre-investment and feasibility studies, which typically require less than 10% of the envisioned project's cost, generally offer the chance for the professionals involved in the front-end studies to continue with the design, specifications, construction supervision and project management. The availability of funds to start an undertaking, then, can often be the key to major project work, and many countries furnished feasibility study funds in the form of special loans, reimbursable advances, technical assistance and grants. A new beast evolved: "free feasibility studies" with but one string attached—the provider of the study funds had first choice to proceed with the project, if indeed it was found to be feasible.

The complexity of this game has motivated scores of professional service companies and equipment manufacturers to go multi-national, the better to avail themselves of

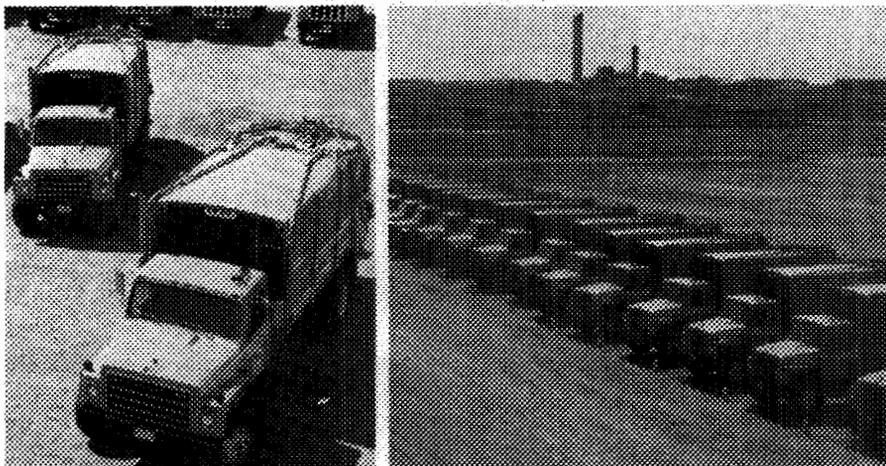
## Egypt and International Harvester Sign \$5.2 Million Truck Contract

The Egyptian government and International Harvester of Chicago have signed an AID-financed contract for \$5.2 million for the manufacture of 120 medium-duty trucks for Egypt.

Under the contract, International Harvester, a major manufacturer of trucks and farm equipment, will build

91 street-flusher trucks and 29 refuse trucks. All 120 trucks will be built in the company's truck assembly plant in Springfield, OH.

The trucks will be transported on American flag ships from Baltimore and Milwaukee to Egypt for use in 17 rural governorates (states). ■



*International Harvester trucks like these are headed for rural Egypt.*

"other" governments' export tools. Awareness of the range of assistance available is so vital that even the International Federation of Consulting Engineers set up a standing committee on "The Relationships Between Governments and the Consulting Engineering Profession" to monitor the extent of support various nationals can mobilize for certain projects.

Government support, then, strongly affects the success of individual efforts in international engineering and construction. Ironically, professionals from the United States have been significantly, though indirectly, hurt in this respect by the relative strength of their domestic economy.

Their government, used to advanced American technology and the success of U.S. commerce, assumed that its rules, especially free competition through such legal and financial restraints as anti-trust laws, would work in the world market. But these restrictions, exacerbated by anti-boycott and foreign corrupt practices legislation, practically put an end to the A/E's competitiveness, and left them nearly extinct in many international projects.

American contractors working abroad have also felt keenly the advantages foreign firms and consortia enjoy: the various loan and grant facilities, and insurances covering political risk, inflation and currency exchange offered by their governments. Finally, a U.S. Administration has realized that such devices, resolutely given diplomatic promotion, favor the competition, and it is acting firmly on behalf of its orphaned international service professionals. ■

*H. Peter Guttman is president of HPG Associates, international management consultant, Washington, D.C.*

*Reprinted from "Worldwide Projects."*

## Workshops Spotlight Tech Transfer Process

The International Institute for Environment and Development (IIED) is bringing together bureaucrats and businessmen—through a series of workshops—to look at ways of commercializing Western renewable energy technologies in the developing world. The workshops are supported by AID, the Italian Alternative Energy Authority, the Netherlands Ministry of Foreign Affairs, Appropriate Technology International (U.S.), the U.N. Development Program, the World Bank, the U.N. Directorate General for Development and International Economic Cooperation, and the Organization of American States.

These meetings of businessmen, bankers, investors, and officials from private and public sectors of several developing countries look at the actual process of technology transfer rather than the technologies themselves. Ways to increase technical and financial collaboration between LDC entrepreneurs and

investors and their counterparts in industrialized countries are explored. Government and private sector investment policies are examined along with specific technology transfer opportunities in each country. The needs of both the developed and developing country participants and policies to facilitate their entry into the market are discussed.

Among the Western firms participating in recently held workshops in Jamaica and the Philippines were Grumman International, Tri-Solar Corp., Dubin-Bloome Associates, Energy Applications Corp. and CHH Technology.

As a result of the Jamaica workshop, a special program with the Jamaica National Investment Promotion Ltd. (JNIP) has been proposed to increase private investment in renewable energy and energy conservation. Also, due to the success of the meetings, several participating firms have begun preliminary negotiations for actual investments.

For more information about the workshops, write Todd Bartlem or Louis Keezing, IIED, 1319 F St. NW, Suite 800, Washington, DC 20004 or telephone (202) 462-0900. ■



## Wider Development Role for Black Universities

Speaking before the eighth Conference on Blacks in Higher Education in April, AID Administrator Peter McPherson announced five policy initiatives specifically designed to fully incorporate historically black universities and colleges into AID's development activities.

The initiatives are part of a wider federal program established by President Reagan in 1981 "to advance the development of human potential, to strengthen the capacity of historically black colleges and universities to provide quality education, and to overcome the effects of discriminatory treatment."

The Administrator told over 1,000 scholars and policy makers from historically black schools that AID, especially through its Strengthening Grant Program, has been a leader in the effort to expand programs involving small colleges and universities, and especially the historically black institutions.

McPherson outlined the program's five major points.

"I have urged greater use of contracts to provide technical support to AID missions (TSMs), and I am changing the procedure so that historically black colleges and universities and smaller institutions can be joined with a larger school and be treated as one for the purpose of securing a TSM," he said. TSMs will provide historically black institutions a chance to develop long-term relationships with a developing country. "Each overseas mission with significant programs in agriculture and rural development has been asked to reconsider its long-term TSM arrangements to reflect this new emphasis," he said.

"Under the special Joint Memor-



*AID's research grant program for historically black colleges will help expand the U.S. institutions' research capabilities.*

andum of Understanding Program (MOU)," McPherson continued, "MOU relationships will now be a joint undertaking, involving universities with greater international development experience and one or more small and historically black schools to provide a minimum number of resource persons for long-term AID projects. This will enable these schools to participate even if the institution has a modest number of professionals in relevant subject fields."

One of the newest elements of the initiative is development of a research grant program exclusively for historically black universities. "These one- to three-year grants will provide funds for faculty members to research problems relevant to less developed countries and the institutional goals of the schools,"

McPherson said. The Agency plans to make 20 of these kinds of grants over the next 18 months at a total cost of about \$500,000. "This program will modestly provide for a much needed—and I know hoped for—expansion of scientific and technical research by this important group of institutions."

The Administrator is encouraging greater use of the joint enterprise contract concept by historically black institutions that have not participated in AID projects. The Joint Enterprise Contract Program, announced in 1981, enables two or more universities to combine resources and jointly contract with AID to provide additional field personnel and other expertise for specific overseas country projects. "BIFAD will help to bring the right institutions together, and a

minimum of two more projects will be identified and implemented during the coming year," he said.

Lastly, the Administrator called for active participation from historically black institutions in the Joint Career Corps Program developed to strengthen AID's internal science and technology capacity.

McPherson outlined the program's dual benefits and goals. "We see a role for AID in helping to bring the historically black colleges and

universities into the vanguard of our international development effort. We wish to engage your resources because we need them. Your participation means stronger, more relevant, more creative programs.

To those institutions that will decide to participate it will mean new commitments. But it also will mean a chance to assist in one of mankind's noblest public efforts: to help replace some of the roots of widespread human want and suffering with the seeds of promise for a better life." ■

## Three Joint Career Corps Agreements Signed

AID Administrator Peter McPherson signed agreements recently with the University of Idaho, the University of Maine at Orono and Colorado State University to exchange international development experts as part of the AID Joint Career Corps Program. The program allows certain exchanges of work assignments between university faculty and Agency staff.

"The overseas missions of AID need to tap into the scientific community in order to apply the most current technical expertise and judgement to mission plans and programs," said McPherson.

Robert Furgason, vice president for academics and research, represented the University of Idaho at the signing ceremony which took place in Sen. James A. McClure's (R-ID) office. Judd Harper, vice president for research, represented Colorado State at the signing in Sen. William Armstrong's (R-CO) office, and University President Paul Silverman signed for the University of Maine in the office of Sen. William Cohen (R-ME).

"In addition to keeping our foreign aid program abreast of the current state-of-the-art, the issues of international development are being fed into the universities' teaching and research programs which, in turn, enhances their capabilities to participate in AID assistance programs," said McPherson.

University participants in the Joint Career Corps—senior-level professionals—will have a major impact on the scientific aspects of AID programs as well as on related teaching and research at their universities. ■

## Education Groups: Partners in Training

Four international education organizations have joined together to help carry out AID's participant training program. Called the Partners for International Education and Training, the group is made up of the African-American Institute, America-Mideast Educational and Training Services, The Asia Foundation and the Experiment in International Living. The Part-

ners will annually arrange program placement for about 1,700 non-agricultural participant trainees, provide overall project management, develop new training resources and a management information system. Activities will be coordinated through a central office at 1140 Connecticut Ave. NW, Suite 220, Washington, DC 20036. ■

## Iowa State University, Zambia Benefit from Joint Project

Iowa State University and several key institutions in Zambia are collaborating on a project that takes a broad approach to training and technical assistance in agriculture and rural development.

AID, which is funding the \$9 million project, has entered into a cooperative agreement with the university to improve Zambia's agricultural and rural development planning and policy analysis capabilities. Iowa State University will provide technical assistance to Zambians through short- and long-term training to assist in human resource and institutional development. Zambia's ministries of agriculture and water

development and finance, the National Commission for Development Planning and the University of Zambia will participate.

In addition, Iowa State University and the University of Zambia have signed a long-term Memorandum of Understanding to provide for cooperative activities which promise to benefit both institutions. Iowa State University faculty will be able to teach and do research at the University of Zambia, and the University of Zambia's teaching and research programs will be strengthened in social science areas related to agriculture and rural development. ■

# LESSONS LEARNED

## Partnership, Participation and Profits: Formula for Success in Turkey

by Thomas W. Casstevens

**A**ID phased out its projects in Turkey in 1974. The On-Farm Water Development Project was among the last to end. AID's Office of Evaluation recently reviewed that project, and commended the project for its coordination of the public and private sectors as partners in development.

The project was the right project in the right place at the right time. More was attempted and more was achieved than would have been either attempted or achieved without AID. The importation of ideas was primary. The importation of equipment was secondary. AID stressed private sector profits, decentralized decision-making, machinery designs, learning by doing, follow-up and follow-through. AID was a catalyst for the Turkish General Directorate of Soils and Water (TOPRAKSU).

Despite its relatively small budget (\$1.189 million from AID, \$1.529 million from TOPRAKSU), the project was seen as a major undertaking. The potential achievement was self-sustaining growth, powered by the private sector and guided by TOPRAKSU.

The project focused on the province of Aydin in southwest Turkey. TOPRAKSU and AID helped farmers level, drain, and otherwise improve their land; assisted local shops to manufacture appropriate farm machinery; encouraged private contractors to do custom work; and trained people to continue such activities around Aydin and throughout Turkey.

Aydin province has abundant water, and its farmers had experience with irrigation. They also had trac-

tors; but their land was not level and the soil was alkaline, with a layer of hardpan. Land leveling and drainage were needed, and so was machinery.

The broad strategy of AID and TOPRAKSU was to activate the private sector—farmers, manufacturers, and contractors—by using pilot projects to demonstrate profitability.

Decision-making under the project was decentralized. TOPRAKSU distinguished three types of individual projects: small (to be approved by TOPRAKSU/Aydin), medium (to be approved by TOPRAKSU/Izmir), and large (to be approved by TOPRAKSU/Ankara). The Agricultural Bank of Turkey agreed to a corresponding decentralization of lending authority for agricultural credit. This decentralized structure still exists.

Credit for farmers was indispensable for the project's success. Any farmer may apply for a land improvement loan from the Agricultural Bank of Turkey. TOPRAKSU's assessment of the proposed improvements is a prerequisite for the bank's approval of a loan application. The worth of a project rather than the

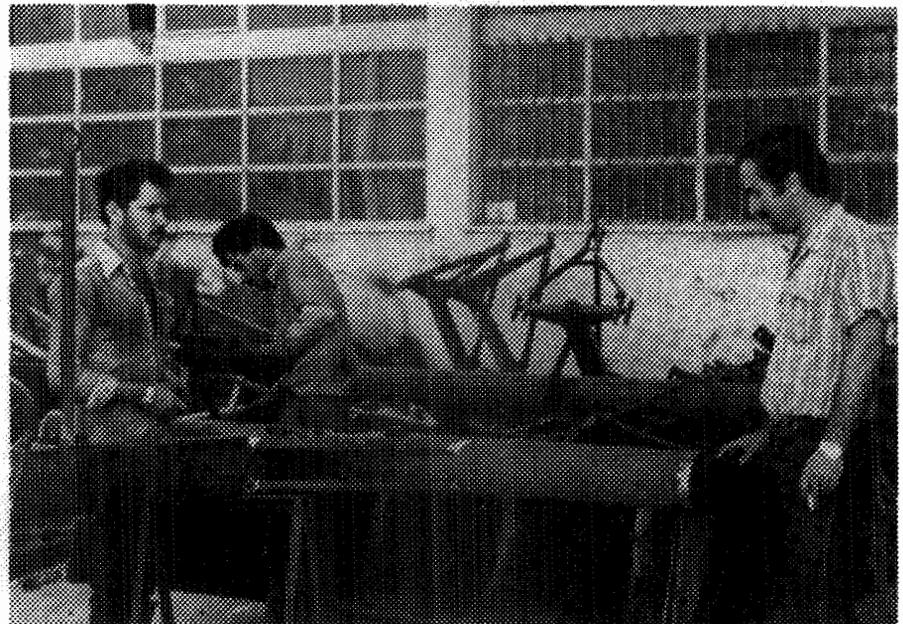
wealth of a farmer is decisive in theory, but in practice less affluent farmers have some handicaps. For example, farmers are required to put up 10% of the cost of a project. Final approval is by a joint committee, at the appropriate level of the bank and TOPRAKSU. The actual work on an approved project is monitored by TOPRAKSU.

TOPRAKSU not only influenced the allocation of credit but also used two types of contracts as financial levers: contracts with manufacturers for machinery and agreements with contractors for custom work (primarily land leveling). Farmers, manufacturers, and contractors responded to those financial inducements.

The government of Turkey did not need to change its agricultural subsidies policy. Subsidies had responded to the political demands of the rural sector since 1950. Farmers realistically could expect to make reasonable profits, although they were not assured of profits. This continued to be the case.

The project was run by on-site personnel which facilitated the pursuit of targets of opportunity. Atif Atilla of TOPRAKSU and Marvin

*Farm machinery is made and repaired in shops established as a result of the project.*



Parker from AID were chiefly responsible for implementation of the project.

Attila, who was in charge of extension, had studied at Utah State University. He worked directly with farmers at the village level, using coffee houses as his point of contact. For a demonstration project, a quick success is vital. Therefore, in selecting pilot projects, Attila looked for farmers with personal commitment and individual involvement. His focus was on owner-operators rather than absentee landlords.

Parker, who was the farm machinery adviser, worked directly with manufacturers and farmers on construction and use of equipment. He became something of a legend: "Given sheet steel, he could make anything." His focus was on owner-operators of machine shops rather than professional managers of industrial plants.

Attila and Parker were assisted by a small Turkish staff, some of whom were trained in the project's first short courses. Staff training, an integral part of the project, took two forms: overseas training for six months or a year in the United States and in-service training in short courses in Turkey. Not all of the trainees stayed with TOPRAKSU. Some are now in agribusiness as executives or consultants in Turkey. TOPRAKSU officials, nevertheless, consider the training program to have been very successful. The trainees are said to have carried the spirit of the project throughout Turkey.

The project pivoted around profits for farmers from land improvement. The potential was substantial. In one season, the return on investment for cotton was over 200%. For other crops, the return was less marked, but still significant. Land improvement also created via irrigation a second season for a second crop. Double-cropping increased seasonal employment for agricultural laborers, particularly at harvest



*Atif Attila, who was in charge of the extension portion of the project.*

time, and also led to a boom in the production of fruits and vegetables. Nowadays, packaging and marketing are the problems for perishables.

Attila proceeded farmer-by-farmer, field-by-field. A participating farmer himself decided what innovations to try in his fields. "The farmer as planner" became a slogan of the project.

These farmers were progressive farmers, neither particularly rich nor particularly poor, but they could afford to risk a field of one to four hectares in the experimental project.\* Their risk was minimized by introducing new rotation crops in the second season rather than the traditional season, by leveling single fields rather than entire farms, and by continuing governmental subsidies for particular crops. This, of course, did not remove all risk. Crop failures and market fluctuations, for example, were still hazards.

