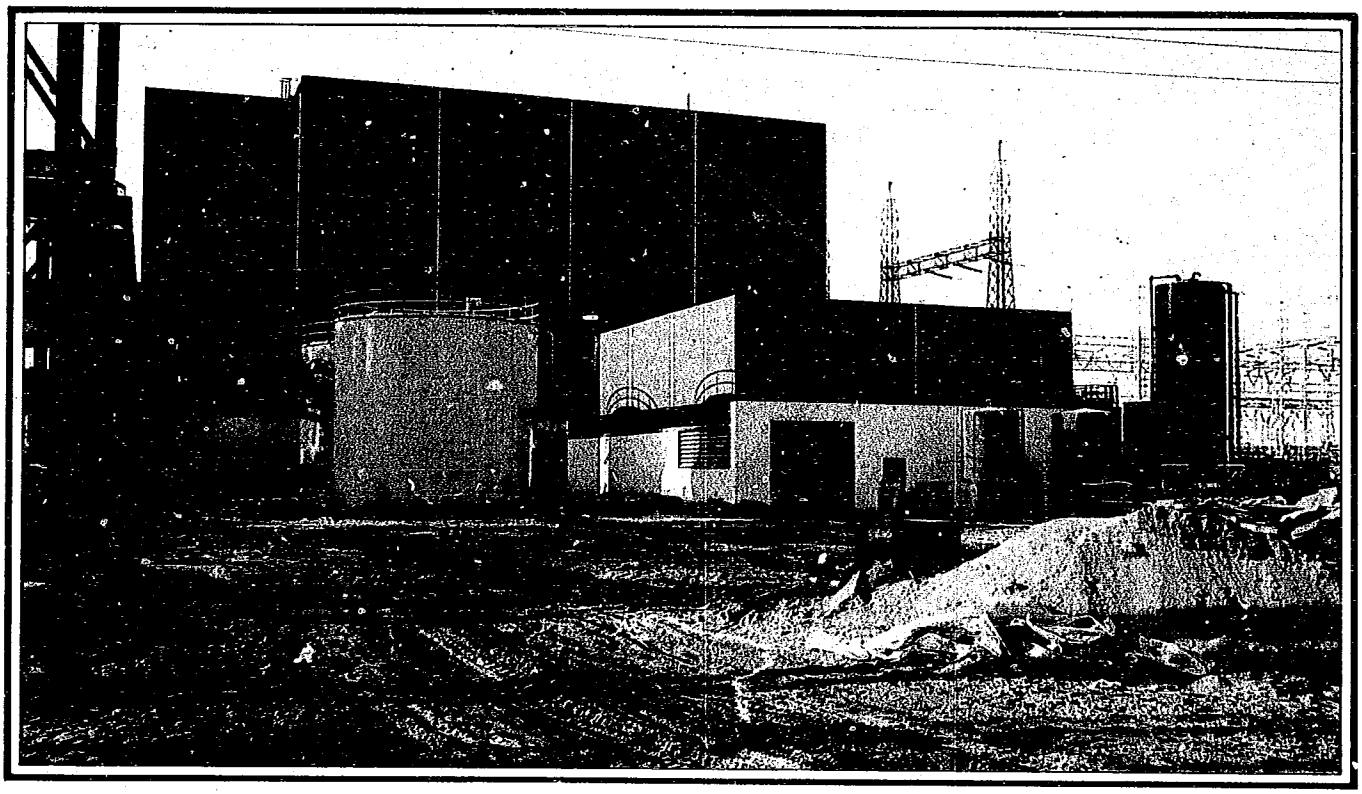
USAID IN PAKISTAN:

SIND



USAID IN PAKISTAN: SIND

Cover Photograph: A view of the Combined Cycle Power Plant at Guddu.

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INTRODUCTION

This booklet is one of a four-part series highlighting United States Government support for economic development in Pakistan. Since 1951 the United States through its Agency for International Development (USAID) has channeled nearly $7 billion in support of Pakistan's development efforts. From 1982 to 1987, U.S. economic assistance totalled $1.6 billion.

USAID is working with national and provincial governments to stimulate dynamic, self-sustaining growth throughout Pakistan. USAID funding of development programs reflects Pakistan's long-term development priorities and emphasizes activities in agriculture, energy, and the social sectors. Rural development is a top priority with nearly one-half of the program directed at increasing agricultural productivity.

The pages which follow mainly describe USAID-supported development activities in Sind during the 1982 – 1988 period. These activities show how USAID projects, while national in scope, help advance economic and social development at the provincial level.

A Sind farmer participatinu in the Farming Systems Research activity proudly shows off his excellent crop of onions.

Sind is Pakistan's most urbanized province, yet nearly one-half of the labor force is engaged in agriculture. For the 11 million people who live in rural Sind, better incomes depend on improved agriculture. Yields have increased in recent years as a result of high-yielding seed varieties, more efficient fertilizer use, and rehabilitation of the irrigation system. However, much higher yields are possible with still better use of these inputs.

USAID is supporting efforts by the national and provincial governments to increase agricultural productivity in Sind through:

- Improvements in the efficiency of the irrigation system and the management of water resources; and
- Assistance to national and provincial agricultural research institutes. (Includes training, technical assistance, commodities, equipment).

Sind Agriculture University, Tando Jam, one of several institutions supported under the USAID program.

Research and Education

Sustained agricultural growth requires relevant research, appropriate technology, and effective extension services. USAID is supplying approximately $1.4 million in field and laboratory equipment and vehicles to half a dozen agricultural research institutes in Sind. Recipients of this assistance include Sind Agricultural University and Sind Agricultural Research Institute in Tando Jam for their research on disease-resistant varieties of wheat and maize.