The actual leveling of a demonstration field was a community event with dozens of farmers attending from neighboring villages.

\*Aydin province is an area with farms of modest size compared with eastern and southern Turkey. A small farm is less than 9 hectares, a medium farm is 9 to 15 hectares, and a large farm is more than 15 hectares, according to Ergun Cebudun and Aydin Uluhan (eds.), *The Political Economy of Income Distribution in Turkey* (New York: Holmes & Meier Publishers, Inc., 1980), pp. 251-252.

TOPRAKSU surveyed the fields, furnished the equipment and provided cost-sharing for the first demonstration fields; but nowadays, it surveys some fields, rents some equipment, and recommends some loans from the agricultural bank. Many farmers now proceed on their own, without assistance from TOPRAKSU.

The project stimulated the local manufacture of farm machinery. Parker worked with (and in) local shops to introduce designs and techniques for the production of new implements. These shops—machine shops, welding shops, blacksmith shops—were small businesses. The equipment was designed to be pulled by tractors that the farmers already owned.

AID provided designs for nine implements, but mechanical scrapers and subsoilers, in particular, were vital for the leveling and draining of fields. The scrapers moved earth, by scooping and dumping, from high spots to low spots. The subsoilers broke hardpan, allowing surface water to leach out salts by percolating downwards. The equipment was easy to build and easy to repair. When a hydraulic scraper proved to be neither easy to build nor easy to repair, its production was discontinued.

TOPRAKSU arranged a field demonstration for 30-50 neighboring farmers when equipment was ready. The manufacturer also attended the demonstration, and the farmers were told: "That fellow made it; he can repair it; you see what it can do." TOPRAKSU purchased some of the new equipment and helped farmers obtain credit to buy more of the new equipment. The Ministry of Industry, in some cases, helped the local manufacturer obtain credit to expand production.

Ismail Donder's business, under this program, moved from a bazaar stall to an industrial park and changed from a welding shop into

a manufacturing firm. His success was not unique.

Local production of farm machinery is now well established. New equipment is being introduced and old designs are being modified. Exports now go to Pakistan, Iran, Iraq, and elsewhere in the Middle East. No bankruptcies were reported to the evaluation team, but competition is said to be fierce. Sales, not production, are the current problems.

tors. This support was phased in during the project and continues today. By 1980, more than 150 people from the private sector had taken a short course. In 1982, TOPRAKSU expected 15-20 bids on a typical project, and there were 30 scrapers, available for renting, at its engineering station in Aydin. TOPRAKSU requires contractors to be licensed for its projects, and although a license is not strictly required for private projects, farmers

caused some unfortunate side effects: the increased distribution of irrigation water led to the impairment of fig orchards, the spread of crop diseases, and the overproduction of some crops. TOPRAKSU is coping, but the magnitude of these problems was not anticipated. The side effects were minimized, however, by the additive (rather than replacement) character of innovations: the project augmented rather than replaced the goods and services that existed already.

The evaluation team drew several lessons from this project: The risks should be spread or minimized in a project—for the local participants, for the host government and for AID. This can be done by decentralized decision-making, by insuring participants against downside risks of being wiped out, and by a modular approach to individual participation.

For a successful demonstration, pilot projects must succeed clearly and promptly. These small projects should be designed so as to ensure their success. The place and people should be chosen with probable success rather than pressing need as the chief criterion. Participant involvement in planning innovations is very important.

Project equipment should be easy to build and easy to repair, relative to the local setting.

The project team in the field is absolutely vital. The team should be selected with care, culled if need be, and then left on the job for the life of the project—with authority to pursue targets of opportunity.

A successful project, by its very success, causes further problems. These should be anticipated. "Will this project, if successful, cause more problems than it's worth?" is a question that should be kept in mind by all project planners. ■

*Thomas Casstevens is a Special Adviser to the Administrator of AID.*



*Through field demonstrations, the project created a demand for land-leveling.*

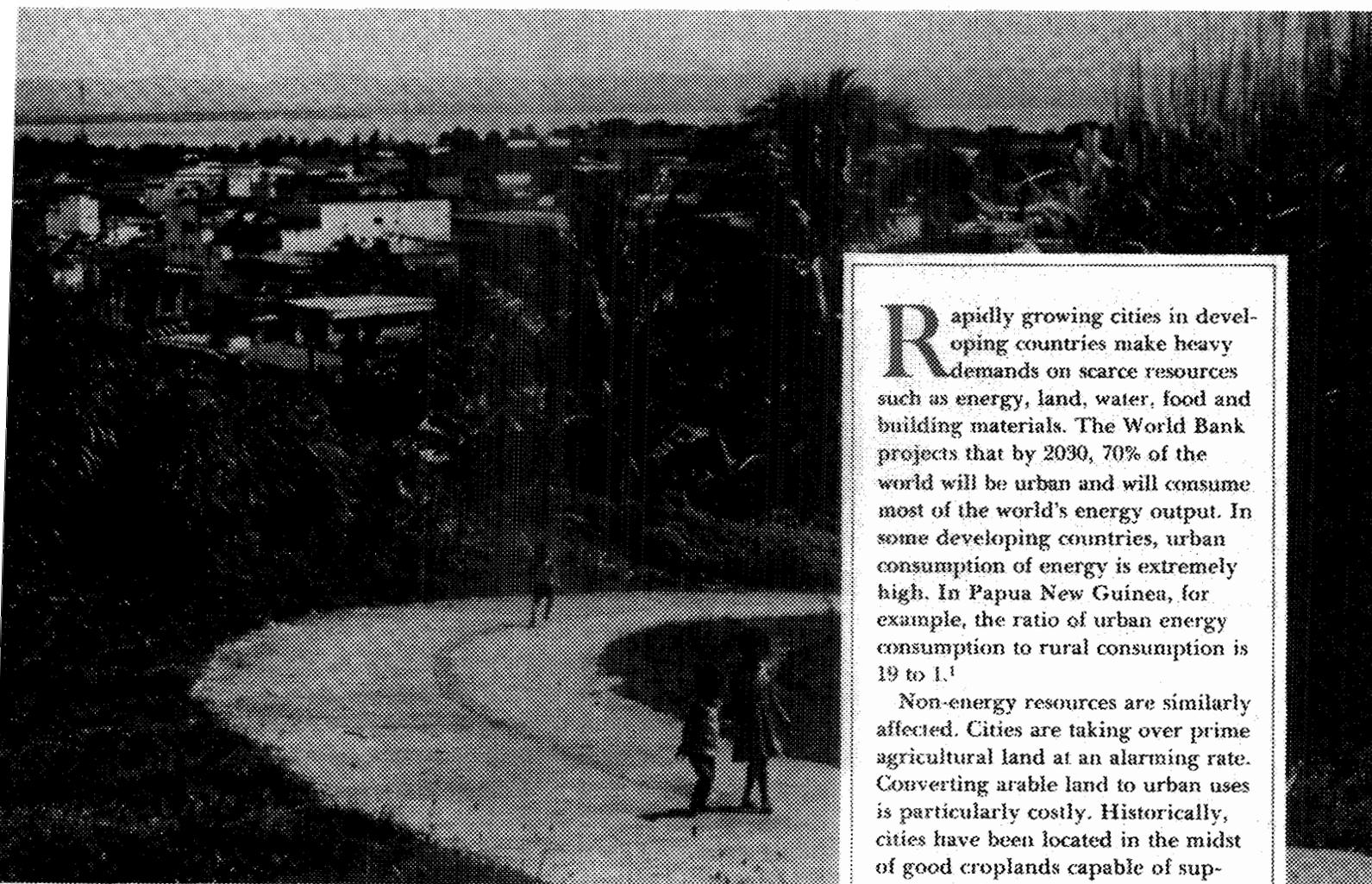
The project quickly demonstrated the advantages of land leveling. TOPRAKSU itself did not level much land, however, except for demonstration plots. Many farmers lacked the time, equipment, or incentive to do the job themselves. The project, thus, created a demand for land leveling. And private contractors spontaneously emerged to meet that demand.

TOPRAKSU encouraged the emergence of contractors with short courses on land leveling and land surveying, by newsletter advertisements for sealed bids on its projects, by paying market rates for land leveling, by renting equipment to contractors, and by licensing contrac-

tors. They are said to be skeptical of unlicensed contractors.

There is no record of the number of contractors or the amount of work by contractors, but the growth of contracting was rapid. In the mid-1960s, no contractors did land leveling. By 1982, contractors, from local farmers to big companies, were doing business regionally, nationally, and internationally (in Syria and Iraq). These contractors employ men and boys. While new jobs have been created, old jobs have not been destroyed.

The project achieved its intended effects. Productivity and employment were increased in farming, manufacturing, contracting and TOPRAKSU. However, the project's success itself



by Eric Chetwynd Jr.  
and Alan Carroll

# EFFICIENT ENERGY AND RESOURCE MANAGEMENT FOR CITIES

Applied research and  
demonstration project zeros in  
on resource conservation.

**R**apidly growing cities in developing countries make heavy demands on scarce resources such as energy, land, water, food and building materials. The World Bank projects that by 2030, 70% of the world will be urban and will consume most of the world's energy output. In some developing countries, urban consumption of energy is extremely high. In Papua New Guinea, for example, the ratio of urban energy consumption to rural consumption is 19 to 1.<sup>1</sup>

Non-energy resources are similarly affected. Cities are taking over prime agricultural land at an alarming rate. Converting arable land to urban uses is particularly costly. Historically, cities have been located in the midst of good croplands capable of supporting a large, non-agricultural population. In some countries, the process places extreme pressure on marginal agricultural lands to produce yet more food. Often, woodlands near expanding cities are depleted rapidly to meet increasing urban demand for fuelwood and building materials.

Cities can consume these resources more efficiently. Conservation, the World Bank estimates, could contribute significantly to a proposed 25% reduction in petroleum imports in developing countries by 1990. A U.S. government report states that "increased efficiency has the potential to provide major energy and financial benefits to the Third World and world markets," and yet, the report

1. Kenneth Newcomb, based on studies carried out in Papua New Guinea, in the late 1970s.

concedes, this approach largely is "ignored by international aid agencies."<sup>2</sup>

Fortunately, the situation is beginning to change. The World Bank, the United Nations, AID and others are moving, albeit tentatively, into conservation-oriented programs. One AID activity, "Managing Energy and Resource-Efficient Cities" (MEREC), is helping improve efficiency in the use of energy and other key resources in small and intermediate-sized cities—for purposes of this project, those with populations of 50,000-150,000.

#### The Case for Small and Intermediate-Sized Cities

Some experts argue that resource conservation should begin in the major cities where most of the urban resources are consumed, rather than in the small and intermediate-sized cities on which the MEREC project is focused. There is no question that resource conservation in major cities is of great importance, but it is a complex and costly proposition. Physical layout and design, growth trends and patterns, building styles, infrastructure systems and life styles already are well established. In the larger cities, significant resource conservation involves expensive retrofitting of buildings and homes, difficult changes in infrastructure systems and complex and politically costly social engineering to change attitudes and practices.

On the other hand, the number and population of small and intermediate-sized cities are growing rapidly. Between 1950 and 1980 in Africa, Asia and Latin America, their number has tripled. In almost all of those cases, their growth rate exceeded that of the national populations.<sup>3</sup> This means that the share of urban population



*Tacloban's port offers a study in contrast as traditional boats dock near modern commercial vessels.*

living in small or intermediate-sized cities is increasing.

Moreover, with limited financial resources, AID can make a greater contribution by concentrating on those cities in which basic growth patterns are emerging, in which transportation, waste disposal, water and electric power systems are in early stages of development and in which it is not too late to influence the design, layout and material content of houses, buildings and other structures.

Developing countries are giving increased attention to decentralized urbanization. Stimulating growth in smaller urban centers opens many opportunities to work on resource conservation problems at this level. As smaller cities more and more assume important roles in national economic development, their need to

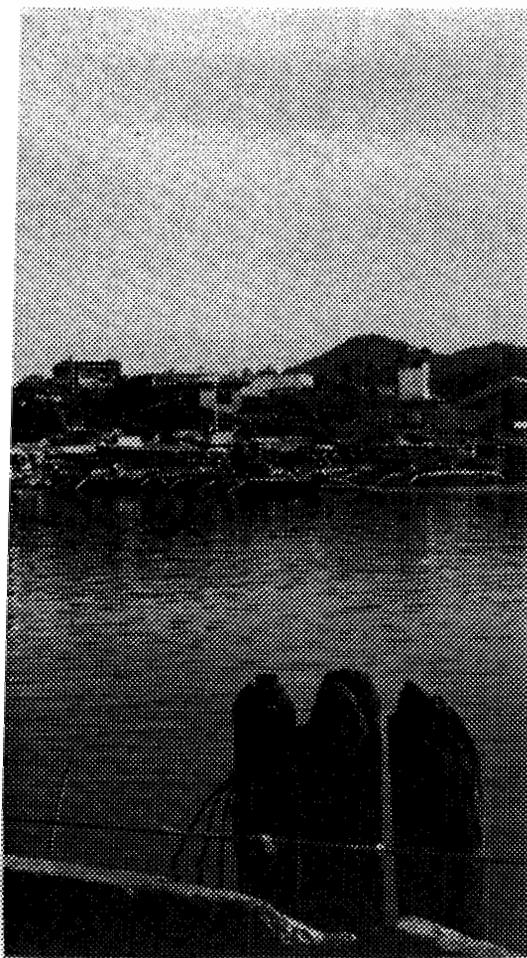
exercise efficient energy and resource management becomes more compelling. Energy and resource conservation may make an even greater impact at the local level where it is carried out as a strategy encompassing the complementary development of an urban center and its surrounding rural region. For example, urban waste products and waste water can be used for compost, fertilizer, soil conditioning and irrigation in the surrounding countryside.

#### Developing MEREC

MEREC is an applied research and demonstration project. Host-country public officials and private sector representatives in local demonstration areas develop an action plan that includes a strategy for resource and energy-efficient development of a variety of sectors. The plan contains

2. *The Global 2000 Report to the President*, A report prepared by the Council on Environmental Quality and the Department of State, Vol. 1. Washington, DC, 1980.

3. Dennis A. Rondinelli, *Developing and Managing Middle-Sized Cities in Less Developed Countries*, a monograph prepared for the Office of Urban Development, Bureau for Science and Technology, AID, Washington, DC, 1981.



a coordinated package of sectoral investment projects, studies, education and training efforts, routine information collection and analysis and evaluation.

The MEREC approach was developed through a "pre-test" in Tacloban, Philippines, a small but growing city of about 103,000 people. The Philippines was selected because the national government places a relatively high priority on energy and resource problems. Tacloban met several criteria for participation—rapid growth, energy and resource constraints, adequate local technical and administrative capacity and dynamic leadership.

Prior to adopting the conventional sectoral approach, other approaches were considered. The first would have involved the quantification of cities' energy and resource flows to

determine the magnitude of problems, and to assess the potential costs and savings of addressing them. This approach, though conceptually satisfying, would have been complex, cumbersome and inaccurate if applied to small and intermediate-sized cities in developing countries. Data would be difficult to locate, incomplete and unreliable in most cases. The effort could be interpreted locally as just another study, raising suspicions and stretching patience rather than stimulating local interest, initiative and support. Suitable methods to quantify the resource flows would be difficult to develop, as would translating the analyses' results into meaningful programs.

A second approach, the "urban ecosystems" model originally adapted for contemporary application by Richard Meier in the early 1970s, is a useful conceptual framework for understanding cities as resource-consuming systems and helped guide initial development of the MEREC project.<sup>4</sup> However, the model lacks specificity and rigor, making it difficult to teach to others and apply in the field.

4. R.L. Meier et al., *The Urban Ecosystem and Resource-Conserving Urbanism in Third World Cities*, a report prepared for the Office of Urban Development, Bureau for Science and Technology, AID, Washington, DC, March 1981. Also, Richard L. Meier, *Planning for an Urban World: The Design of Resource-Conserving Cities*, MIT Press, Cambridge, MA, 1974.

"MEREC has created an awareness in Tacloban that a great deal can be done to foster energy and resource efficiency at the local level with local initiative."

AID opted for a sectoral approach keyed to the handful of urban sectors likely to be energy and resource intensive or wasteful. AID experts felt that the land use, transportation, electric power, water and sewer, solid waste and housing sectors could be examined by local officials for resource consumption patterns and waste with minimal orientation and technical guidance from outside. The resulting information would be pulled together into a multisectoral energy and resource conserving strategy for the city. The approach's participatory nature would provide local personnel with a sense of control over and "ownership" of the project.

#### Profile of Tacloban

Tacloban is one of the fastest growing cities in the Philippines, with an annual population growth rate (1975-80) of 5.6%. The capital of Leyte province, Tacloban is a port city and serves as the principal commercial and educational center of the Eastern Visayan region. Of the city's total land area of 10,855 hectares, 18.9% is urban. The rural area includes arable land, land under permanent crops, pasture land, barren land and forest or woodlands. The climate is tropical; annual rainfall is heavy.

Tacloban is growing faster than its capacity to provide adequate services.

"The MEREC data base on land use, transportation, urban waste and other sectoral activities will be useful well beyond the life of the project."

About 70% of its population is low-income, according to unofficial estimates. There is no sewer system; the drainage system is overwhelmed during frequent heavy rains. Potable water delivery is reasonably good but fees are high by Philippine standards. Heavy rains incapacitate the system for short periods while sand filters are cleaned. Until recently, the city experienced chronic brownouts due to inadequate output by the two local power cooperatives. There is no public bus service, but extensive private fleets of tricycles and jeepneys provide adequate, though very fuel-inefficient, public transport service with no regular stops and somewhat random routes. Traffic jams during peak hours are becoming a serious problem.

The region exports large quantities of rice, but most of its fruits and vegetables are imported, despite excellent growing conditions. Most building materials are imported.

The city is governed by an elected mayor, vice mayor and city council. Principal government officers include a treasurer, assessor, engineer, health specialist, agriculturalist and city development coordinator. Regional offices of national organizations are responsible for transportation, water and sewer, electric power and the police. The mayor does not have

direct authority over the regional offices, although the offices must coordinate their Tacloban operations with city officials.<sup>5</sup>

#### Institutional Setting for the Project

In August 1981, shortly after Tacloban agreed to be the pre-test site, the mayor set up a MEREC task force, led by the city administrator, to act as a steering committee for the project. The task force was divided into sectoral subcommittees.

At the national level, the project was sponsored by the National Economic and Development Authority (NEDA), which played a monitoring and facilitating role. The Ministries of Energy and Human Settlements provided technical advice to the project.

The pre-test approach was developed during early meetings in Tacloban between the task force, AID officers and consultants. It centered on three workshops. The first workshop included the task force, its subcommittees plus Philippine energy and resource conservation consultants. The second, held in Washington, was attended by the mayor and several task force representatives as well as

5. Tacloban, Philippines, *Situation Report: Managing Energy and Resource Efficient Cities*, prepared by Tacloban for AID, Washington, DC Workshop, December 1981.



U.S. technical specialists. The final workshop produced the city's energy and resource strategy.

To prepare for the first workshop, the subcommittees produced reports describing conditions in Tacloban, identifying energy and resource consumption problems and proposing strategies to deal with them. Proposals ranged from an energy-conscious integrated transport and traffic plan drawn up by the transportation working group to a composting pilot plant and methane gas recovery program devised by the working group for water and sewers.

The land use working group recommended resource-efficient guidelines to influence future land use planning and conversion of unused land and nearby rice lands to fruit and vegetable production. The latter would help reduce heavy local import of fruits and vegetables from Cebu and Manila. It also would make produc-



*Housing in Tacloban reflects a Western influence, with little regard to meeting local needs. Roofs retain heat, there is little ventilation or shade from trees.*

tive use of organic waste generated by the city, take advantage of local technical and marketing expertise and help absorb the city's surplus labor.

The land use working group recommended consolidating planned industrial sites into one well-serviced site located near a major bus route on the city's outskirts. Earlier planned sites were far-flung with poor access, inadequate services and weak drawing power.

The energy working group recommended household and business surveys along with educational campaigns to identify specific conservation opportunities and encourage their exploitation. The water and sewerage working group recommended initiatives to increase efficiency of solid waste collection, disposal and recycling.

A preliminary state-of-the-art paper on energy and resource conservation was prepared by AID. U.S. sectoral

experts responded to the proposed strategies at the second workshop and recommended a refined set of strategies along with criteria to be applied to their further development. It was agreed that the strategy elements should be:

- cost-effective in terms of resource conservation and improved community welfare measured against life cycle costs;
- proven approaches and appropriately small-scale;
- replicable in other cities and capable of becoming self-sustaining;
- learning-based—capable of increasing local knowledge and understanding;
- manageable by the city; and
- reflective of a healthy interaction between the public and private sectors.<sup>6</sup>

6. Coopers and Lybrand, "Pre-test for Managing Energy and Resource Efficient Cities: Results of Washington, DC Workshop," December 10-11, 1981. Also, Development Analysis and Programming, Inc., "Managing Energy and Resource Efficient Cities: Project Design." January 1982.

Workshop participants agreed no action should be taken on strategy elements in the absence of adequate planning and design information and without community participation. Furthermore, it was agreed that certain "don'ts" should be observed during the initial phase: don't do anything that requires heavy capital investment, that will result in major physical change, that will require major social change or be politically risky. These criteria and general guidelines, along with the revised proposed strategy elements, set the stage for and the tone of the third workshop and prepared action plans for each sector.

#### Strategy Synthesis and Summary

The final step was to write a brief synthesis and summary of the strategy. The strategy covered general support, land use, transportation, solid waste, building design and materials, sewage, water and energy and electric power, in order of rank reflecting the relative impact a sector was thought to have on other sectors. For example, the "general support" plan contained two cross-cutting elements—a citywide resource conservation information and education campaign and a demonstration community illustrating elements of the overall strategy. The transportation sector was perceived as a web that binds and links other sectors of the city and which becomes a major tool for land use planning and implementation. It also was viewed as a sector that very inefficiently consumes large quantities of petro-energy and time, adding to price inflation.

Other strategy elements were less cross-cutting but represented areas with significant opportunities to conserve resources important to the city. Heading the list was solid waste disposal. Experts felt the community can play a significant role in improving sanitation as well as recovering and recycling waste. The key to this sector strategy was the need to increase information on current disposal practices and waste content and to convert this knowledge into specific



*Colorful jeepneys and tricycles in downtown Tacloban aggravate an already inefficient transportation system. AID will help set up an effective system that will save time and fuel without displacing traditional vehicles.*

ic opportunities for improving waste management and recycling. A series of studies, pilot demonstrations and public education programs were planned.

The energy and electric power sector deserves special mention because of its position at the bottom of the list. Frequent brownouts constrain modernization, development and the creation of new employment opportunities in Tacloban. The problem will be alleviated later this year, when Leyte's first geothermal plant is anticipated to be ready. Nonetheless, transmission system improvements and energy audits to be introduced under MEREC will cut waste and consumer costs, and provide good examples for less fortunate towns and cities.

#### Lessons of the Pre-Test

The pre-test's approach proved viable in addressing the problem of resource conservation in small and intermediate-sized cities where it is possible to begin at the local level. The approach will be refined and

improved through further application. In the meantime, the key lessons of the planning process include:

1. The approach never went beyond the capacity of local sectoral practitioners to comprehend it and to play a key role in it.
2. The group process immeasurably contributed to the acceptance of the strategy that was developed, the continued political support it achieved and the prospect that it may be explained convincingly to the general public.
3. The group process also assured continued integration of strategy sectors and elements and highlighted intersectoral linkages, requirements and opportunities for interagency cooperation.

#### The Global MEREC Project

Based on the success of the pre-test, a global MEREC project was approved in July 1982. The project provides grant funds and technical assistance for planning efforts similar to the Tacloban one and for local implementation of energy and re-

source pilot and demonstration projects. Technical assistance is provided by the Tennessee Valley Authority, which has extensive experience in working on local-level economic and resource development. MEREC has an initial life of four years with the implementation phase of the Tacloban project as the first field activity. A MEREC project in Thailand is being discussed and a third project is under consideration in Portugal.

Implementation of Tacloban's MEREC plan began with AID and the Philippines government signing a project agreement in September 1982. Implementation is the responsibility of the sectoral agencies that participated in the pre-test. The task force oversees the project.

The city's first step was to finalize the sectoral action plans and to prepare a detailed budget and implementation plan. AID is providing a \$275,000 grant plus technical support by the Tennessee Valley Authority and the global MEREC project. The city and national governments are providing additional funds and in-kind support.

Some subprojects began even before the first disbursement of MEREC funds in early 1983 (see box). Each subproject is designed to take advantage of opportunities and overcome constraints particular to Tacloban. For example, a key question for the land use plan is to what extent should agricultural lands surrounding the city proper be preserved against urbanization. The city hired a consulting firm to analyze soils and topography in the city's outlying areas, to prepare a land capability analysis and to conduct an aerial and field topographic survey of the city to serve as the basis for the land use plan, drainage works and future development projects. City personnel will participate in the surveys and will receive on-the-job training in interpreting them.

#### Project Institutionalization

The MEREC project in Tacloban deliberately avoided creating new

institutions. Nonetheless, MEREC is being institutionalized as a basis for continued coordination among local agencies. The MEREC data base on land use, transportation, urban waste and other sectoral activities will be useful well beyond the life of the project. Finally, MEREC has created a greater awareness in Tacloban that energy and resource efficiency can promote economic development, that new technologies and approaches are available and adaptable to the local context and that a great deal can be done to foster energy and resource efficiency at the local level with local initiative. For example, the mayor has launched a media-oriented public education campaign and is introducing MEREC ideas into the school system.

#### Evaluation

A special evaluation procedure is being established for the MEREC

project in Tacloban. A U.S. minority firm, Socio-Economic Systems Corp., is preparing an impact evaluation handbook for local officials and staff in Tacloban. TVA will help the city continuously monitor project impact. The handbook will establish procedures for measuring the impact of subprojects during and after implementation and will provide guidelines for comparing these measurements with baseline data and the project's original targets. It also will include procedures for calculating the cost-effectiveness of each subproject.

There is much to be said in favor of the MEREC approach on the basis of its timeliness, relevance to global energy and resource shortages and adaptability to planning and development at the local level. The results of the impact evaluations, however, will be the final factor in determining whether it is a conservation approach worthy of widescale promotion. ■

*Eric Chetwynd is chief of the regional and rural development division (RRD) in AID's Office of Multisectoral Development, Bureau for Science and Technology. Alan Carroll is MEREC project manager in RRD.*

*The authors are indebted to those who have helped make the MEREC project possible. Among them are Robert Ichord, division chief in AID's Asia Bureau's Technical Resources Office, who directed the project team to opportunities in Asia; Laurence Ervin, senior energy adviser, and his assistant, Concita Silva, in AID's Philippines mission, who guided and administered the project; Avrom Bendavid-Val, TVA subcontractor, who provided technical support to the project; Greg Haladay, who worked on the project as a Peace Corps volunteer and is now assistant project coordinator under the mayor; Steven Hadley of the Asia Bureau for his editorial assistance; and the officials and people of Tacloban, who have been key to progress achieved to date.*

## TACLOBAN SUBPROJECTS

### Land Use

- A new land use plan to identify the most productive uses for urban land and the most resource-efficient patterns of development.
- A new land use data and monitoring system.
- Promotion of urban agriculture.

### Housing

- Construction of energy-efficient, low-cost demonstration housing units designed with local materials.

### Water/Drainage

- New drainage pipes, catch basins and an oxidation pond to control runoff in the city.
- Water line testing and repair to reduce leakage.

### Waste Management

- A sanitary landfill to replace the existing open dump and create new developable land.
- Centralized containers and push carts to collect waste in an energy-efficient way.

- A biogas digester at the municipal slaughterhouse producing energy from animal and human waste.

### Electricity

- Calibration of electricity meters to reduce losses.
- Energy audits of major consumers to pinpoint electricity waste.

### Other Energy

- Research and development of a more fuel-efficient cookstove suited to local needs.

### Transportation

- A new energy/fuel efficient transportation master plan coordinated with the land use plan.
- Education campaign on energy-efficient traffic and transportation.

### Information and Education

- City-wide program of workshops, school activities, publicity and promotional campaigns on energy and resource efficiency.

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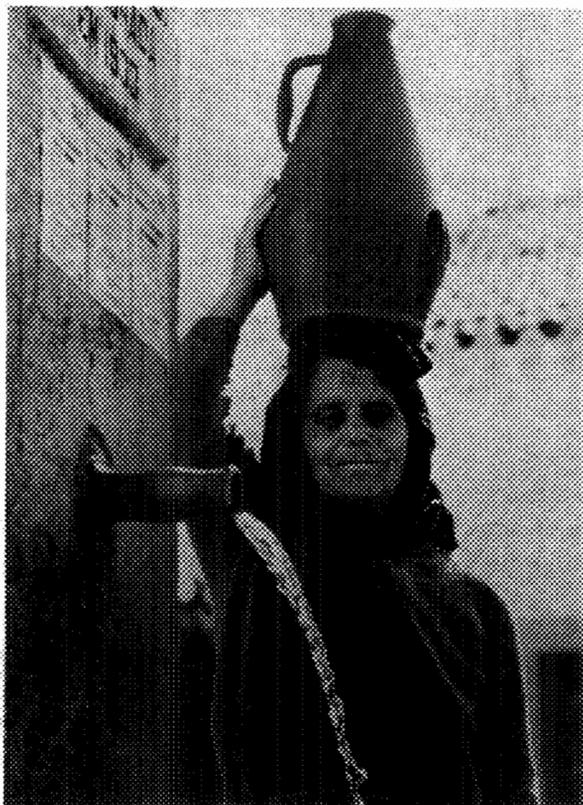
# INTEGRATING WOMEN INTO DEVELOPMENT

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An investment in human capital.

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by Deborah Ross Purcell



AID's Office of Women in Development (WID) will celebrate its tenth anniversary in 1984. This event will mark a decade of work toward balanced development—development assuring that women's needs and abilities are addressed in every phase of the United States' foreign assistance program. The process is one of increasing awareness at all levels of government—including within AID itself.

The Office of Women in Development is coming to grips with the important economic issue of women as active contributors to, and agents of, economic development. This approach—best argued in terms of dollars and cents—stresses the need to enhance women's productivity, raise their incomes, and promote their access to economically productive resources as a means of achieving overall national growth.

The major challenge for development planners of the next decade and beyond is to make more efficient use of scarce resources. Women are resources for development. They are producers of goods and services, contributing directly to national social and economic growth. If effective and productive development is to occur, the whole society must be included. Both community and national productivity will continue to lag if women are ignored.

The United States is not the only donor with an active women in development program; nor is AID the only donor organization within the United States with such a program. Yet, AID has long been a leader, both nationally and internationally, in its commitment to make women in development concerns an integral aspect of development policy and programming.

Significantly, for the first time since the establishment of the Women in Development office, the Agency issued a WID policy paper in 1982 outlining AID's strategy to promote balanced economic development. No longer will women be solely adjuncts to development concerns. The policy paper explicitly states the necessity of

integrating women into the mainstream of development policy, programs, and projects. Further, and perhaps most important, the policy paper underscores the importance of institutionalizing women in development concerns in all stages of development programming—from the design of a project to its evaluation.

AID's WID emphasis now has shifted from separate, women-specific programs to funding "interventions" which will include women in AID's larger projects.

Separate projects for women, designed and implemented over the last ten years, are being analyzed to assess the effect of gender differences on project outcome. Lessons learned from that analysis are being integrated into planning efforts for current and future AID projects. In addition, past research on WID issues is being looked at for its practical and wider Agency use.

### Greater Return for Dollars Invested

The WID office considers women's special abilities in tandem with their special needs. This dual focus enhances the probability of a greater return for dollars invested. As the AID policy paper stresses, women—who are the majority of the Third World's rural population—represent valuable resources for development:

"Therefore, to pursue a development policy *without* a WID focus would be wasteful and self-defeating—wasteful, because of the potential loss of the contribution of vital human resources and self-defeating because development which does not bring its benefits to the whole society has failed."

Agency-wide funding for WID programs has increased from \$29 million in 1980 to more than \$44 million in 1982. Separate women's projects have been found difficult to manage, beneficial to limited numbers, and generally with weak institutional ties to local ministries and governments. New Agency-wide projects have yielded greater return on investment. The perpetuation of women's isolation

from mainstream development—a problem with earlier projects—appears to be diminishing.

In accordance with AID priorities and the women in development philosophy, special efforts are underway to support projects which primarily address women's economic roles. The WID office supports various innovative, model projects, as well as ac-



tivities which result in the redesign of larger integrated projects. These innovative measures pioneer efforts to carry out more practical and effective methods of integrating women.

The importance of intervention—including women's concerns—at a project's planning stage is evident in the Rainfed Agriculture Project in Morocco. After a cooperative review of the project's design by AID's Moroccan mission and the WID office, the design team was expanded to include an additional agricultural economist. This technician will provide the mission with micro-level economic analysis using an intra-household allocation of resources model. In addition, she will analyze data collection methodology and recommend ways that reporting requirements for agricultural statistics include data disaggregated by sex. Because of this early focus on the women's role at the design stage, the project should

ultimately benefit a more balanced population and result in higher returns on AID's investment.

### Action-Oriented Research

There is a continuing need for accurate data and baseline information on women on both a regional and national basis. Information on gender-role patterns, time allocations, income needs, and income sources within the family will help project planners and increase their project's success. Recent research studies for sub-Saharan Africa, the Caribbean, and South Asia, for example, indicate that there is a pattern of separate and distinct income streams and expenditures within the developing country household. It is often women's money, not men's, that provides the basic survival needs of the family—food and health, in particular.

The WID office focuses on research directly applicable to project design. The U.S. Bureau of the Census, under a continuing grant from WID, has been drawing on existing data sources, providing AID with data disaggregated by sex, age and urban/rural residence for a variety of variables including demography, education, health, household, income, and employment. Gathering statistical data from existing sources will help AID better understand the status and roles of women in AID-participating countries. The Census Bureau has prepared a computerized data file, individual country profiles, and regional statistical profiles of women. Information on recent census samples and surveys has been compiled on such issues as women migrants and female heads of household—two frequently neglected segments of the population which often need special project attention.

Another example of research is the two volume, 14-part report on rural women sponsored by the AID mission in Nepal. Local researchers from Tribhuvan University's Center for Economic Development and Administration conducted a comprehensive study documenting the Nepalese women's

heavy workload and involvement in farm management. Data have been compiled and analyzed through field studies, household and time allocation surveys and field observations of rural women in eight ethnic communities throughout Nepal. Women in Nepal make a substantial contribution to the rural economy, particularly in the areas of animal husbandry, small-scale manufacturing and food processing. The report documents long-range implications to development regarding women's role in the subsistence sector. It also notes the critical importance of involving women in agriculture and other training programs. As a result of this study, the AID mission has been examining planned activities to see how they will affect women and how they can more effectively include women's participation.