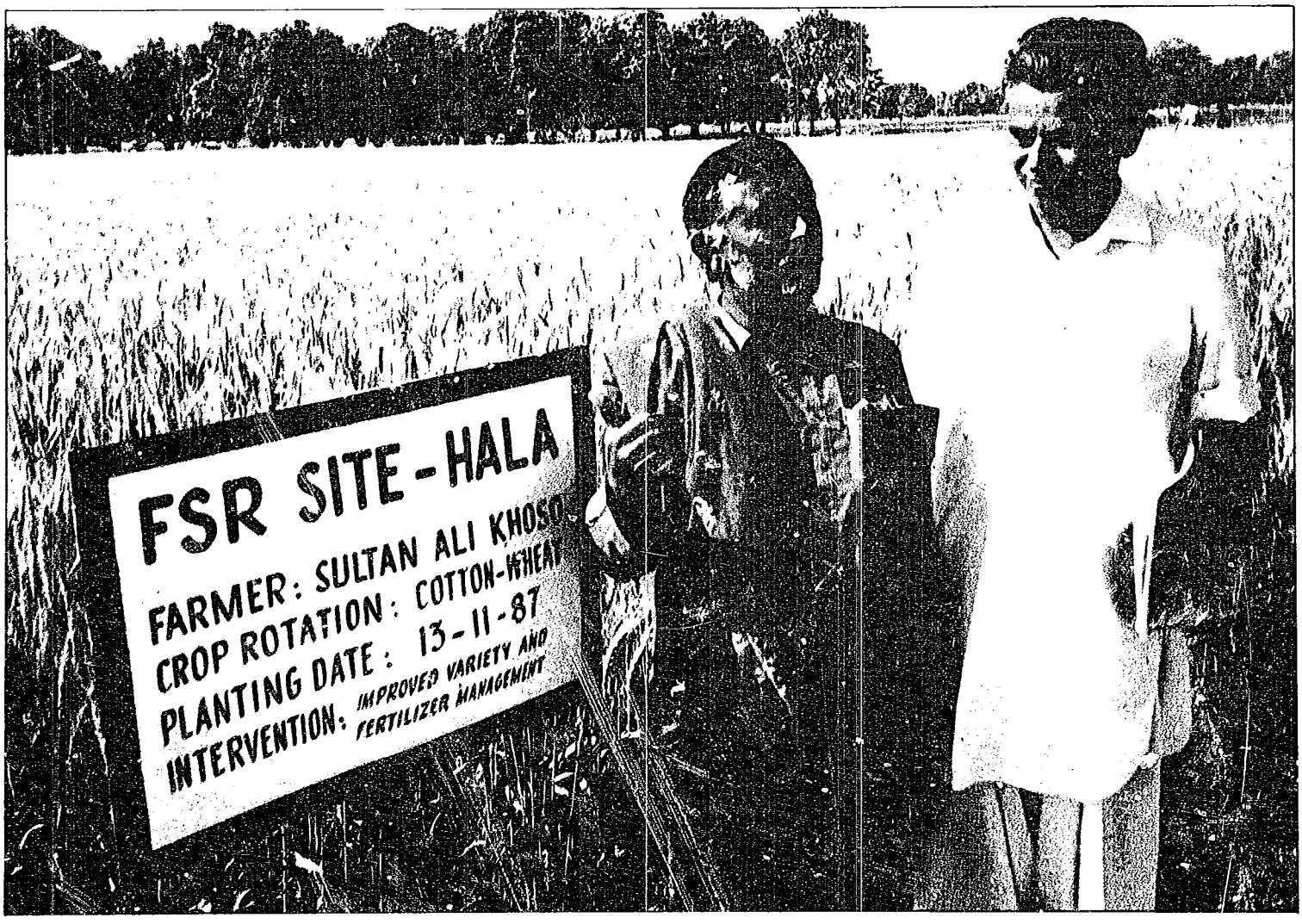
The Sind Agricultural Research Institute, along with other institutions such as the Agriculture Extension Department, is involved in a new interdisciplinary, farm-based approach to research which puts researchers directly in touch with farmer conditions and problems. A team, made up of representatives from these institutions, interviews farmers to identify constraints in production. On the basis of these interviews, special interventions are identified.

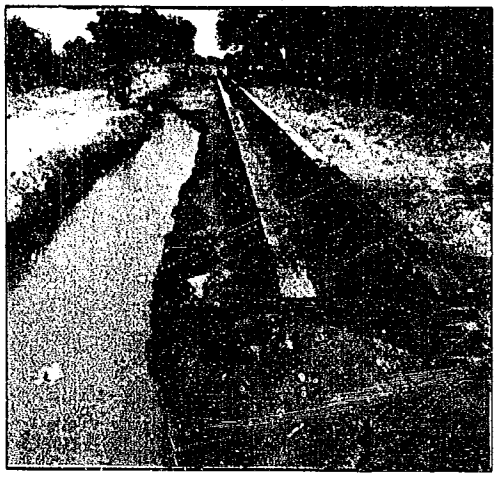
Farmers interviewed in Hyderabad District cited low yields, weeds, and high livestock mortality as their major agricultural problems. Together with the research team, farmers are testing technological alternatives, new seed varieties, and improved cultivation and water management practices.

Water management is another major research concern. Researchers are looking at the method, frequency, and level of irrigation that will give better yields given Sind's saline underground water and high water table conditions. Alternatives for farm drainage and the use of saline water for agriculture are being studied.

USAID supported Programs also provide training to local agriculture workers. Here a trainee is demonstrating the various growth stages of wheat to an enumerator in Nawabshah.

A farmer and a scientist are both pleased with the results of improved wheat varieties and better fertilizer management.





Pucca water-courses are being constructed throughout the province of Sind to improve on-farm water management.

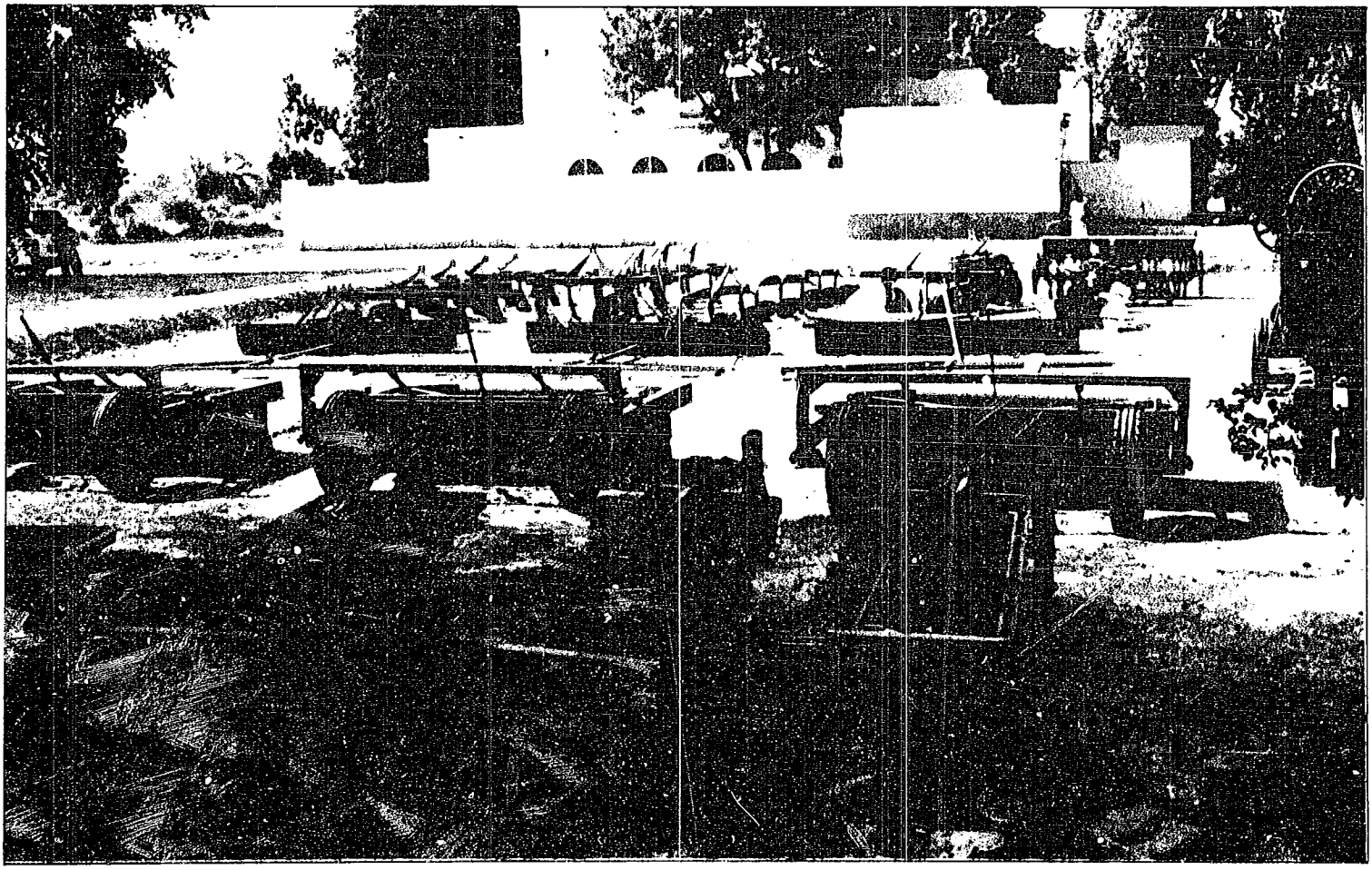
In addition to supporting research institutions, USAID has provided assistance to the On-Farm Water Management Training Institute and Demonstration Farm in Sakrand. The newly-established institute teaches water management techniques and innovative agricultural practices to agricultural and engineering professionals, extension workers, and farmers.

Irrigation

Sind's rural population is concentrated in irrigated areas along the Indus. An efficient irrigation system requires continual canal and watercourse rehabilitation, timely maintenance, detailed planning, and farmer support. For nearly 30 years USAID has been committed to the improvement and protection of this system.

In recent years USAID, under the Irrigation Systems Management project, has financed the rehabilitation of 31 canal and surface drain schemes in Sind covering more than 1,200 kilometers. These schemes include work at the Nari Sakro, Mirpur Sakro, and South Sakro drainage systems. Rehabilitation of 19 more schemes is planned or underway.

USAID support in irrigation includes assistance for institutions like this On-Farm Water Management Training Institute in Sakrand. The equipment shown in the photo was also supplied by USAID.



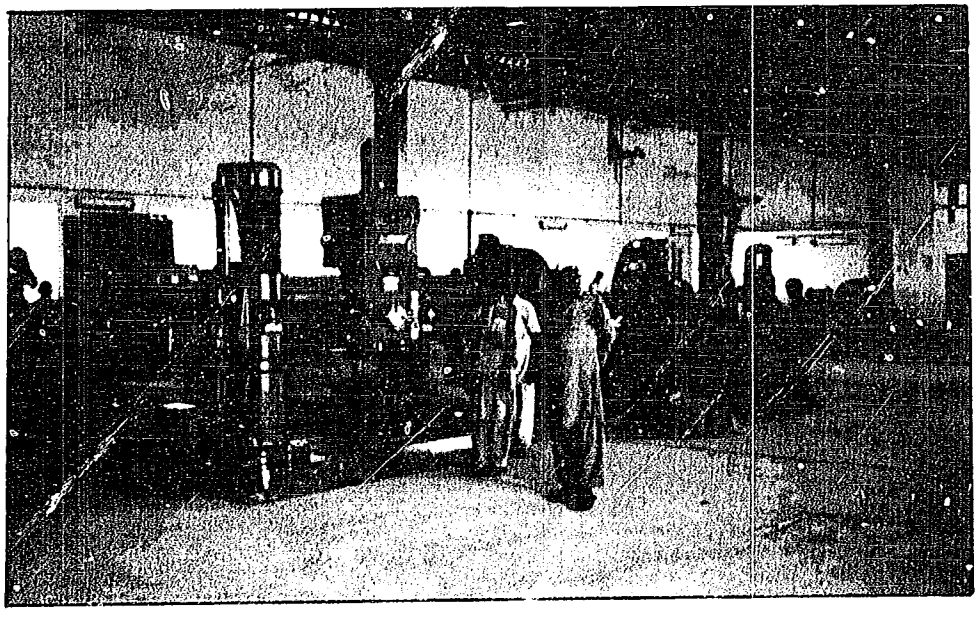
Institutional support and development is another important component of USAID-assisted irrigation activities. USAID is providing technical assistance, irrigation equipment, and earth-moving machinery to the Provincial Irrigation Department (PID). The PID's equipment maintenance workshop in Jamshoro has been renovated and reequipped at a cost of approximately $1.75 million.

The recent computerization of the PID canal design office in Hyderabad is further demonstration of USAID's support. The computers will aid in the designing and monitoring of water resource delivery and maintenance systems.

In June 1987 the On-Farm Water Management project officially concluded. This project, which covered all four provinces of Pakistan, is regarded by the Government of Pakistan and the donor community as an innovative and successful program with impact far beyond the $18.4 million contributed by the United States in the 1970s and early 1980s.

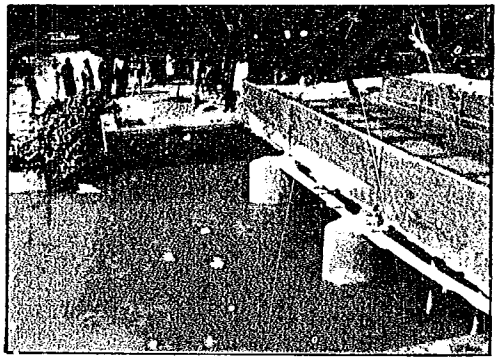
Main features of the program involved training, watercourse improvements, precision land levelling, and institutional development. The success of the On-Farm Water Management concept in providing for more efficient water delivery and use has been repeatedly demonstrated and is now widely adopted by other institutions both in Pakistan and abroad.