### Investment Through Training

Training plays a strategic role in the development process. Empirical evidence shows that weaknesses in project design and implementation have caused adverse effects on women, reduced benefits accruing to them, and failed to capture fully their contribution to projects. These project weaknesses in part reflect the inadequacies of personnel skills and awareness in preparing and implementing projects.

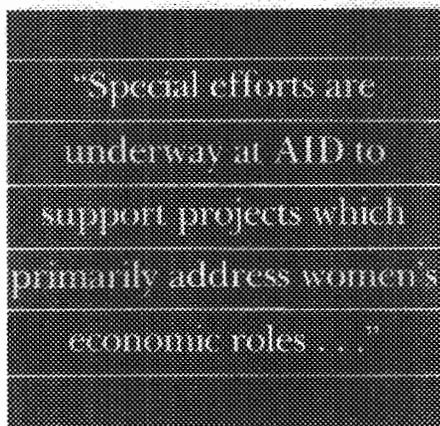
There is a wide range of training needs among policy makers and development practitioners as well as those working with indigenous social services or ministries. Personnel who manage or design programs must be assisted in recognizing the critical roles women play in the development process. Women involved in private sector activities also have training needs in business and managerial-related skills.

The following current projects address these specific audiences:

- In the fall of 1983, several training workshops will be held for senior AID personnel, consultants, private voluntary organizations (PVOs) and university representatives involved in development activities. The Harvard Institute for International Develop-

ment (HIID) has developed a series of case studies based on actual AID field projects to examine the level of women's participation, and each project's impact on women. Workshops will use the case studies to provide practitioners with a new set of conceptual skills and analytical perspective to enable them to deal explicitly with women in development issues in a broad spectrum of projects.

- Another training project is providing technical and managerial skills to women working in local ministries.



or in other rural and urban social institutions. A series of five-week workshops, conducted by the Center for Development and Population Activities (CEDPA), gives women an opportunity to examine management issues involved in women's programs in health, family planning and development; to learn how to plan, fund, implement, and evaluate community projects and how to improve their own technical skills as project managers. These workshops, conducted in Spanish and French, already have trained over 250 women.

- The International Marketing Institute (IMI) will conduct training for a different audience—the private sector. The IMI project enables 24 women from developing countries to participate in an intensive six-week Multi-national Marketing Management Program held at Tufts University. The women selected for training are employed in mid-level jobs in industry, banking, and commerce where a

knowledge of marketing, management, finance and planning skills are essential. The program will provide the 60-80 participants with the equivalent of a full year of graduate-level business education. IMI plans to conduct a one-year follow-up evaluation on the career of each female participant. Each participant's progress will be measured against standards established at the training session's conclusion.

### Maximizing Income Potential

In the past, projects aimed at increasing women's income typically have been limited, with little attention to either effective marketing or long-term viability. They have kept women in the unproductive sectors of the economy, under-utilizing their capacity and, therefore, contributing to the programs' failure.

The WID office provides technical assistance to missions to improve design, implementation and evaluation of AID projects, resulting in increased attention to women's concerns and participation of women. Since 1980, the International Center for Research on Women (ICRW) has been working with missions to do just that. The ICRW's Women's Socioeconomic Participation Project provides missions with short-term technical assistance in entrepreneurial development, vocational training, housing and small business credit, agriculture and small enterprise extension, integrated urban development, and labor force development. ICRW also assists AID missions with analysis of policy and program alternatives and with institutional assessments designed to strengthen the capability of PVOs and local governments to undertake employment and income-generating activities for women. Fourteen AID missions have received this assistance. In Peru, for example, ICRW has been developing a monitoring and evaluation component to a small enterprise credit project.

Women's economic needs can vary considerably—a point to remember at all stages of project development. An example of successful project inter-

vention is the Solanda Integrated Urban Development Project in Ecuador. A new dimension was added to the social development components of the project to provide low-income Ecuadoran women with the opportunity to participate more fully in the various urban housing activities. This new focus was the result of an early study which revealed that 40% of the urban housing applicants were households headed by women. A grant was awarded to design feasibility studies for down payment loan funds and employment options to reach the women-headed households, a number of whom were deprived of their previous sources of income given the housing displacement. This has contributed to the AID mission's decision to consider a number of alternatives—including possibly lowering the down payment requirement—so that households headed by women can fully participate in the housing project. Equally important, the new dimension to the project should eventually provide a basis that can be used in other projects in Ecuador and in other developing countries.

Another project underway is designed to advance and promote women entrepreneurs, particularly those women who have not generally had access to credit and other financial services. While a significant portion of Third World micro-enterprises are owned and operated by women, women traditionally do not have access to credit and the services of established financial institutions. This is particularly true in low-income, rural areas. Recognizing women's potential in small enterprise development is addressed through a project known as Women's World Banking (WWB). WWB is designed to assist low-income women, primarily through the generating of income and jobs. The primary audiences for this program are small, established businesses which are at least partially owned and operated by women. The program is designed to give women entrepreneurs an opportunity to increase their income base, expand their businesses, improve

their management skills and become active and knowledgeable participants in the large economic community.

### **Agriculture and Institution Building**

Women have long played critical roles in traditional production systems, particularly in growing, processing, marketing and storing food. However, their access to land, agricultural extension and services, and non-agricultural employment is severely limited. A number of activities are underway to redesign larger AID

*"To pursue a development policy without a women in development focus would be wasteful and self-defeating . . ."*

activities so that they deal more effectively with women's role in food production.

A women in development focus has been added to the design of the Rwanda Cropping Systems Improvement Project (CSIP). The project goal—increasing food availability and emphasizing market participation of small farmers—has important implications in a country where the majority of the land under cultivation is small holder farms, often headed by women. Since disaggregate household data specific to women in the region is scarce, technicians will examine allocation of resources, income, and decision-making within the household. An inter-disciplinary farming systems research team will collect and analyze household data. This will ensure an accurate profile of the target population and help identify constraints to agriculture production. Once the project is underway, women farmers as well as men will benefit and partici-

pate more fully from the farming systems approach to research and extension.

Acknowledging the substantial technical expertise at the university level, the WID office funded a grant to the South East Consortium for International Development (SECID) to establish the Overseas Technical Assistance Program. This program sends technical experts to project sites providing missions with specialized assistance on a wide range of issues. It also provides field experience to qualified female researchers and technicians. To date, 15 female technical specialists have been selected from the 34 U.S. land grant institutions of SECID to work in eight developing countries. They worked on social forestry, animal science, appropriate technology, water management, agricultural extension, plant pathology, nutrition and curriculum development. By combining women in development financial assistance with available talent from major U.S. educational institutions, development assistance technologies and resources have been redirected to those who are most likely to use them effectively and productively—missions, indigenous institutions and organizations, and especially the rural women themselves.

### **Balancing Development Objectives**

What is the cost of failing to include women in the entire development process? Women are producers of goods and services; farmers and food processors; childbearers and mothers; and educators within their own family units. To ignore their contributions to their nation's economic and social development is to lose a vital human resource in the development process. Gender roles constitute a key variable in the socioeconomic condition of any country. An effective development policy offers the optimum return on any investment—an investment in dollars and cents and an investment in human capital. ■

*Deborah Purcell is an information specialist in AID's WID office.*

## FARMERS

Women in many developing countries are responsible for as much as 60-80% of all agricultural work. In addition, most developing country women tend poultry and small livestock, and haul water and fuelwood for home use.



# WHY WOMEN IN DEVELOPMENT?

Women in developing countries play a major role in *all* aspects of society.



## ENTREPRENEURS

As producers of goods and services, women are involved in a variety of small enterprises and income activities. Their substantial contribution to national economy has been frequently overlooked, yet recent statistics show that women are disproportionately represented in the informal labor sector of developing countries.



## EDUCATORS

As educators within their families, women shape essential human resources, instructing their children in the skills and knowledge necessary for survival.



## MOTHERS

As childbearers and mothers, women are the key to influencing and controlling the pace of national population growth.



## Three AID projects aim to save tons of food lost to thieving rodents and other pests.

9%—in developing countries every year. But inadequate postharvest grain systems—from harvesting to distribution—contribute to the tremendous loss. Problems similar to the one in Frantz's Calcutta godowns exist throughout the world, including in the United States where one pair of rats living in a granary or warehouse consume about 27 pounds of food during fall and winter.

The U.S. Food and Drug Administration estimates that as much as 10% of the annual U.S. grain crop is consumed or contaminated by rodent droppings, urine and hair. Rodents continually dribble small amounts of urine. One adult rat roaming over the surface of stored wheat can contaminate as much as 10,000 kernels per day. In a U.S. study, a pair of rats voided 25,000 droppings and 1.5 gallons of urine a year. If the contamination is serious enough, the food must be destroyed. To make matters worse, contaminated grain often is mixed with clean grain as part of normal grain mixing and handling operations, increasing the amount of food affected.

A rat sheds its half-million body hairs twice a year. One rat dropping, which will dry and disintegrate, may contain as many as 200 hair fragments. Loose hairs will drift through normal air currents within a storage facility and contaminate food. Due to static electricity or the adhesive properties of urine residue, hairs often adhere to grain as it passes through



*Proper maintenance of small storage facilities made of local materials can lead to postharvest grain conservation. This godown's shape near Calcutta discourages rats.*

cleaning processes. Millers, food processors and candy manufacturers particularly are plagued with the problem because the serial screening process needed to select the gluten fraction of wheat also concentrates rodent hairs.

Vertebrate pests present serious health problems. Bird droppings, for example, are a main source of *Salmonella* and such diseases as histoplasmosis, cryptococcosis, ornithosis and aspergillosis. Some of the more common diseases known to be transmitted by rats or their ectoparasites to humans include plague, murine typhus, rat-bite fever, salmonellosis, leptospirosis and trichinosis. Rats caused the Black Plague that killed 25 million people in Europe and the Middle East during the 14th century. Nearly 600 years later, they caused a similar plague epidemic, which killed

12.5 million people in India. In 1975, 20 Americans contracted plague; four died, victims of contaminated fleas harbored by ground squirrels.

Finally, rats cause extensive damage to food storage structures and equipment. The rat's chisel-like incisors grow throughout its life; incisor length is regulated by continuous gnawing. The chisel teeth exert a pressure of 24,000 pounds per sq. in.—enough to gnaw through lead pipes and cinder blocks.

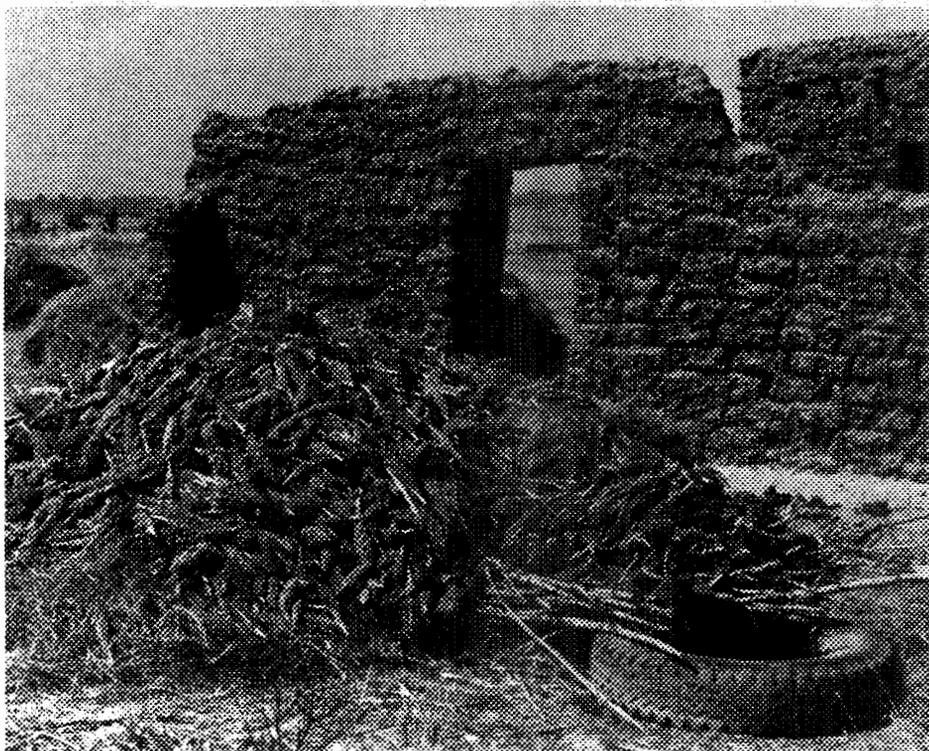
Fortunately, of the thousands of rodent and bird species, only a few threaten stored foods. Pigeons (*Columba* spp.) and English sparrows (*Passer domesticus*) invade storage facilities through unsecured openings. They also contaminate grain on drying and threshing floors. Three rat species—Norway (*Rattus norvegicus*), roof (*R. rattus*) and lesser bandicoot (*Bandicota*

*bengalensis*)—are “commensal”—they literally share our table.

The Norway rat is large—up to 500 grams. Extremely aggressive, it is the number one rat pest in the United States and an international nuisance. The roof rat is a fleet, nimble climber that dwells mainly in rural areas and seacoast towns. The lesser bandicoot rat is the most prolific of all rats, pro-

weighs less than an ounce and can enter a structure through any opening larger than one-quarter inch. It begins to have litters of five to eight young at only 1.5 months, annually producing up to 10 litters.

Although technology to solve many of these vertebrate problems exists, much work remains to be done. In its rodent damage survey of crops and



*This pile of sorghum, left by a Chad farmer in a field for later storage, is exposed to alternating heat and moisture as it lays in a heap day and night, leading to the grain's cracking which in turn leads to further losses during processing.*

ducing a litter a month, seven pups per litter. One pair can easily produce 3,600 descendants in a year's life span even if half of the young die before sexual maturity. The bandicoot feeds in grain fields as well as granaries, hoarding in its burrow four to eight times as much as it devours on the surface.

One Bangladesh farmer dug up a bandicoot burrow and found 32 pounds of stored food.

The most troublesome rodent in the world may be the common house mouse (*Mus musculus*)—also commensal. An adult is only about six inches long from head to tail tip,

postharvest losses in tropical and subtropical regions, the Center for Overseas Pest Research and Tropical Products Institute in London found “widespread ignorance of the magnitude of the rodent problem.” The center stressed the need for surveys to obtain realistic assessments of rodent-caused losses in stored products, research to find rodenticides suitable for use by illiterate farmers, development of inexpensive rodent-proof storage containers and extension programs to transfer awareness of the rodent problem and information regarding suitable control techniques to the farming population.

#### AID Postharvest Efforts

These objectives are similar to those of the Department of Interior's Denver Wildlife Research Center (DWRC) which has cooperated with the Agency for International Development (AID) since 1967 to reduce preharvest food losses due to vertebrate pests. The center has expanded its technical assistance and research programs to help reduce postharvest losses. AID also has agreements with two other institutions to reduce postharvest losses and conserve food—the University of Idaho and Kansas State University. While AID has been concerned with postharvest losses for several years, its attention has increased in response to a 1982 U.S. General Accounting Office report that said “AID should change its agriculture policy to recognize food production and food conservation as complementing rather than competing functions. . . .”

DWRC is one of the leading world research centers of preharvest vertebrate pest damage problems in agriculture crops. Its projects have resulted in considerable savings for African, South and Southeast Asian and Latin American countries. For example, emphasizing practical control methods to fit existing operational programs and institutional capabilities, cooperative work between DWRC and the National Crop Protection Center in the Philippines resulted in the development and extension of an effective method (sustained baiting with anti-coagulants) to reduce rodent damage to lowland rice on small farms. In Bangladesh, a campaign using zinc phosphide bait cakes is helping prevent rat damage to wheatfields. Similar successes have been achieved with rats damaging sugarcane and coconut crops. Chemical repellents and other management methods developed or adapted by DWRC are used on bird problems.

The center's postharvest emphasis is on storage, particularly to find ways to mesh vertebrate pest management activities with all other postharvest



*Rats contaminate or hoard two to three times the amount of grain they consume, and transmit up to 23 human diseases.*

loss-reduction efforts. DWRC scientists have undertaken an extensive literature survey, analysis and evaluation. In Bangladesh and the Philippines, DWRC workers and host-country counterparts have initiated loss surveys, tried some small-scale loss-assessment techniques and conducted trials of loss-reduction techniques. Similar studies are scheduled for Haiti. DWRC may soon expand its work into Pakistan.

The improvement of postharvest grain systems is the aim of the Kansas State University Food and Feed Grain Institute (FFGI) project. Working on durable food products, FFGI's goal is to improve harvesting, threshing, dry-

ing, cleaning, storing, transporting, processing, packaging, marketing and distributing of cereal and leguminous grains and products. This is at the small farmer and village level, at buying points and at collection, central storage and distribution levels. Training in all areas is emphasized.

Efforts to reduce losses due to physical factors, such as excess moisture content, and losses due to molds and stored-product insects are FFGI's main considerations. The institute's extensive economic analyses of postharvest grain systems are designed to lead to improved developing country grain marketing and food security. Opportunities for increased agribusiness

development involving grains are another frequent result. AID officials anticipate that FFGI and DWRC will collaborate, especially on controlling insect and vertebrate pest problems in storage.