This Provincial canal design office in Hyderabad was recently computerized with USAID support and assistance.



Upgradation of this Provincial Irrigation Department workshop in Jamshoro is another important component of the Irrigation Systems Management Project.

COMMAND WATER MANAGEMENT AT KANDIARO



Rehabilitation work on Sehra-Naulakhi branch in Kandiaro command area is in progress. Both USAID and the World Bank support this Command Water Management Project. Below: A section of the vast area served by water courses and minors constructed/ rehabilitated under the Command Water Management Project.

Over the next few years a significant USAID irrigation activity in Sind will be in the Kandiaro command area, a 165,000 acre area served by the Sehra–Naulakhi branch of the irrigation system. Kandiaro is the largest of seven pilot areas in the country to receive USAID and World Bank assistance for "Command Water Management" activities. These activities aim at ensuring more reliable and equitable water distribution and use through community participation and improved water management.

USAID has assisted in establishing around 250 Water Users Associations in the Kandiaro command area. These farmer organizations are responsible for maintaining watercourses, the channels which bring irrigated water to farmers' fields. In addition, USAID is financing the rehabilitation of watercourses and providing scientific equipment and technical assistance to the Command Water Management Office at Kandiaro.

USAID SUPPORTED AGRICULTURAL ACTIVITIES IN SIND

Institutional Development

Drainage and Reclamation Institute of Pakistan, Tando Jam
Lower Indus Water Management and Reclamation Research Project, Hyderabad
Maize and Millet Research Institute, Dadu
On-Farm Water Management Training Institute, Sakrand
Provincial Irrigation Department
Rice Research Institute, Dokri
Sind Agricultural Research Institute, Tando Jam
Sind Agricultural University, Tando Jam
Sind Horticultural Institute, Mirpurkhas
Sugar Cane Institute, Sajawal
Grain Storage Research Center, Karachi

Research, Education, and Training

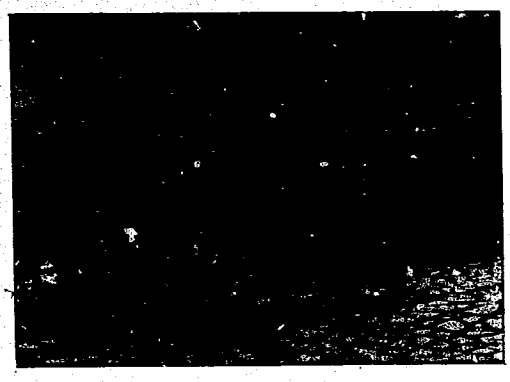
Crop studies, waterlogging, salinity, fertilizer, and nitrogen management research
Farm trials, irrigation, demonstration farm
Long and short-term training at overseas institutions
In-country training in statistics, computers, management, planning, and technical fields

Equipment and Commodities

Workshop, earthmoving, construction, and irrigation equipment
Computer hardware and software
Research and hydraulic measurement equipment
Vehicles
Fertilizer

Water Resources

Rehabilitation of 1,225 kilometers of canals and drains
Provision of tools and machinery for Provincial Irrigation Department maintenance workshop
Establishment of an office for the Kandiaro Command Area, approval of civil works for 178 watercourses, and formation of 250 Water Users Associations
Development of infrastructure and research facilities at the Lower Indus Water Management and Reclamation Research Project



Construction, rehabilitation and maintenance of rural roads will not only improve the existing road network but also help improve socio-economic conditions in rural Sind.

RURAL ROADS

In June 1987 USAID signed a $43 million grant agreement for the rehabilitation and maintenance of rural roads in Sind. The grant also covers a study to identify national policy, management, and financial reforms needed to maintain the nation's roads.

Teams are now conducting road surveys in Sind's rural districts, noting mileage, drainage conditions, and traffic count. This information will help prioritize future roadwork with an emphasis first on improving the existing road network and then on constructing new roads.

Over a six-year period, private construction firms will be awarded contracts valued at nearly $18 million for the construction or extensive repair of more than 1,800 miles of roads. Improved road systems will give Sind's rural population greater access to markets and social services.

Teams are now conducting road surveys in rural districts of Sind. This katcha road in District Shikarpur was surveyed under the Road Resources Management Project.

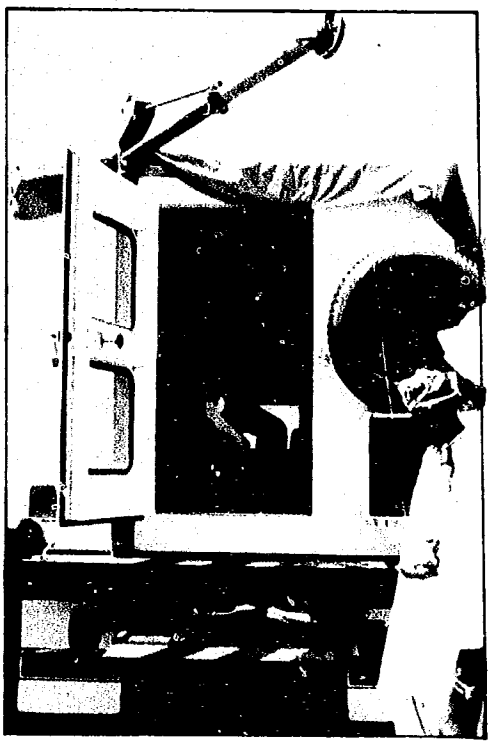
ENERGY

Future agricultural and industrial growth in Sind depends on increased availability of water and energy resources. Major objectives of USAID's energy program are to help Pakistan expand energy production, develop indigenous energy resources, modernize energy equipment, promote conservation activities, and strengthen energy institutions.

Coal Development

In an effort to help Pakistan to reduce oil imports, USAID invested approximately $13 million in equipment and feasibility studies for development of the Lakhra coal field. The results of these studies indicate that there are sufficient Lakhra coal

One of two modern drilling rigs supplied by USAID to Pakistan. The rigs are for use in activities such as test drilling for coal now underway in Sind.



This geo-physical logging truck provided by USAID is being used for coal test drilling at Jhurak.

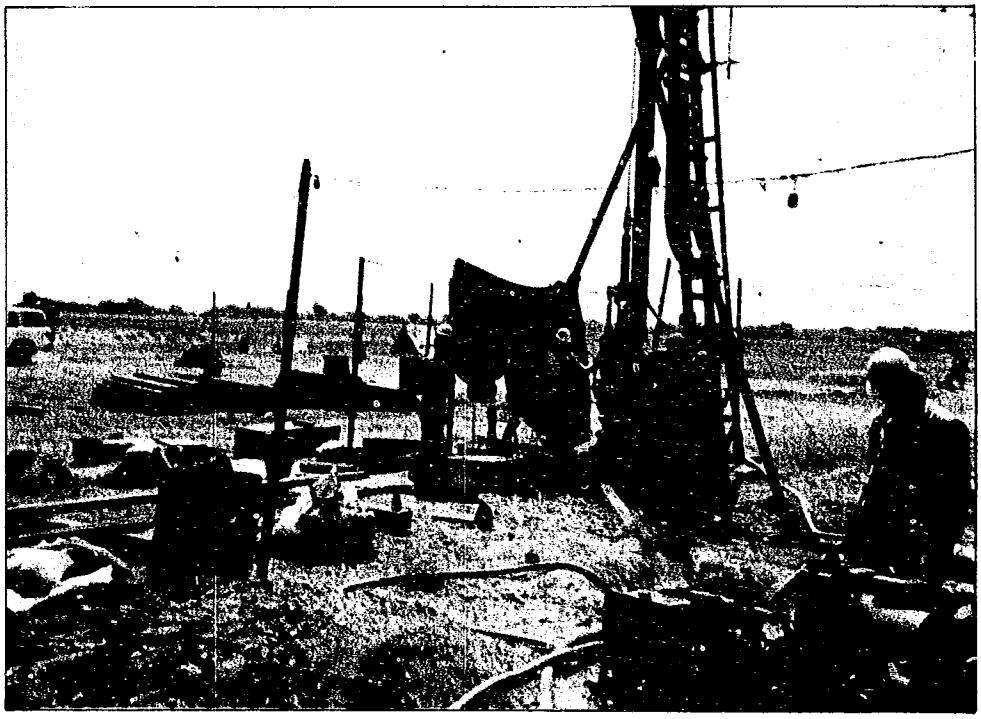
reserves to support at least one 500 MW power plant. Other donors have expressed support for coal-fired power generation projects in the area. This support grew, in part, as a result of Pakistan's first international coal conference, sponsored jointly by USAID and the Government of Pakistan at Karachi in 1986.

Coal exploration in Lakhra has been expanded to cover the Sonda-Thatta area. Exploratory work is being carried out by the Geological Survey of Pakistan. USAID is assisting the local private drilling companies and providing technical assistance to Government of Pakistan from the United States Geological Survey. USAID also has provided much of the equipment that is being used. Work so far indicates that the Lakhra and Sonda-Thatta coal fields are the largest in Pakistan with estimated reserves of more than 200 million tons. As the new test drilling work at Jhurak progresses, the coal reserve estimates for Southern Sind will further increase.

Institutional Development

In order to optimize energy production and distribution, USAID's energy program includes the construction of modern, efficient power facilities along with institutional development. For example, USAID supported in-country training in safety procedures for 1,850 WAPDA employees and technical and management training for hundreds of professionals in Sind. Twenty-eight WAPDA professionals based in Sind are receiving overseas training in electrification and management.

Commodity assistance is another form of institutional support. USAID provided the Karachi Electric Supply Corporation



A twenty-hole drilling program is underway at Jhurak to establish coal reserves in the Sanda-Thatta area. So far, 10 holes have been drilled and coal reserves are estimated at 200–300 million tons.

with approximately $3 million of equipment to improve its generation, distribution, and transmission systems. Oil and gas exploratory equipment and drilling comsumables have also been supplied for use in Sind's Petaro oil field.

USAID also supplied the Karachi-based Pakistan Council of Scientific and Industrial Research and the Hydrocarbon Development Institute of Pakistan with $7 million worth of energy analysis and research equipment, including equipment for modern coal testing laboratories and solar energy testing. Some of this equipment, as well as market assessments and other initiatives, will be helpful in promoting the use of coal briquettes as an alternative energy resource.

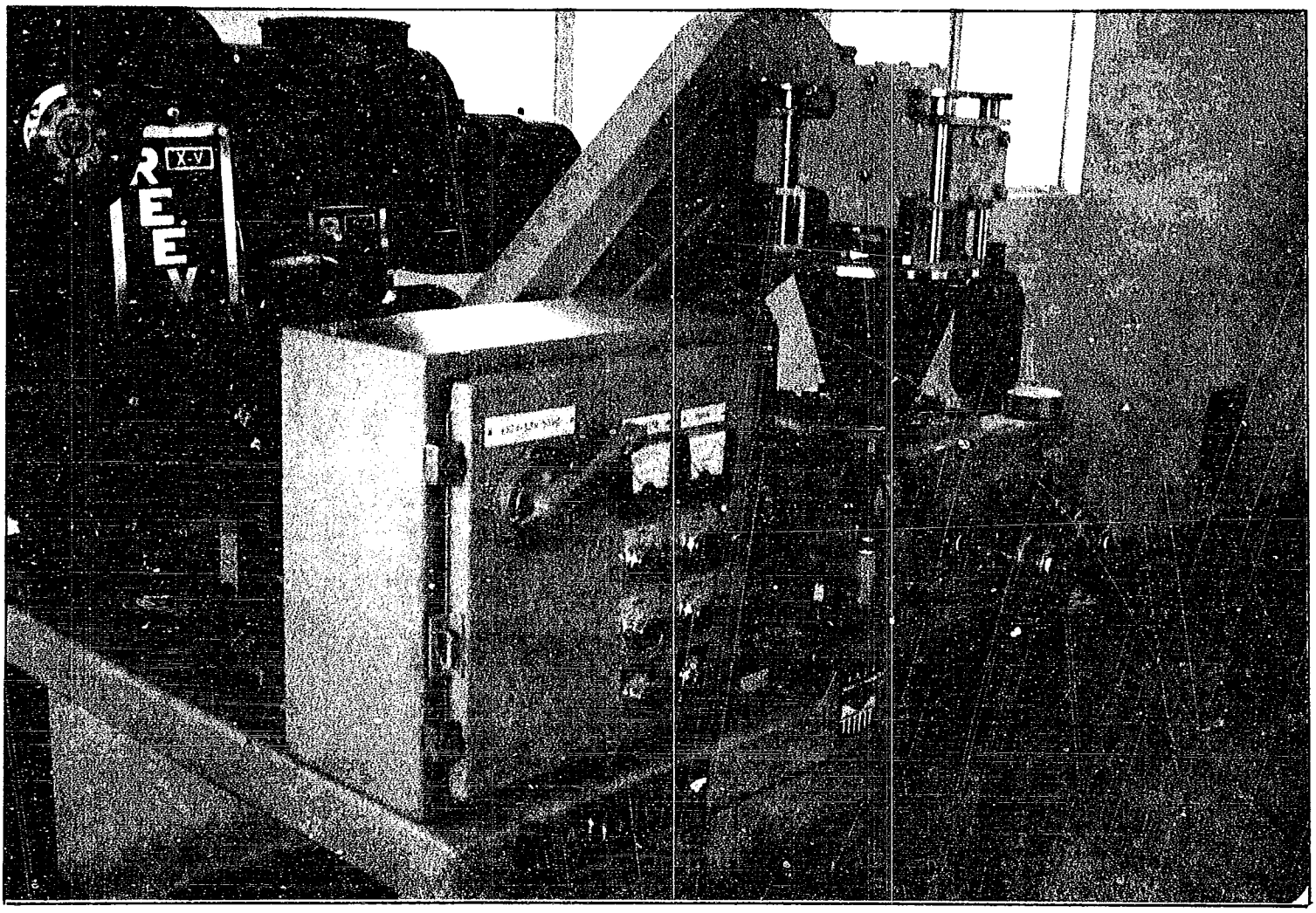
Private industries are also receiving USAID assistance for energy-related activities. Over 15 industries in Sind are participating in a national program of energy audits and other measures to lower costs and conserve energy.