The goal of the University of Idaho Postharvest Institute for Perishables (PIP) is to improve fruit and vegetable storage and processing. By reducing postharvest losses, the availability of fruits, roots, tubers, spices and other vegetables will be increased. By improving marketing efficiency, the cost of these commodities will be reduced and agribusiness development in perishables will be encouraged. Perishable losses, postharvest processing, ef-

efficient domestic and export marketing and conservation of fruits, roots, tubers, and vegetables are the targets of PIP's technical assistance and training efforts. Losses of these commodities due to vertebrate pests most likely will lead to requests for cooperative work with the DWRC.

All three projects—whose activities fall within AID's agricultural research priorities—are committed to minimizing environmental concerns and to developing integrated post-harvest pest management, using pesticides only when needed and in a safe, effective manner. Each project uses an interdisciplinary approach

home or village storage, grain movements from farmers to brokers to large centralized facilities often dictate the way the structure is constructed, and the method and length of storage.

Climate is an even more important factor. Environmental conditions play a crucial role in determining the difficulties and complexities of storing produce. In the temperate zone, long periods of cool, dry weather after harvest make grain storage relatively easy. But storage becomes more difficult in the tropical zone where long periods of warm, humid weather frequently prevail.

gered and the embryos start to grow, drawing nourishment from nutrients—starches and proteins—stored in their endosperms. The grain mass begins to warm. Insects and molds and microorganisms frequently present in the kernels become active, producing more heat and moisture. Deterioration and rotting of the grain is soon visible, with some fungi forms producing toxic products such as aflatoxins.

Even after drying, humidity can continue to be a problem. For example, as relative humidity rises from 70% to 90% for a prolonged period, the moisture content of yellow corn gradually increases from about 13.5% to 19%. Moisture may be absorbed directly from the atmosphere by the stored grain or, in some storage structures, may condense on the walls and ceilings on cooler evenings. The moisture is absorbed by bulk-stored grain as the temperature changes. Rodent and birds seem to prefer sound grain, but are not adverse to eating moist and moldy grains.

Reducing moisture in harvested grains before storage often is a formidable task in humid areas. Drying techniques, such as spreading thin layers of grain on the ground; drying it on the stalks, on elevated platforms or over open-pit cooking fires; and sophisticated fan-driven aeration systems, merely offer additional opportunities for rodent and bird attack.

Any management methods to improve storage or processing must be compatible with practices that guarantee low-moisture levels. For example, in the tropics, grain is commonly stored in jute or burlap sacks to allow for air circulation and to lessen "hot spots." However, the spaces between sacks provide rodents harborage. Fabric is shredded for nesting and bedding.

Integrated approaches are essential. Properly applied fumigants can temporarily eliminate insects and rodents from storage structures; rodentproofing can be designed into



*Rats are pernicious and prolific pests. Only a few species threaten food stored by man but they cause millions of dollars in damage and are incredible health hazards.*

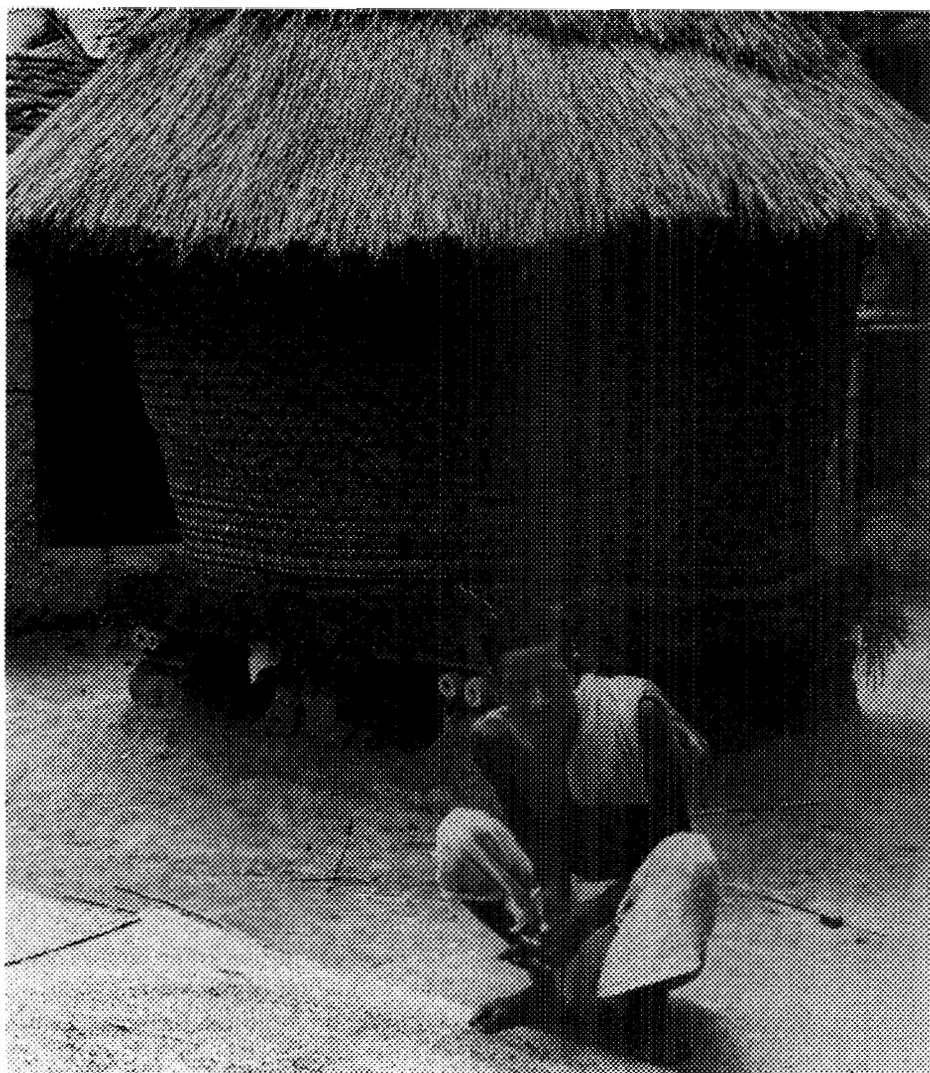
and each has strong information-sharing and institution-building components. Developing country professionals and experts request and receive research, technical, extension and review papers to assist them in their work. Many travel to the institutions for short- and long-term study.

#### Handling and Storage Factors

As the three institutions go about their work, they consider the factors that dictate why a food is handled and stored in a particular way. Marketing systems, including

High temperature and humidity can rapidly deteriorate stored durables. Together, they lead to mold formation, rapid growth of insect populations and oxidative changes in the grain. Stored grain generally should have less than 14% moisture; 12% is ideal.

Seed embryos are sensitive to temperature and humidity. As long as both factors are low, the embryo remains inactive but viable and the grain can be stored for years. But as temperature and humidity increase, viable embryos become active. Metabolic heat and moisture is trig-



*An Indian farmer proudly poses in front of his well-designed, effective jute and straw godown. Postharvest storage construction also creates local jobs.*

simple storage structures; sanitation programs can include both insects and rodents. For example, a study of Ohio grain elevators found that rats were consuming 25% of farmers' annual net profits. A small investment in sanitation maintenance resulted in an annual savings of several thousand dollars in both rodent and insect losses.

One often overlooked factor in developing postharvest food-loss programs is the migration of rodents between field and storage structures. This is an important part of DWRC's Bangladesh and Philippines studies. In India, baiting and sanitation practices have been combined to carry out successful campaigns in the fields, in homes and in storage facilities. Rodent problems were drastically reduced as long as people participated in the program. The field-storage migration factor should be considered when deciding where to locate storage structures and when

developing marketing systems.

The need for a comprehensive loss assessment effort is great. Only recently have any serious attempts been made to establish reliable and replicable loss-assessment methods. A 1977 bibliography on postharvest losses in cereals and pulses showed only 11 studies related to three countries outside the United States. Many estimates have been highly inflated and fail to identify the true source of losses.

The loss situations in farms or villages are perhaps the most ill defined of all. Because 70-90% of the cereal grains produced in many developing countries are stored and consumed on the farm, this sector requires urgent attention. One exception is Bangladesh, where grain losses at the farm level are far lower than had been assumed thanks to the development of efficient storage systems by subsistence farmers over the centuries.

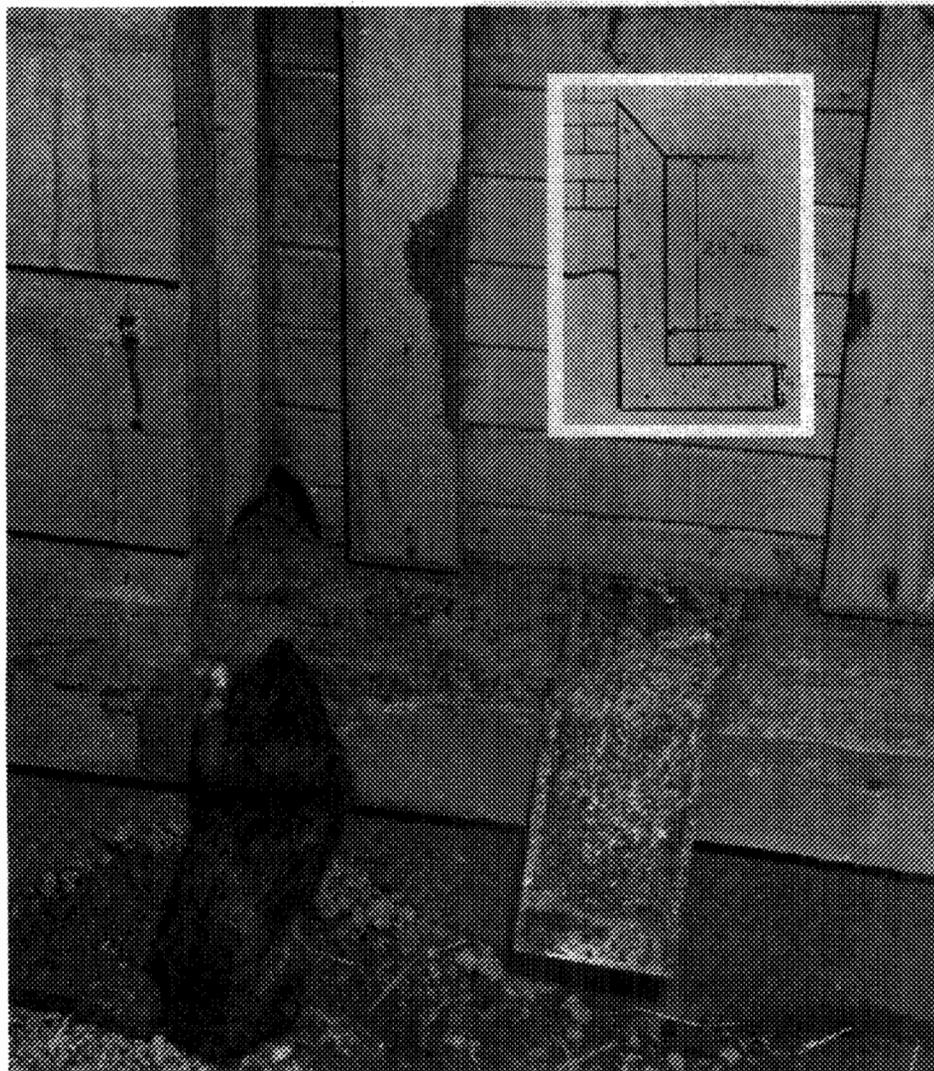
After postharvest food losses have been appropriately assessed, several problems remain: a multidisciplinary appraisal of the problem and recommended solutions; careful consideration of socio-cultural practices affecting the problems and their solutions; field testing for technological and economic efficiency; redesign of manufacturing or construction of storage facilities using existing capabilities; operations research involving use of new technology to help government planners, policy makers and central management make sound decisions; and training manpower and developing an extension system. It is important to extend the technology to women who frequently are responsible for storage.

#### Appropriate Solutions

After defining the postharvest food loss problem, appropriate technological resources must be adopted to solve it. Technological capabilities are available to handle most loss situations and there are examples of well-coordinated and executed campaigns that have been highly successful in developing countries, particularly in South Asia. The immediate need is to identify and organize the existing resources, especially with respect to vertebrate pest problems, and to apply the best ones for a given problem.

In the meantime, existing technology is being expanded and "fine-tuned" by ongoing research. New or improved control methods are being developed for vertebrate pests at the DWRC and elsewhere. At the DWRC, technicians are investigating alternative chemicals and working on more palatable baits and biologists are improving baiting techniques. Several other concepts involving physical (structural, ultrasound, electric, etc.) or chemical methods are being evaluated for protecting foods from vertebrate pest losses.

Existing new and improved methods for preventing food losses must be adapted to a country's crops, climate, as well as cultural, economic



Wooden or even metal doors fail to deter rats from reaching their objective. When a rat burrows down the side of this barrier (inset), it will reach the bottom and give up, thinking it can't get under or around it.

and technological conditions. Technological skills and resources will be of little use in reducing post-harvest food losses unless they are effectively transferred to users. A major DWRC goal is to develop effective training and extension programs that can be readily adapted to a given situation in any country. National extension leaders must be selected and trained to carry out campaigns involving users at the village and farm level. Training manuals, aids and materials should be developed not only for these leaders but for the farmers and villagers they will instruct. For example, photonovellas, similar to U.S.

comic books, have been very effective in training farmers and villagers in Latin America. Where appropriate, materials may be developed for radio and television.

Such a campaign is being conducted in Bangladesh by a cooperative AID/DWRC and German technical assistance project. The campaign is carried out in 11 wheat-growing districts, covering 85% of the wheat crop. The main components of the campaign are training protection and extension specialists; creating awareness among farmers through the use of posters, leaflets, radio and television; distributing inexpensive zinc phosphide

rat baits; and declaring national rat-control days.

Postharvest food losses can be reduced. Success is evident by successful campaigns in India and the development of an improved storage bin—the “Ferrumbu”—in Zambia, which is made from indigenous materials, making it affordable by small farmers. DWRC researchers and extensionists may be challenged again soon by the problems of small commercial farmers in the northwest part of the Central African Republic, an environment amenable to rodents and in which rats are a main source of the estimated 25-30% annual postharvest loss of food grains.

The three AID projects can help other developing countries enjoy similar successes. Equally important, the money saved by the three institutions working together on a problem will be multiplied as countries replicate the resulting technology on their own.

AID-assisted efforts to reduce post-harvest food losses are helping developing country farmers save millions of pounds of food—to help feed the 250 million chronically hungry people—that would otherwise be lost to pests and inadequate storage and processing. ■

*Roger Bullard, a research chemist specializing in the use of food in vertebrate pest control and in postharvest vertebrate pest control, is with the Section of Supporting Sciences at DWRC. Harlan Shuyler, an agriculturalist specializing in pre- and postharvest food loss reduction, vertebrate pest control and grain storage, is in AID's Office of Agriculture, Bureau for Science and Technology. Shuyler is project officer for the collaborative agreement with DWRC.*

*The two scientists together claim 49 years of experience in their respective fields of expertise.*

*Also contributing to this article was Alexanderina Shuler, technical information specialist in AID's Publication and Information Division, Bureau for Science and Technology.*

# POLICY PROFILES

AID drafts blueprints for  
U.S. economic assistance.

by Edwin L. Hullander



The brightly colored, red, white and blue jackets that cover AID's policy papers are designed to catch the eye, to be easily recognized, to be accessible and, above all, to be used. AID's policy papers are visible. They can be seen in use both inside and outside the Agency—from desk tops in AID, to conference tables in senior staff meetings, to congressional offices.

Over the past year, AID has been preparing a series of policy papers—along with briefer, narrower-in-scope policy determinations—which reflect AID's stance on major development issues. At present, the Agency is mid-stream in this process. Fourteen policy papers and seven policy determinations have been published, with plans for 36 more next year.

One of the main purposes of revising the policy papers is to shed some light on the way in which this country helps others. Each year, billions of taxpayers' dollars are earmarked to help poorer nations develop and grow. The way in which AID manages this task should be well-known and widely accepted. Helping countries help themselves requires changes that are often difficult to make and even more difficult to sustain. It is only fair that all parties know where AID stands on providing assistance for these changes, what it expects from the recipient countries, and what the United States is willing to provide. The policy papers are one vehicle for making these points known.

Early in his Administration, President Reagan set a clear direction for U.S. development assistance efforts. The Administration has delineated

that policy by focusing AID's efforts around the development of a policy dialogue with the host countries that promotes institution building, the transfer of technology and the development of private enterprise as an integrated part of economic growth and development. These concepts cut across all areas of foreign assistance—how they fit together is the task of the policy papers.

For many years, AID's work was "hidden under a basket." While bringing about tremendous change throughout the world, few knew or acknowledged AID's achievements. The way in which these changes were brought about was not even shared with colleagues. The Agency's policies had not been reviewed in several years. They were incomplete, inconsistent and, most important, did not reflect the world as it is today. Clearly, a means had to be devised to focus the thoughts of the Agency on what it is trying to do and how it does business.

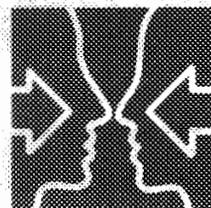
To this end, the policy papers were conceived as a vehicle to focus AID on the process of policy making. The process was envisioned as one where a broad base of inputs would go into forming the policy documents, followed by a number of case studies, examples or other means of further defining and articulating policy and modifying guidance. This policy process was viewed as a continuous effort, requiring the Agency to be ever prescient of its objectives and how it is achieving them.

The policy papers required a broad-based agreement both within the Agency and from the public. In getting this consensus, AID aims to maintain the creativity and vitality of this fresh look at the task, and guard against letting the negotiation process lead to a product that is the lowest common denominator. Much of the vigor reflected in the papers is achieved by drafting them within AID's Bureau for Program and Policy Coordination, from a common perspective, and then circulating the drafts for comment within the Agency and to the public. The comments, both pro and con, are shared and presented to the AID Administrator and senior staff. It is not surprising that the review process has improved the quality of the policy papers and has brought about a better understanding of the Agency's work.

Publishing the policy papers is only the beginning. Once it was decided what to do, how to do it was another matter. The first group of policy papers—for which skeletal summaries follow—serve as the sounding board for AID's decision-making process. When country strategies, annual budget submissions and individual

projects are developed, they are all reviewed for adherence to Agency policy. Since the policies were developed around a broad base of support, this review is a way of putting the policy into practice.

But the step from stating a policy to applying it in any given country is great. To gather and disseminate knowledge and experience gleaned from one country and apply it to another, AID is preparing a series of case studies and examples of how the policies are being carried out under varying situations. This growing body of knowledge will further clarify the scope and dimension of the policies. This policy focus has become an active part of the Agency's decision-making process. It is being reflected in the Annual Budget Submission (ABS) that links the regional strategies and the Country Development Strategy Statements (CDSS) and is providing the continuity between the strategy and the actual program implementation plans. By using the policy guidance as the linch-pin for the Agency's action plans, AID can chart a course for AID missions' performance. This is the real challenge—to learn from the successes as well as the failures, to improve policy without losing sight of objectives, and to engage the best thoughts and energies of Agency staff.



## Approaches to the Policy Dialogue

The soundness of economic and social policies in recipient countries is a major factor in the effectiveness of AID projects. The U.S. economic assistance program, therefore, should provide incentives for sound economic policies—and disincentives for counterproductive policies—in recipient countries.

Accordingly, AID is working to build and strengthen a framework for constructive, realistic and effective interaction with host governments and with other donors. The process is called "policy dialogue."

The success of policy dialogue depends on familiarity with the recipient country situation and on the persuasiveness and economic validity of the arguments for AID-preferred policies.

Conditions or understandings must be fully consistent with their purpose. This calls for formulating conditions tailored to specific circumstances, to the recipient country and to the donor's expectations—preferably formally rather than implicitly.

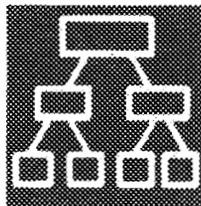
Whenever possible, assistance programs should include periodic, rather than one lump sum, disbursements. The resulting built-in mechanism, which allows for periodic review of country policies, sets the stage for policy dialogue. Where a pre-determined disbursement is not feasible, a project milestone should present an opportunity for performance review.

In cases where direct dialogue is severely limited, indirect means of promoting policy improvements still may be available and should be considered. These range from helping build up an analytical and institutional capacity to scholarly exchanges, conferences and support for applied research on policy issues.

The dialogue must be characterized by mutual respect, recognition of each other's legitimate interests and constraints, and a cooperative, nonconfrontational tone.

Among the principles important in determining a dialogue's effectiveness are:

- there should be close coordination with other U.S. government agencies;
- specific key priorities must be identified;
- policy dialogue must be carried out on a sustained, long-term basis; and
- guidelines require a competent, knowledgeable staff to deal with host government representatives and other donors.



## Institutional Development

Institutional development should be addressed as an issue in all projects, and should not be seen as a special activity of its own. This does not preclude support to particular institutions (e.g., regional management training entities) where the focus is in fact institutional development. Although analysis of institutional issues is required in all AID projects, no special

institutional development effort is required where concerned institutions are demonstrably strong.

Weaknesses in complementary institutions must be addressed since a weakness in one institution, such as extension, may inhibit the effective development role of another institution, such as a research agency.

Institutional development must encourage institutions that are flexible and which can adapt to changing local and national needs. This entails building effective information-handling systems, strong analytic capacities, and close linkages to client or user groups. Well-functioning markets will support this goal as well.

The active participation of the final user must be included in the needs assessment, and in the design, implementation, and evaluation of field programs. This helps to ensure that AID-supported institutions will meet their own goals, be relevant to local needs, and become self-sustaining. Where possible, these methods and objectives should be realized through development of private sector institutions.

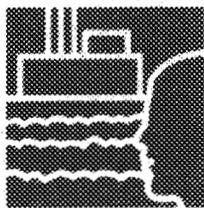
Institutional development must be aimed at providing people with increased ability to acquire essential resources, and greater opportunity to apply these resources in rewarding ways. This can often be achieved by reducing the role of government and expanding the role of the private sector in development.

Private sector options for institutional development must be considered carefully. Experience has indicated that with the exception of such areas as basic public administration, major transportation infrastructure, and certain aspects of agricultural research, public preventive health measures, and basic schooling, private sector options are both less costly and more responsive to clientele. At the same time, it is often more innovative, dynamic, and efficient, than public enterprise. Where there is a choice, AID encourages and supports institutional development options in the private sector and avoids activities that explicitly or implicitly preempt private sector options.

Specific institutional development activities may include any or all of the following: analysis and reform of the policy environment; consideration and introduction of organizational alternatives; development of institutional learning capacity; improved transfer of knowledge and technology; analysis and improvement of institutional linkages and coordination; improvement of management systems and informal determinants of employee behavior; provision

of skills and training, and support for increased popular participation in design, implementation, and evaluation of development interventions.

To undertake effective institutional development, AID anticipates greater use of long-term financial commitments (five to 10 years or more) and greater use of recurrent cost support, carefully gauged to generate institutional development rather than dependency.



## Private Enterprise Development

To develop private enterprise, AID activities focus on one or a combination of four priority sectors: agriculture, agribusiness, small- and medium-scale industry, and privately operated service enterprises. However, these sectors are not exclusive.

Empirical evidence shows rapid economic growth typically is accompanied by reductions in absolute poverty. And, over time, allocation of resources through competitive markets is fairer and more equitable than allocations made by government.

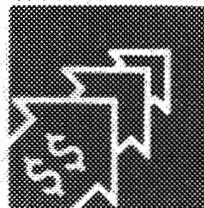
Developing country governments can discourage private enterprise—by producing goods and services that the private sector could produce more efficiently or by imposing price controls and regulations. There is, however, a legitimate role for the public sector. This includes providing public goods and services, goods and services involving externalities in either production or consumption, or undertaking high-risk, large-scale investments with long gestation periods such as irrigation systems.

Key constraints to private enterprise development that AID aims to alleviate are:

- inappropriate government policies;
- an overly burdensome legal and regulatory framework;
- weak capital markets and other institutions;
- inadequately trained labor and management;
- thin capital resource flows; and
- an inadequate flow of appropriate technologies.

The primary focus for AID's assistance to local private enterprise is to improve the way

that markets function in developing countries. AID facilitates participation by U.S. private enterprises in this process.



## Recurrent Costs

Many less developed countries do not allocate enough money to finance the recurrent costs of their development investments. Recurrent, or variable, costs are those expenses that recur—such as salaries, utilities, maintenance, materials and replacement of worn-out capital—as opposed to capital, or fixed, costs, concentrated at the beginning of a project. A recurrent cost problem exists when countries fail to pay recurrent costs of old projects while starting new projects, even when to do so clearly promises a greater rate of return than the investment in a new project. If \$1 spent on repairing a road increases agricultural output by \$2, while \$1 spent on a new road increases it by only \$1.50, then available resources should be spent repairing the road.

Such a problem occurs either because of LDC government policy failures or donor policy failures. Developing country policy failures can be grouped into three broad categories: inability to raise adequate revenues, misallocation of public resources between capital and recurrent budgets or among expenditure sectors within the recurrent budget; and project design failures or public policy failures that reduce the likelihood of a project's success.

Sometimes, a developing country cannot finance recurrent costs because it cannot raise sufficient resources. This may be because users are not charged for government services, such as health, education, veterinary services, agricultural extension and water and sanitation.

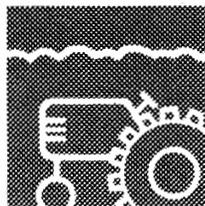
Even when governments have adequate revenues, they are often allocated poorly. Certain sectors may be underfinanced because of political pressures to channel funds to other sectors. In some cases, the cost of government services is too high either because of excessive salaries for government employees, or because of inappropriate technologies.

Donor policies, too, may lead to overinvesting in new projects, while underfinancing the recurrent costs of existing ones. For many poor countries, the funds available for new capital projects, because they come largely from concessional aid, are more plentiful than funds for financing recurrent costs which come largely from domestic resources.

AID can respond in four ways, depending on the causes of the recurrent cost problem: design projects so as to improve cost recovery, engage in policy dialogue where appropriate, finance recurrent costs directly, or reduce assistance to the affected sector or country.

Direct funding of recurrent costs is justifiable only under fairly narrow conditions:

- an acceptable policy framework or movement toward such a policy framework;
- assurance that recurrent cost support has higher development impact than new investments;
- the inability of the host country to finance recurrent costs; and
- existence of a carefully phased plan for shifting the entire burden to the host government.



## Food and Agricultural Development

AID policy in this area has four inter-related elements: improved country policies; accelerated development of human resources and institutional capacities; expansion of the role of developing country private sectors; and integration of P.L. 480 food aid with other assistance tools in a way that contributes to the other three elements.

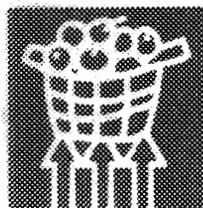
AID seeks to concentrate assistance in those countries where an appropriate policy framework already exists or where there is a commitment to improvement. In addition, AID will discuss intended policy changes with developing countries and provide technical assistance and training to improve countries' policy analyses and planning capacities.

AID continues to support basic and adaptive research, training and technical assistance by U.S. and regional institutions as well as international agricultural research centers. Adequate training for professional and technical staff, farmers and skilled workers is stressed. Collaborative

projects are coordinated closely with efforts to improve national systems. Information-sharing networks between institutions are being strengthened.

To realize the private sector's potential, AID is identifying private and public institutions such as banks, technical institutes and trade associations through which technical and financial assistance effectively can be provided. AID is encouraging use of the U.S. private sector—consultants, universities, and resources found in agribusiness, firms and farmer organizations—as a means of stimulating broadly based food and agricultural development.

AID seeks to improve the impact of both P.L. 480 commodities and local currency proceeds on food and agricultural development, including their integration with other U.S. financial and technical assistance.



## Pricing, Subsidies, and Related Policies in Food and Agriculture

Some existing policies hamper key industries supporting agriculture. These policies include price controls, fiscal subsidies, and governmental interventions in marketing and distributions, such as rationing.

By imposing price controls, governments deprive those industries of sales revenues needed to cover costs. Fiscal subsidies—usually ineffective revenue substitutes—tend to be both too little and too late. Furthermore, subsidized industries, many of which are run by the government, do not have effective incentives to reduce costs or to provide services, such as timely delivery and quality control, to customers. Regulations adopted to remedy such problems are seldom effective and are frequently costly.

This performance contrasts with the potential efficiency of a market-oriented system in which private firms are forced by their dependence upon sales in a competitive market place rather than upon subsidies to minimize costs and to satisfy customers by efficiently providing goods and associated services.

The effect of price controls and associated subsidies on income distribution has not gen-

erally been desirable. Many subsidies to producers or distributors of goods and services are intended to reach the final user of the goods. To make sure this happens, price controls or distribution controls, such as rationing, are usually adopted. Particular groups are usually pinpointed as targets for the benefits—in some cases because they are politically influential rather than needy.

In fact, such governmental policies seldom work as planned. Price and distribution controls frequently are evaded. This is abetted by the artificial scarcity that arises when suppliers become dependent on unrealizable fiscal subsidies. As a result, many times the benefits of subsidies and controls are received by relatively prosperous groups who would have bought the goods even at higher prices.

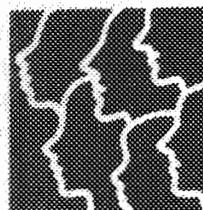
The net benefits of these policies are much smaller and may be distributed differently than the gross benefits from purchases made at controlled prices. Basically, this is because price controls and fiscal subsidies may not reduce the true costs of goods and services. They merely shift the financial burden—initially to the fiscal system.

Eventually the burden reverts to the public. Taxes may be raised, or credit may be diverted to the government, which raises the costs of borrowing and the prices of goods produced with borrowed capital. The government's debt may result in more money being printed, which contributes to inflation and raises the prices of all goods. Alternatively, the government may pay for the subsidies by diverting governmental funds from other uses—an implicit cost of the subsidies.

In the end, the intended beneficiaries may bear much of the costs of the programs, leaving them with little or no net benefit. In general, however, it is practically impossible to calculate the true distribution of net benefits.

AID's pricing policy states that real costs matter and that the pricing system should be used to measure these costs so that private, governmental, and donors' resources can be used efficiently.

Where specific groups have special, unmet needs, such as severe malnutrition, resulting from distributional problems, these needs should be met through direct services, where possible, rather than through inefficient, indirect and undependable means such as price controls and associated subsidies. AID encourages host governments to modify such policies where they exist.



## Population

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AID continues its strong commitment to voluntary family planning programs as an essential element of U.S. development assistance.

The objectives of AID's population assistance program are: to enhance the freedom of individuals to choose voluntarily the number and spacing of their children; and to encourage population growth consistent with economic resources and productivity.

The principles upon which AID support is based are voluntarism and informed choice. AID will not support programs in which there is coercion to practice family planning or to accept any particular method of contraception.

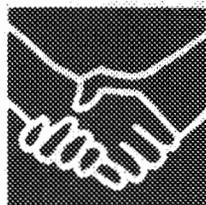
Family planning programs tend to be successful where there is a strong government commitment, an infrastructure to deliver services countrywide and social and cultural acceptance of family planning.

Among the constraints to effective population assistance are: weak or inconsistent government policies; regulations which inhibit efficient contraceptive distribution; inadequate service delivery infrastructures; and social and economic conditions which militate against acceptance of family planning. Government-to-government discussions on host country policies, greater private sector involvement, strengthening of institutional development and transfer of technology are important means of addressing these constraints.

Recognizing the linkages between fertility reduction and health, nutrition, education, employment and agricultural productivity, AID seeks to coordinate development efforts with the availability of family planning services so that the two are mutually reinforcing.

AID support for family planning services includes: commodities, training for physicians, paramedicals and fieldworkers, technical assistance in the design and improvement of services, biomedical, social science and research and the dissemination of information and education.

Assistance for population activities is governed not only by AID policies, but also by legislative requirements. For example, use of U.S. government funds for abortion is prohibited and all AID-supported sterilization programs must be shown to be truly voluntary. Legislation also calls on AID to provide natural family planning methods where appropriate.



## Private and Voluntary Organizations

Private voluntary organization (PVOs) are both a partner with AID and a resource in a variety of international development assistance programs. PVOs contribute to an extension of AID's own effectiveness and scope of activity. Their approach to addressing development problems is characterized by community involvement and cooperation with indigenous grassroots organizations. AID and PVOs share the fundamental objectives: to assist people in developing countries improve their skills and capabilities to address their own development problems; and to build democratic institutions that will enhance their participation in development.

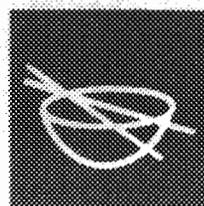
AID objectives in relation to PVOs include:

- increasing the economic development impact of PVO programs through increased program integration and focusing resources on field programs;
- discouraging dependence on U.S. government financing of the PVOs' international development programs by introducing non-U.S. government cash funding requirements in grant relationships;
- reducing the administrative cost of AID programs to both AID and PVOs by simplifying management and administrative procedures and by creating a central focal point for PVO relationships with AID within the Food for Peace and Voluntary Assistance Bureau; and
- insuring that AID funds are used in ways that reflect AID's legislative mandate, yet do so in a way that calls into play such unique capabilities of PVOs as their knowledge of the local situation

and their programming and managerial flexibility.

While some policies, programs and administrative mechanisms depart from past practice, AID continues to view PVOs both as intermediaries to conduct AID programs, and as independent entities carrying out their own development activities.

AID wishes to keep this relationship viable and productive. AID shares with PVOs the belief that in a viable working relationship, mutual trust and genuine appreciation of the unique and complementary character of true partners provide the basis for fruitful and effective cooperation between the government and non-profit sectors needed to carry out development.



## Nutrition

Because the nutrition problem is multisectoral, AID policy relies on all sectors to carry out the Agency mandate in nutrition. This opens up new avenues that rely on cooperation and collaboration among sectors.

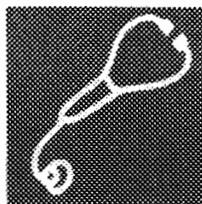
AID finds that insufficient food consumption is far more prevalent on a global scale than specific nutrient or protein deficiencies. The solution will involve multisectoral strategies that explicitly address relationships between the food-nutrition system and each development sector. Sectoral efforts can be made to maximize nutritional impact. These are basic principles that can be used to identify and respond to nutrition issues:

- nutritional costs and benefits should enter into project design;
- agricultural projects should take into account the likely nutritional ramifications of land and labor inputs as well as income and food produced;
- primary health care projects should include growth monitoring, prenatal health care, education on appropriate infant feeding practices, and guidance on at-home treatment of diarrhea;
- project designers should anticipate nutritional impacts, both positive and negative; and

- nutritional risk should be included as a targeting criterion.

Any project intended to affect food production, food consumption or health should include a component to monitor and evaluate impact on nutrition or food consumption.