Forestry

In addition to oil, gas and coal, traditional fuels such as firewood are important sources of energy in Pakistan. In Sind,

Wood is commonly used as a domestic fuel in Sind. The Forestry Planning and Development Project aims at increasing wood production.

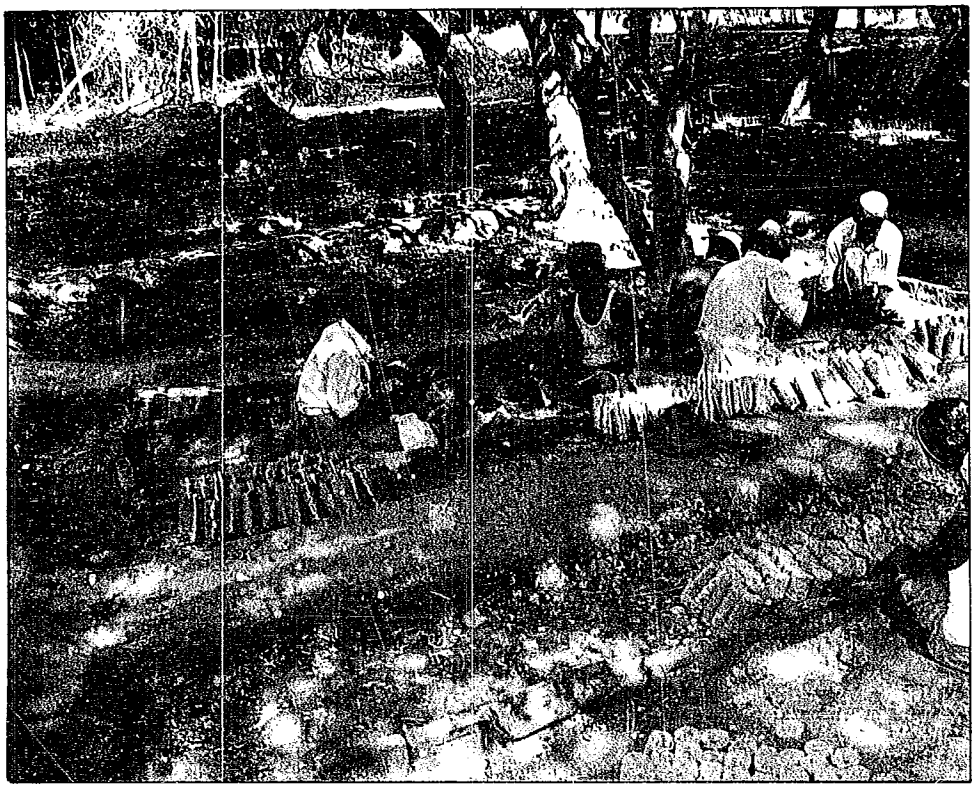
Energy equipment supplied to institutions under the energy development program includes modern coal testing laboratory equipment and coal briquetting machines for the Fuel Research Center at PCSIR Central Laboratories, Karachi.



particularly in rural areas, most of the households use firewood as the primary cooking fuel.

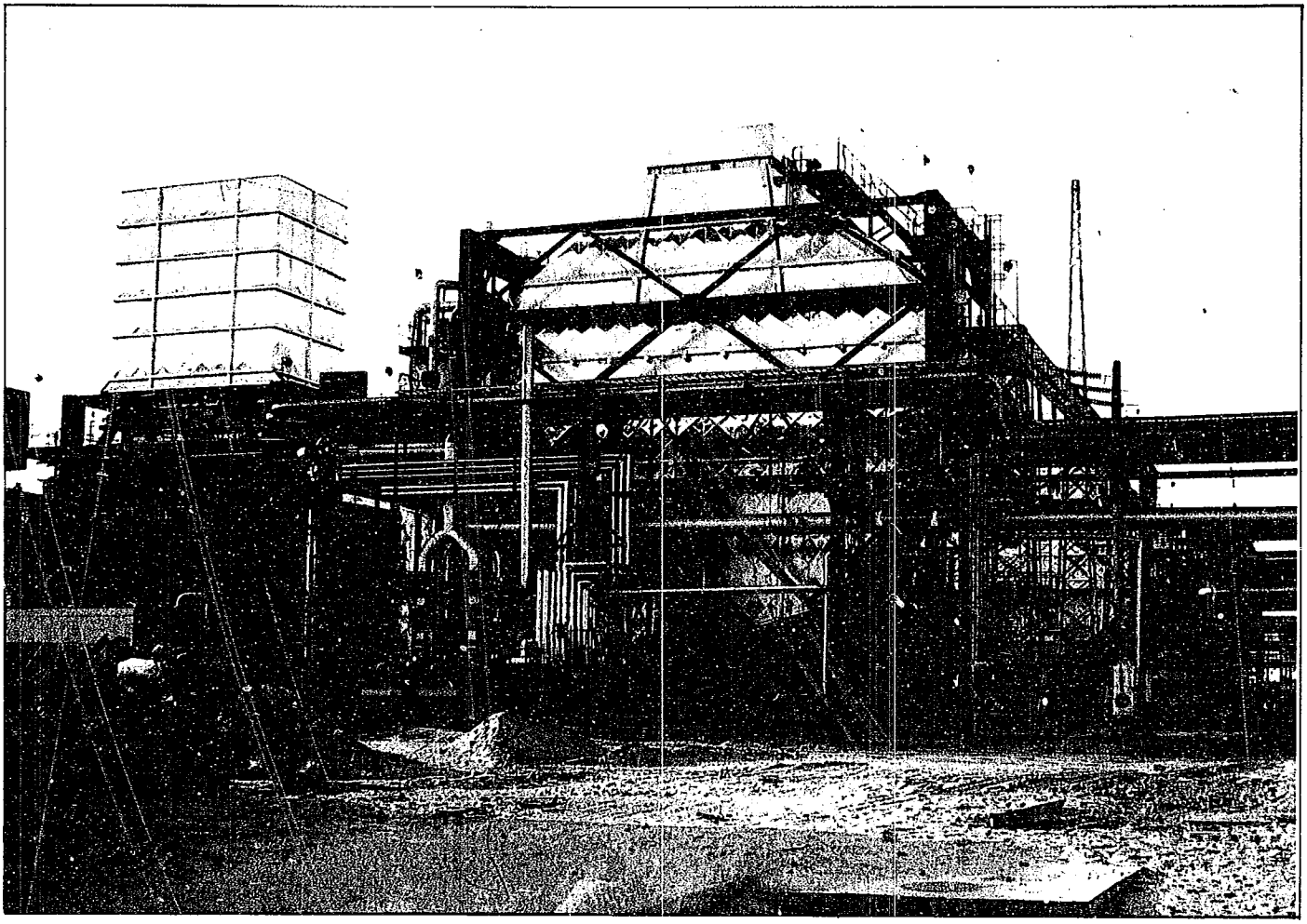
Forestry activities on 2,400 acres of Sind Forest Department lands in Thatta District are expected to yield an additional 5 million fast-growing trees. These lands supply fuelwood for household consumption and timber for expanding coal mining operations in Sind and Baluchistan.

USAID has provided approximately $2 million in tractors, earthmoving equipment and vehicles to the Sind Forest Department for use in upgrading the existing plantations and establishing new ones. USAID support also includes technical assistance, training, laboratory equipment, and computers for the Department's research station in Miani.



A Forestry nursery in Sind. The seedlings produced are distributed to farmers.

COMBINED CYCLE POWER PLANT AT GUDDU



A steam turbine building – one part of the Combined Cycle Power Plant at Guddu.

In addition to developing Pakistan's coal potential, USAID is supporting the expansion of thermal power generation. USAID and the Asian Development Bank, working with WAPDA, are financing the innovative combined cycle gas-fired power plant at Guddu in upper Sind. The plant, equipped with the most modern thermal technology available,

Phase One, completed in 1986, added 400 MW of thermal electricity to Pakistan's national power grid. Under Phase Two, waste heat generated by the gas turbines installed under Phase One is used to provide an additional 200 MW of electricity. This highly fuel-efficient power generation plant is an especially good example of technology transfer.

A view of the Health Technician Training School, Hyderabad.

4

SOCIAL SECTORS

Social sectors form an integral part of overall planning for economic development. Improving the quality of health services as well as expanding health coverage to all sections of population both rural and urban, keeping population increase within manageable limits and strengthening the human resource base through training are vital for achieving and sustaining growth rates necessary for the economic development of the community. USAID provides assistance in support of major initiatives of the Government of Pakistan for the development of these important sectors.

Health

USAID is supporting health activities aimed at reducing infant and child mortality, combatting preventable diseases, and improving basic health services particularly in rural areas.

In Pakistan more than 170,000 children under the age of two die each year from diseases that could be prevented simply by immunization. The Government of Pakistan's Expanded Program of Immunization has dramatically increased immunization coverage in Sind against six preventable diseases from under 5 percent in 1982 to 56 percent in 1987.

To improve rural coverage, USAID has supplied the Sind Health Department with 10 vans and jeeps, 700 bicycles, and 100 motorcycles for mobile and outreach teams. USAID is also supporting the immunization program by providing syringes, needles, vaccine carriers, and other supplies.

The majority of childhood deaths in Pakistan are a result of

Health Technicians learn about Pakistan's successful Expanded Program of Immunization.

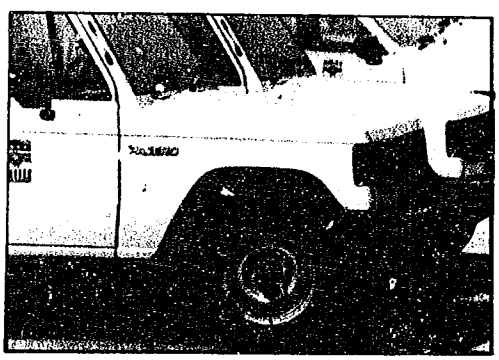
diarrhea. An estimated 200,000 Pakistani children die each year from dehydration and diarrhea-related diseases. USAID is assisting in developing a communications and educational campaign to increase public awareness of oral rehydration therapy (ORT) as a simple and effective treatment for dehydration from diarrhea.

The extension of health services requires motivated, trained health workers and well-managed rural health centers. USAID is assisting the Sind Government develop comprehensive primary health care training for medical officers assigned to rural health facilities. A new health monitoring system has been introduced in rural health centers in Tharparkar and Thatta Districts and later will be computerized and introduced at other sites.

USAID involvement in health care also includes malaria control, an ongoing activity since the 1960s. From 1982 to 1987 USAID supplied Sind with over $5 million worth of insecticides and spraying equipment, prventing up to one million cases of malaria annually.

In 1986 there were only 165 reported cases of malaria in Karachi compared to over one million cases reported during the 1966-67 epidemic. Recognizing the importance of keeping malaria under control in urban centers, USAID plans to provide special ultra-low volume fogging equipment for use in Karachi, Hyderabad. and Sukkur.

Vehicles such as these are supplied to Provincial Health Departments under the USAID financed Primary Health Care Program to increase the mobility of Rural Health Extension Services.



A social marketing of contraceptives activity is supporting Government efforts to popularise family welfare planning.

Population

Family planning affects the health of a woman and the welfare of her family and community. Pakistan's high population growth rate taxes the country's ability to provide jobs and social services.

At the request of the Government of Pakistan, USAID is working with the Population Welfare Division to strengthen family planning services in all four provinces. USAID is procuring contraceptives and equipment for the public and private sectors and providing technical assistance in social marketing and the distribution of contraceptives. Numerous non-governmental organization centers in Karachi, Hyderabad, Mirpurkhas, and other areas of Sind have been supported under population welfare activities.