As for Agency-wide initiatives in nutrition, sectoral projects should be supplemented by direct nutrition programs—nutrition education, supplementary feeding programs, nutrition planning and food fortification—to reach Agency nutrition goals. Nutrition also plays a key role in policy dialogue, institution building efforts and private sector initiatives.



## Health

AID reaffirms its support of health programs. A decent level of health is essential if developing countries are to achieve their goals in all sectors. Chronic illness and malnutrition lead to higher mortality and lower productivity in both children and adults, affecting all sectors of the economy.

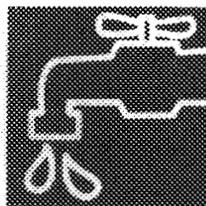
AID's basic goal in health is to assist developing countries to become self-sufficient in providing broad access to preventive and curative health services. To accomplish this, AID assistance in health concentrates on three objectives:

- increasing the cost-effectiveness of health programs through improved program design, management and implementation;
- promoting financially viable health programs that can be sustained by developing countries themselves over the long term; and
- increasing biomedical research and field testing in developing countries.

In general, AID believes that most programs should incorporate some combination of the following measures:

- growth monitoring, promotion of breastfeeding, nutrition education, and, where feasible, supplementary feeding;
- identification and treatment of high-risk pregnancies;
- promotion of oral rehydration therapy and training in its use;

- family planning information and services;
- basic immunizations;
- emergency treatment for injuries and minor ailments; and
- basic medicine and supplies in support of these measures.



## Domestic Water and Sanitation

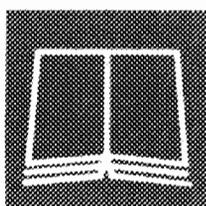
AID supports water and sanitation improvements not only because they are basic requirements for life, but also because they contribute to the potential for economic growth and development. Improvements in water and sanitation can have beneficial effects in other areas, such as education, employment, nutrition, agriculture, industry, housing and the environment. For example, sufficient water close to home can alleviate substantially the burden of fetching water, a task that usually falls to women and children and that may consume hours each day. The time saved may be used for economically remunerative work, or may permit girls to attend school regularly, benefitting them and ultimately their children.

Certain conditions are necessary for AID to fund water and sanitation projects in developing countries. Based on the Agency's long experience, including a series of impact evaluations during the past few years, the following factors are particularly crucial to the success of water and sanitation programs:

- clear evidence that deficiencies in water and sanitation pose a health threat;
- a commitment to finance the recurring costs, and where possible the investment costs of improved water and sanitation. Where possible, these costs should be borne principally by users;
- a strong, indigenous water and sewerage institution;
- infrastructure (roads, transport and communications) adequate to permit periodic supervision, technical assistance, maintenance and delivery of supplies to local communities. Alternatively, technologies selected should minimize the need for outside contact.

In its water and sanitation projects, AID emphasizes the financing of operation and mainte-

nance costs over the long term; operation and maintenance; technical, social and cultural considerations in program design and implementation; and interactions among sectors that may influence the availability and quality of water supply and the environment. For example, AID established a minimum standard of 20-40 liters of water available per person daily. Where water quality is poor, water treatment should be used only where it does not harm the reliability of the water system. AID strongly favors community involvement in water supply and sanitation programs, and urges sustained education of users—especially mothers—rather than the sporadic campaigns often conducted in the past.



## Basic Education and Technical Training

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The development of human resources, beginning with basic schooling systems, is vital to sustained economic and social development. AID policy in this area emphasizes efforts to improve the efficiency and distribution of schooling for children ages 6-14, vocational education and functional skills training for adolescents and self-employed adults, and technical skills training for wage employment.

Over the past two decades, primary enrollment has tripled to over 300 million and, despite rapid population growth, average enrollment percentages have more than doubled. However, all countries face very difficult problems of sustaining the recurrent costs while continuing to improve quality and add training capacity. Average figures mask large variations between countries, male and female enrollment, and rural and urban areas. While enrollment rates are improving, over half the children do not complete primary school.

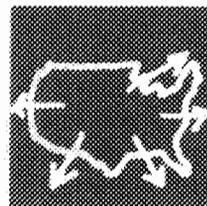
Increasing the efficiency and output of existing basic education systems is essential. AID gives priority to improving the retention, promotion, and efficiency measures at each stage of schooling rather than to increasing initial enrollment. Strategies focused on problems of resource utilization and internal efficiency are expected

to lead over time to improved access and more broadly based distribution of educational opportunities. Most children whose education is truncated by grade repetition, examination failure and dropout are poor, rural or female. Both equitable access and system efficiency require measures to increase the numbers and percentages of children who, once enrolled, successfully complete at least the first cycle of schooling.

AID seeks to increase the efficiency with which resources are used, quantitative and qualitative outputs of education and training systems, and the effectiveness of these systems in supporting economic and social development objectives. AID encourages support for systemic reforms aimed at major improvements in the education system as a whole and involving a combination of initiatives by other donors and by the country itself. Programs which promise only marginal improvements, which contribute mainly to maintenance of qualitatively inadequate, inefficient or ineffective systems, or which do not lead to increased opportunities for girls, poor and rural children will not be supported.

Research and development priorities include systems planning and assessment tools, local administrative and financing alternatives, and the use of radio and other media for the extension of education and training services. Technology needs are defined broadly to include logistic systems for the production and distribution of teaching materials as well as media technology for instructional purposes.

A major AID objective is to increase community and employer involvement in establishing and maintaining schools and implementing technical training programs. Training related to community needs and informal sector self-employment should be organized as locally as possible and involve representative organizations as directly as possible.



## Bureau for Private Enterprise

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The goal of AID's private sector initiative is to promote development objectives by fostering

productive, self-sufficient private enterprises and institutions in selected developing countries. AID's Bureau for Private Enterprise (PRE) was established to develop new approaches to such development and to enlist, where appropriate, the expertise and resources of the American private sector in doing so. PRE uses three main types of investment:

- capitalization of private intermediate developing country institutions serving the local private sector, especially small- and medium-sized rural businesses;
- co-financing with commercial U.S. institutions of Third World development projects; and
- direct lending to selected developing country businesses.



## Women in Development

Including women's concerns in development activities has important economic implications. The rationale for AID's women in development policy hinges on understanding that women and girls—whose contribution to development is already substantial—represent valuable resources for development.

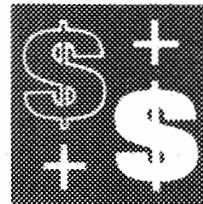
Effective development strategy means that women as well as men should participate in and benefit from their nation's socioeconomic development. Women's access to and control over resources is integral to effective development programming. Steps must be taken to ensure that new technologies, training opportunities, and services—such as agricultural extension—reach women. Women play a definite and strategic role in agricultural production and food processing which must be considered in all phases of agricultural development activities. Access to credit and viable employment opportunities are other critical needs facing both rural and urban women.

The women in development policy stresses that misunderstanding of gender differences can lead to inadequate planning and designing of projects and ultimately result in less effective programs. Critical analysis of gender differences

is needed in AID's work, in addition to special measures to examine intra-household allocation of resources and division of labor by sex and age.

The farming systems approach to agricultural research offers an important avenue to seeking women's inputs into agricultural problems and solutions. Other current measures include expanding employment opportunities for women in non-traditional sectors or where gender-specific work roles are not yet entrenched. A number of efforts are underway to provide female entrepreneurs and self-employed women with management and financial skills and services. AID also is developing a small entrepreneurial program for women in the private sector.

The women in development policy addresses the importance of women's concerns in all major issues—including education, energy (water and fuelwood), health and nutrition. AID is emphasizing the importance of implementing this policy on women in development throughout AID's portfolio.

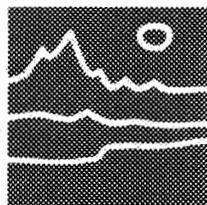


## Mixed Credits for Export Financing

Under certain circumstances, AID can use existing Economic Support Funds (ESF) as part of mixed credits for export financing. A mixed credit is a combination of an officially financed or guaranteed export credit, and/or other funds at or near market terms, and foreign aid (Official Development Assistance) in a single transaction (joint financing) to finance exports. Its main characteristic is that the concessional component is linked in law or in fact to the non-concessional component or the whole financing package is effectively tied to procurement in the donor country.

The use of ESF resources for mixed credits is restricted to defensive purposes on a case-by-case basis. The exports to be financed, in AID's view, must be of high importance to an LDC's development, and an otherwise low and responsive bidding U.S. exporter stands to lose the contract because of unfair financing offered

in the form of a mixed credit in support of a non-U.S. supplier. The use of AID Development Assistance (DA) resources for mixed credit financing is precluded. This policy is effective until an agreement is reached with other bilateral donors on restrictions in the use of mixed credits for export promotion.



## Environmental and Natural Resource Aspects of Development

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AID helps countries improve their national policies and strengthen their institutional and scientific capability. By preparing detailed environmental profiles and natural resource assessments with host country counterparts, AID helps with the understanding of natural resource constraints to development, and the needs of national and regional training programs or provision of technical assistance. AID provides new environmental agencies with carefully targeted technical assistance for developing their own national environmental policies which will contribute to sustainable economic development.

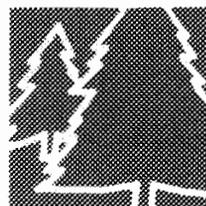
AID provides assistance to conservation groups in developing countries which have organized in response to the continued degradation of their country's environment and natural resources. By doing this, AID enhances the groups' effectiveness in promoting public participation in the formulation of national environmental policy. When appropriate, AID tries to influence national development policies or environmental legislation through its loan or grant programs.

Through projects incorporating environmental impact evaluations, AID helps governments examine and implement alternative means of natural resource management. Many natural resource uses, practices and management systems which once were viable, are now destructive to the environment and sustainable development. Bio-physical and socioeconomic circumstances, including population increases, evolve and change to the point that alternative natural resource use and management practices are

essential for continued economic growth. AID helps overcome environmental problems by establishing appropriate natural resource management.

AID supports research and the transfer of technologies that contribute to the solution of these and other management issues. Training and the exchange of training materials and technical experts with international and regional organizations is emphasized.

In AID projects that involve other donors, a special effort is made to ensure that a specific host country technical organization, donor or a joint technical committee oversees environmental concerns. This assures that environmental concerns are addressed throughout project design and implementation and that all necessary monitoring and evaluation activities are included in project planning.



## Forestry

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Forests, woodlands and grasslands provide multiple uses and benefits to society. But, in many developing countries, unsustainable uses of forest resources are already having widespread adverse effects.

The broad objective of AID forestry assistance is to enable developing countries to manage their forests, woodlands, range and other wildland resources more efficiently for sustained increases in the production of forest products. AID forestry assistance is based on a comprehensive plan for natural resource management, environmental protection and conservation. AID encourages a policy environment in developing countries that stimulates participation of people, their communities, organizations and enterprises in using their natural resources in productive and sustainable ways. AID assistance, therefore, promotes the most economically efficient and ecologically sound use of forest resources and products to help meet existing and future energy, food, wood, employment and commercial needs of developing countries.

To achieve the objectives of forestry assistance, AID focuses on four elements:

- improve country policies to provide adequate incentives for people and private enterprise to participate in forestry activities and programs that will reverse deforestation;
- develop human resources and organizational capabilities of existing forestry and related institutions, private and public to effectively design, implement, and evaluate forestry policies and programs as well as comprehensive plans for natural resource management. The critical role of applied and adaptive research in the development and transfer of technologies for meeting fuelwood needs is stressed;
- expand the role of private enterprise in establishing an industrial base for forest development, improving the production efficiency of forests and promoting the efficient use of forest products;
- employ all available assistance instruments in support of forestry assistance, including the use of P.L. 480 food aid, in an integrated manner. In so doing, AID will coordinate assistance in other spheres—agriculture, energy, environment and the private sector—with other donors, the U.N. specialized agencies, other U.S. government agencies, and PVOs.



### Programming P.L. 480 Local Currency

Enhancing the developmental impact of P.L. 480 resources is a major objective of AID. Accordingly, AID participates in the programming of country-owned local currency generated by the sale of P.L. 480 Title I commodities when the involvement promises to help in achieving developmental objectives.

AID participation is not an end in itself, but rather a tool for moving toward the more important goal of an overall host country budget that represents a sound, development-oriented allocation of budgetary resources. AID participation in local currency programming is appropriate in those circumstances where it will help achieve the overall goal.



### Voluntary Sterilization

Responding to the growing number of requests from developing countries for assistance, AID has helped make various methods of family planning, including voluntary sterilization, available on a broader scale to rural and urban people for use on a strictly voluntary basis.

AID policy governing the use of Agency funds for sterilization provides that AID funds can only be used to support voluntary sterilization if the following six conditions are met:

- **Informed consent:** An explanation must be made to the client in his or her own language of the nature of the procedure, its risks and benefits, and its irreversibility. The client's witnessed signature or mark is required on the consent document, which must be retained for three years.
- **Availability of other methods:** Other family planning methods must be readily available at a common location to insure that the client has a free choice of approved methods.
- **Incentive payments:** No AID funds can be used to pay potential acceptors of sterilization to induce acceptance. Further, the fee or patient cost structure applied to voluntary sterilization and other contraceptive services will be set up so that no financial incentive is created for sterilization over other methods.
- **Quality of voluntary sterilization services:** The medical personnel performing sterilizations must be well-trained and the surgical equipment should be the best available that is suitable to the field situations in which it will be used.
- **Sterilization and health services:** To the fullest possible extent, voluntary sterilization programs are conducted as an integral part of the total health care services of the recipient country and are performed with respect to the overall health and well-being of prospective acceptors. Opportunities for extending health care to participants in voluntary sterilization programs should be exploited to the fullest.
- **Country policies:** In the absence of a stated affirmative policy or explicit acceptance of AID support for voluntary sterilization activities, AID missions should take appropriate precautions, by consulting with host country officials, in

order to minimize the prospect of misunderstandings concerning potential voluntary sterilization activities. In monitoring the consistency of AID-supported voluntary sterilization programs with local policy and practice, AID missions and AID-funded donor agencies should also take particular note of program activities among cultural, ethnic, religious or political minorities to make sure that the principles of informed consent are being observed and that undue emphasis is not given to such minority groups.



## Narcotics

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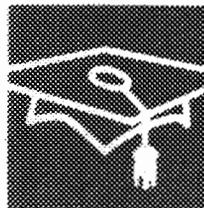
AID's role in curbing narcotics production includes identifying, funding and implementing appropriate development programs in narcotics-growing areas that will reduce narcotics cultivation. AID carries out that role by considering income-substitution programs, and other development assistance programs which must meet normal development criteria and priorities and be funded within the country development levels.

Typically, there is no single crop which provides a viable income alternative for traditional narcotics farmers, who are usually extremely poor. Past efforts at a one-for-one crop substitute have not been very effective. Successful development efforts involve a complex set of activities such as finding a suitable mixture of crops, assuring free market incentives, encouraging appropriate host country pricing and marketing policies, providing needed infrastructure such as irrigation systems, supporting development of rural industries and assisting in rural health care delivery.

Programs which successfully address development needs in narcotics-growing regions actually facilitate enforcement efforts, the domain of other U.S. government agencies. AID has a close relationship with the U.S. Department of State's Office of International Narcotics Matters. AID also participates in U.S. embassies' narcotics coordinating committees.

A firm commitment from host governments to suppress narcotics cultivation is necessary

and an enforcement mechanism must be identified alongside the development variables. One way to encourage such cooperation is by attaching poppy/coca clauses to relevant project agreements. AID will also seek opportunities with U.N. specialized agencies and other multilateral and bilateral donors to channel economic aid to narcotics-producing areas. AID encourages PVOs to develop alternative sources of income in narcotics-producing areas, as well.



## Policy Directive: Title XII

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AID is committed to Title XII-type activities in its program. The Agency identifies activities appropriate for Title XII procedures early in the project development process and mobilizes the best Title XII resources for Agency needs.

There is a range of contracting instruments that can be used to apply Title XII resources to Agency projects. AID has established criteria for the various kinds and mixes of resources most appropriate for carrying out Title XII activities.

Through various mechanisms of the Board for International Food and Agricultural Development (BIFAD), the BIFAD staff and subordinate Joint Committee for Agricultural Research and Development (JCARD), AID is able to match university resources to specific Agency projects.

Some new initiatives have begun to increase the effective use of Title XII resources, such as Memoranda of Understanding with selected universities, the Joint Career Corps, the Joint Enterprise mode of contracting, and the Technical Support to Missions (TSM) program.

*Preparation and oversight of the policy papers are, in large part, being carried out by the staff of AID's Office of Program Development and Policy Review in the Bureau for Program and Policy Coordination. Edwin L. Hullander is associate assistant administrator for program development and policy review.*

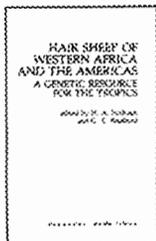
*Copies of policy papers are available from the Office of Public Affairs, Public Inquiries Division, Room 2738, AID, Washington, DC 20523.*

## Sheep for the Tropics

### Hair Sheep of Western Africa and the Americas: A Genetic Resource for the Tropics

Edited by H. A. Fitzhugh and G. E. Bradford, Westview Press, 1983; 317 pp. \$25.00 (hardcover); \$12.50 (paper).

*A review by Charles E. Haines*



Sheep, like other ruminant animals, can convert low quality, fibrous feedstuffs into such products as meat, milk, wool and skins for human use.

This useful trait has been recognized ever since sheep were domesticated in Southwestern Asia over 10,000 years ago. However, most of the attention in temperate and developed countries has focused on wool sheep. Hair sheep, which are quite important in tropical developing countries, have been overlooked in most sheep publications and research programs. Generally accepted standards for sheep production have been based almost entirely on wool breeds developed and evaluated in temperate countries. But in developing countries, where 40% of the world's sheep are located, hair sheep are often the principal or only sheep in existence. Perhaps the major reasons why hair sheep have been overlooked are that they are owned primarily by small herders and farmers of very limited means. Agencies in developing countries have not had sufficient resources to develop hair sheep to their true production potential. The present publication fills a long-standing void and arouses interest in the potential value of hair sheep as a genetic resource for the tropics.

The book is organized in four sections and includes materials from 52 contributors. The editors traveled to 15 countries to observe sheep production and to meet with government and university sheep specialists, and private flock owners. Contacts were also established with sheep producers and researchers in the United States and the British Virgin Islands. Persons with performance data on hair sheep were invited to prepare manuscripts for the book which AID partially funded.

The book's first section describes hair sheep characteristics, such as physical differences between wool and hair fibers, shapes of horns, types of ears, body sizes and hair color patterns. This section also describes the agricultural production systems which include hair sheep and ecological, biological and socio-economic constraints within these systems, as well as an overall summary of hair sheep performance traits. Several colored photographs illustrate typical breeds and crosses of hair sheep in Western Africa, and the Americas.

The other three sections of the book deal with hair sheep production in Middle and South America, Western Africa and North America. Information is presented on each of the hair sheep breeds and their crosses within these geographical regions. This information includes probable breed origins, general management practices, health constraints, production and reproduction data, feedstuffs commonly used, and the importance of sheep to the local economy.

Unlike wool sheep, hair sheep have coats similar to those of cattle and goats; because of this coat characteristic, hair sheep are often mistaken for goats. This skin covering factor—hair versus wool—makes hair sheep much more adaptable to tropical conditions than wool sheep. In comparisons between wool and hair sheep under tropical conditions

hair sheep tend to have higher fertility and survivability rates while pre- and post-weaning growth rates are similar to those of wool sheep. However, observations in temperate climates indicate that hair sheep have higher mortality rates and produce lighter and leaner carcasses than wool sheep. In the United States, comparisons suggest that hair sheep are fertile throughout the year instead of in seasonal cycles, show superior resistance to internal parasites and are more prolific than most of the wool breeds. Hair sheep should be considered potentially valuable genetic resources for improving sheep production on every continent. The editors document performance trials and production systems of hair sheep with information collected from specialists with firsthand working knowledge.

Since hair sheep do not produce wool as a marketable product, they are raised for meat. Their hides are an important by-product. Hair sheep can produce as much or more marketable animal protein per year as wool sheep, because they have more offspring a year. Hair sheep are more prolific because they are not restrained by seasonal estrus cycles and usually lamb more offspring at each parturition than wool sheep. Having larger litters per lambing and breeding more than once a year are definite advantages for hair sheep breeds even though individual body and carcass sizes are usually smaller than those of wool sheep. The hair sheep's ability to survive in conditions unacceptable for wool sheep is also reported by the editors.

Variations in production, both between and within breeds of hair sheep, are quite large and could be due to impurities in genetic origins (from other breeds and native stock) as well as management and environmental influences. Many of the breeds have well-established characteristics which have been firmly fixed through many years of close

breeding within a confined region. Other lines of these breeds, in similar climates but different regions, are far less homozygous and may be evolving toward slightly different breed characteristics. The type of carcass preferred by local markets also must be considered when using hair sheep in pure or crossbreeding.

The Barbados Blackbelly breed receives the most attention of any hair sheep. They have been used in many crossbreeding trials. The Barbados Blackbelly also has provided some of the foundation genes for present day breeds. Except for the Blackhead Persian breed, all of the hair sheep breeds discussed are classified as thin-tailed types.

Hair sheep have existed for thousands of years in rather harsh environments with minor attention and have provided support to human survival in many regions where wool sheep and other species of livestock have not been able to thrive. Information in this publication emphasizes the fact that hair sheep may be an important genetic resource to use for improving meat production in tropical and perhaps temperate environments. Scientists, producers and public officials are urged to give more attention to the development of more efficient production and marketing systems for the hair sheep breeds. The editors and contributors have done an excellent job in compiling present knowledge on hair sheep in the Americas and Western Africa. The material is presented in a well organized system and should be easy to understand by a wide variety of readers. It is hoped that this publication can be expanded, or a new one published in the future, which will include information on all hair sheep throughout the world. ■

*Charles E. Haines is a senior animal scientist in AID's Office of Agriculture, Bureau for Science and Technology.*

## Wage Structures in Latin America

### The Structure of Wages in Latin American Manufacturing Industries

Jorge Salazar-Carrillo, with Juan J. Buttari, Francisco J. Ortega, and Aldalberto Garcia Rocha; University Presses of Florida, Miami, 1982; \$14.00 (paper)

*A review by John R. Eriksson*



Wage structure, which has been defined as a "formal way of describing the distribution of wages in any given situation,"

is a topic of interest mainly to a relatively small group of economists and to personnel managers in larger enterprises and government. But, with the increasing interdependence of economies through trade in commodities and migration of labor, the subject takes on broader interest and policy significance.

These broader implications of wage structure are brought out in *The Structure of Wages in Latin American Manufacturing Industries*. This volume reports on careful analyses of wage structures in nine manufacturing industries in the eleven Latin American countries belonging to LAFTA, the Latin American Free Trade Association (Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay, and Venezuela). These analyses are noteworthy not only for their regional breadth, but also because they rely on data carefully generated by surveys undertaken by the authors and because they employ modern statistical (economic) techniques to analyze the data.

Various chapters analyze wage

differences among different countries, industries and occupations. One of the more interesting chapters written by Juan J. Buttari, currently an economist in AID's Program and Policy Coordination Bureau (PPC), compares wage structures in Venezuela and Uruguay. Many of the findings are similar to earlier studies relying on census statistics and less sophisticated methods of analysis, including a study by the reviewer.\* For example, relatively wide differentials are found among countries and occupations, but much narrower differentials are found among industries. The range between the highest-wage country of the eleven countries, Mexico, and the lowest, Ecuador, is threefold, or 2.5 when corrected for differences in the cost of living. Differences between beginning skilled and unskilled manual workers are over twofold and are almost sixfold between a beginning professional (engineering trainee) and an unskilled worker (janitor). These relative differentials, which are several times greater than those found in the United States, are what one would expect in a developing country with relatively plentiful unskilled labor, but scarce skilled labor.

The fact that significant wage differences among the 11 Latin American countries are found to persist, even after adjustment for differences in skill levels, is interpreted by this study as providing evidence not only of the real costs of labor mobility in a free market ("transfer costs") but also of policy-caused barriers to labor mobility between countries and of poor information on their respective labor markets. Gradual reduction in policies restricting the inter-country mobility of labor is

\*John R. Eriksson, "Wage Structures and Economic Development in Selected Latin American Countries, A Comparative Analysis" (Ph.D. diss., University of California, Berkeley, 1966). This study compared relative occupational and industrial wage structures among countries but did not attempt comparisons of wage levels.

recommended, both to bring about more efficient allocation of labor as well as greater equity. The expected direction of labor flow would be from such relatively low-wage countries as Ecuador, Bolivia and Paraguay, to relatively high-wage countries, such as Brazil and Venezuela (and, to a lesser extent, given the greater distances involved, Mexico). While the political impediments to lowering labor mobility barriers in the face of unemployment and underemployment in receiving countries is recognized, the "labor market upheaval" feared by some is held unlikely. It is also argued (without elaboration) that immigrant workers would take different jobs from those that domestic workers are prepared to take.

The elaborate data base and the use of econometric techniques permit the authors to distinguish the effects of education from those of experience and responsibility in determining wage differentials among different occupations. The fact that previous experience has a very small effect on wage differentials is explained by employer preference for on-the-job training. This leads to a recommendation for policies that support employer training schemes.

Degree of responsibility required by the job, along with education, are found to be important determinants of occupational wage differences. This leads to a suggestion that such factors as initiative, alertness, motivation and responsibility be stressed in training programs.

The book's strength is its careful empirical analysis of complex economic phenomena. It gives relatively little attention, however, to political-economic analysis of its policy implications. It would be useful to explore at greater length the practical problems and potentials involved in implementing such recommendations as: (1) lowering barriers

to labor mobility between, say, Bolivia, Paraguay and Brazil; and (2) public support of employer training programs. The policy relevance of the findings also may be limited because the analyses are based on 1966 data. The authors argue, citing some evidence from 1970-73 data, that wage structures change slowly over time. This may be true for relatively short periods, but the previously cited study by the reviewer found substantial changes in wage structures in some Latin American countries over a ten-year period and longer. ■

*John R. Eriksson is deputy assistant administrator for research in AID's Bureau for Science and Technology.*

## CARD CATALOGUE

### **Infant Mortality Rate in Three Parishes of Western Jamaica, 1980**

Desai, P.; Hanna, B.F.; et al. University of the West Indies, Mona; AID, Bureau for Latin America and the Caribbean; Jamaican Ministry of Health 1982, 11 pp.

The infant mortality rate is a sensitive index of health. However, in recent years, perhaps due to under-registration of deaths, the infant mortality rates of Jamaica, particularly of certain parishes, have been so low as to make their reliability questionable.

This study sought to establish the infant mortality rates for the parishes of St. James, Hanover, and Trelawny during 1980. Information on infant deaths in 1980 was sought from a variety of sources, as was information on live births in the same year. Fewer than half of all infant deaths appeared to have been registered in 1980 in the parishes studied. The infant mortality rate for 1980 was 27 per 1,000 live

births for the three parishes combined. The apparent under-registration of infant deaths is discussed.

Paper copy \$1.69  
Microfiche \$1.08  
PN-AAL-165

### **Research Highlights for 1981**

International Rice Research Institute 1982, 138 pp.

Although rice production in most Asian countries rose during the past decade, increases in rainfed areas were only sufficient to keep pace with population growth. This report presents highlights of research conducted in 1981 by the International Rice Research Institute (IRRI) to improve both rainfed and irrigated rice production. Major research results are detailed for the following areas: genetic evaluation and utilization; pest control and management; irrigation and water management; soil and crop management; environmental factors; constraints to high rice yields; consequences of new technology; and cropping systems. Information is also presented on IRRI's development and testing of machinery, as well as its training programs, international activities and finances. In 1981, IRRI focused its efforts more sharply on developing improved varieties for rainfed areas, organizing inter-disciplinary teams to deal with shallow but submergence-prone, waterlogged, and tidal swamp areas.

Paper copy \$18.07  
Microfiche \$ 2.16  
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# INTERNATIONAL CALENDAR

## JULY

**10-16** Regional NPK Fertilizer Production training program, sponsored by the International Fertilizer Development Center, Bangkok, Thailand. Contact: Cynthia Connolly, IFDC, PO Box 2040, Muscle Shoals, AL 35660; telephone (205) 381-6600

**11-12** Geothermal Energy Resource Development, Management and Engineering workshop, sponsored by the University of Denver, Denver Research Institute. Contact: James W. Frasche, Denver Research Institute, Office of International Programs, University Park, Denver, CO 80208

**18-23** Workshop on Program Development and Design for Dwelling Environments, sponsored by the Massachusetts Institute of Technology, Colombo, Sri Lanka. Contact: Professional Practice Program, Laboratory for Architecture and Planning, MIT, Room 4-209, Cambridge, MA 02139

**18-29** International Short Course on Crop Improvement in Relation to Disease Resistance, Davis, CA. Contact: Dennis Pendleton, University Extension, University of California, Davis, CA 95616

**18-29** Local Resettlement and Integration of Refugees, sponsored by the International Disaster Institute in conjunction with the University of East Anglia, London, United Kingdom

**18-Nov. 4** International Course on Plant Protection, Wageningen, the Netherlands. Contact: Director, International Agricultural Center, Postbus 88, 6700 AB Wageningen, the Netherlands

**20-23** SE Asia International Machine Tool exhibit, Singapore. Contact: (202) 377-4073.

**26-29** 75th Anniversary Meeting of the American Society of Animal Science, Washington State University, Pullman, WA. Contact: Claude Cruse, Executive Secretary, 309 West Clark St., Champaign, IL 61820

## AUGUST

Electrical Energy seminar mission, Brazil, Argentina and Mexico. Contact: (202) 377-2068

Food Processing and Packaging Equipment trade fair and video catalog exhibition, Singapore, Thailand, Malaysia, Indonesia and Korea. Contact: (202) 377-4456

Plastics Production Equipment video catalog exhibition, Ecuador, Colombia and Chile. Contact: (202) 377-4456

U.S. Pavilion Prado-Agro Industrial trade fair, Uruguay. Contact: (202) 377-4708

**1-3** South Asian Foreign Ministers meeting to discuss regional development cooperation, New Delhi, India

**1-3** Community Education Workshop, sponsored by Partners of the Americas, NY, NY. Contact: (202) 628-3300

**1-4** AIC National Institute on Cooperative Education Conference, Ohio State University, Columbus, OH. Contact: NRECA, 1800 Massachusetts Ave. NW, Washington, DC 20036

**1-5** Workshop on "Design and Housing in Developing Countries: Framework for implementation," sponsored by the Massachusetts Institute of Technology, Cambridge, MA. Contact: Professional Practice Program, Laboratory for Architecture and Planning, MIT, Room 4-209, Cambridge, MA 02139

**7-11** Western Hemisphere Nutrition Congress VII, Dorai Hotel, Miami Beach, FL. Contact: (312) 751-6517

**7-11** 26th National Convention of Entomology, Tingo Maria, Peru. Contact: Ing. Rafael Urrelo G., Universidad Nacional Agraria de la Selva, Apartado Postal 156, Tingo Maria, Peru

**7-11** American Institute of Biological Sciences (AIBS) annual meeting, Grand Forks, ND. Contact: AIBS Meetings Department, 1401 Wilson Blvd., Arlington, VA 22209

**7-11** Society for Invertebrate Pathology annual meeting, Ithaca, NY. Contact: Robert R. Granados, Insect Pathology Resource Center, Boyce Thompson Institute, Cornell University, Tower Road, Ithaca, NY 14853

**8-11** National Food and Energy Council annual conference, Minneapolis, MN. Contact: NRECA, 1800 Massachusetts Ave. NW, Washington, DC 20036

**8-12** 4th International Community Education conference sponsored by the International Community Education Association, Dublin, Ireland. The conference themes are community education in relation to the elderly, worldwide youth unemployment, the role of the volunteer, health and family well-being, lifelong learning and distance education. Contact: Ian Bennett, Executive Director, ICEA Headquarters, 14th Level, Nauro House, 80 Collins Street, Melbourne 3000, Australia

**8-12** 10th Conference of the World Association for the Advancement of Veterinary Parasitology, Perth, Western Australia. Contact: Dr. J. D. Dunsmore, School of Veterinary Studies, Murdoch University, Murdoch, Western Australia 6150

**8-Sept. 9** Workshops on supervision and evaluation as management tools, sponsored by the Center for Development and Population Activities. Contact: Joan Favor,

Administrative Coordinator, CEDPA, 1717 Massachusetts Ave. NW, Suite 202, Washington, DC 20036; telephone (202) 567-1142

**11-12** World Future Society conference on "Working Now and in the Future," Washington, DC. Contact: (202) 656-8274

**11-Oct. 26** 6th International Course on Seed Technology for Vegetable Crops, University of the Philippines, Los Baños, Philippines. Contact: The Directorate, International Training Program on Seed Technology, PO Box 430, College, Laguna 3720, the Philippines

**12-15** Symposium on Mycotoxins, Sydney, Australia. Contact: John Lacey, Department of Plant Pathology, Rothamsted Experimental Station, Harpenden, Herts., U.K. A15 2JQ

**14-19** 5th World Conference on Animal Production, Tokyo, Japan. Contact: Ko Minura, WCAP Organizing Committee, c/o National Institute of Animal Industry, Tsukuba Norinckenkyudanchi, PO Box 5, Ibaraki 305 Japan

**14-19** World Solar Congress by International Solar Energy Society, Perth, Australia

**14-27** Foreign Policy Association Symposium on "Issues in Contemporary Diplomacy," Institute of World Affairs. Contact: Marcus Franda, Cooper Hill Road, Salisbury, CT 06068; telephone (203) 824-5651

**15-17** Joint Committee on Agricultural Research and Development meeting, sponsored by AID, Washington, DC

**15-19** CIB Congress 83 on "To Build and Take Care of What We Have Built with Limited Resources," Stockholm, Sweden. Contact: CIB Congress 83, The National Swedish Institute for Building Research, PO Box 785, S-80129 Gävle, Sweden

**15-27** 13th General Assembly, International Union Geodesy and Geophysics, Hamburg, Germany. Contact: P. Melchior, Observatoire Royal de Belgique, Avenue Circulaire 3, B-1180 Brussels, Belgium

**15-31** International Training Course on Insect Growth, Development and Behavior, Nairobi, Kenya. Contact: The Training Officer, International Center of Insect Physiology and Ecology, PO Box 30772, Nairobi, Kenya

*Information for International Calendar was largely provided by Cook, Ruet & Assoc., Inc., of Washington, publishers of International Agenda.*

*Any additions or corrections should be addressed to "International Calendar," Horizons, Room 4890 NS, Washington, DC 20523 or telephone (202) 632-4330.*

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