Karachi is the site of several USAID population activities involving nearly $3 million. Construction has started on a contraceptive storage warehouse. A new National Research Institute for Fertility Control (NRIFC) will also be built in Karachi. Besides financing construction, USAID will provide NRIFC with laboratory and research equipment, library books, technical assistance, and scholarships for its staff

Training

The primary objective of USAID training programs is to upgrade the management and technical expertise of those involved in the implementation of priority development programs. From 1983 through 1987 nearly 500 individuals from Sind received short or long-term training in the United States or third countries.

Over one-half of the training programs were initiated in 1987 in such fields as econometrics, engineering, forestry, computer science, electrification systems, public administration, and business management. USAID also supported numerous in-country seminars and workshops on public and private sector management and development related topics.

Other aspects of USAID's human resources development program are assistance to training institutions and scholarships for their faculty. Two Karachi training institutes receiving USAID support are the National Insitute of Public Administration and the Pakistan Institute of Management. This support includes staff training, computers, instructional materials, equipment, and technical assistance in course design and planning.

HEALTH TECHNICIAN TRAINING SCHOOL COMPLEXES FOR SIND

Three Health Technician Training Schools have been built with USAID support in Sind, including this one in Sukkur.

Health technicians' responsibilities include communicable disease control, immunization, maternal and child health, environmental sanitation, and first aid. Since 1982 over 100 health technicians have been trained in the Sind. Currently, 49 men and 28 women are enrolled in the 18-month training program.

In the past, health technician students attended classes in small, crowded rooms in a hospital or other facility. The next group of students will begin training in their own schools, constructed and furnished with USAID funds in Hyderabad, Mirpurkhas, and Sukkur. The health technician complexes consist of classrooms, libraries, laboratories, auditorium, tutor residences and separate hostels for male and female students.

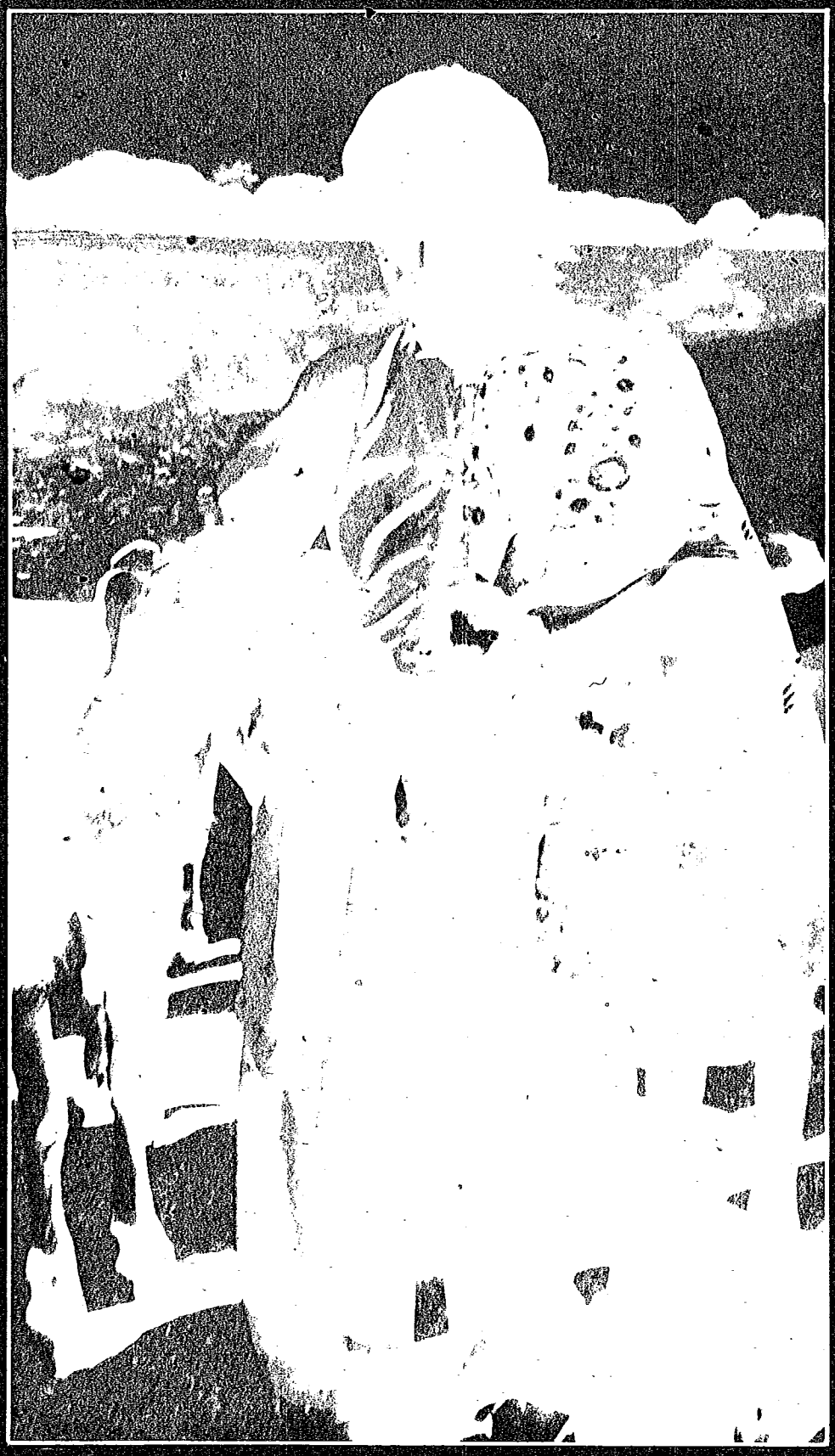
5

FUTURE DIRECTIONS

The United States is committed to economic and human resources development at all levels, national as well as regional. The Government of Pakistan's efforts to ensure that the benefits of national development be distributed to all citizens and all regions will continue to receive USAID support under the new six year aid package.

The United States anticipates providing $1.8 billion in economic grant assistance to Pakistan over the next six years (1988-1993). An additonal $480 million in economic assistance is expected to help finance the import of essential food commodities such as edible oils under the PL-480 program.

Most of the USAID-funded activities described in this booklet will continue under the new program. Greater access to water, agricultural inputs, energy supplies, social services, and training opportunities will continue to receive US support along with possible new initiatives in important areas such as primary education.



A Sindhi boy with his goats. Animals contribute to a balanced agriculture in all provinces. USAID agricultural projects promote an integrated, multi-disciplinary approach to farming.