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REPORT AND RECOMMENDATION

OF THE

PRESIDENT OF THE

INTERNATIONAL DEVELOPMENT ASSOCIATION

TO THE EXECUTIVE DIRECTORS

ON A

PROPOSED CREDIT

IN AN AMOUNT OF SDR 8.7 MILLION

TO THE ISLAMIC REPUBLIC OF PAKISTAN

FOR A

SCARP TRANSITION PILOT PROJECT

April 15, 1986

CURRENCY EQUIVALENTS

Currency Unit	= Pakistan Rupee (Rs)
US$1.00	= Rs.16.0
Rs 1.00	= US$0.0625

FISCAL YEAR

July 1 - June 30

ACRONYMS AND ABBREVIATIONS

ADBP	-	Agricultural Development Bank of Pakistan
DI	-	Department of Irrigation
FGW	-	Fresh Groundwater
M&E	-	Monitoring and Evaluation
MOU	-	Memorandum of Understanding
O&M	-	Operation and Maintenance
OFWM	-	On-Farm Water Management
PACC	-	Project Area Coordinating Committee
PMO	-	Project Management Office
PPC	-	Provincial Policy Committee
RAP	-	Revised Action Program
SCARP	-	Salinity Control and Reclamation Project
SGW	-	Saline Groundwater
T&V	-	Training and Visit (Extension Program)
TW	-	Tubewell
WAPDA	-	Water and Power Development Authority
WUA	-	Water Users Association

PAKISTAN

SCARP Transition Pilot Project

Credit and Project Summary

Borrower: Islamic Republic of Pakistan

Beneficiary: Government of Punjab

Amount: SDR 8.7 million (US$10 million equivalent)

Terms: Standard

Relending Terms: From the Government of Pakistan to the Government of Punjab and WAPDA through budgetary allocations in accordance with normal procedures.

Project Description: The project would be the pilot phase of a proposed SCARP (salinity control and reclamation project) transition program to privatize groundwater development in SCARP areas having adequate quality fresh groundwater. The pilot phase would cover 114,000 acres with 213 public tubewells. If proven feasible in the pilot phase, the program would be expanded to cover up to 4 million acres, and involve 7,500 public tubewells. Project objectives are to develop a replicable package of technical and institutional components for: (a) implementing Government policy of transferring the main responsibility for groundwater pumpage in SCARP areas underlain by fresh groundwater in order to meet effectively both irrigation and drainage requirements; (b) confirming that farmers, particularly small holders, would be willing and able to participate in the privatization of groundwater development; and (c) increasing agricultural production and farm incomes through improved use of surface and groundwater supplies, which are used conjunctively by farmers. The main risk to the project would be inadequate implementation of the Government's policy to phase out public tubewell pumpage and to provide farmers with essential infrastructural and supporting facilities for privatization. To minimize this risk, the policy package was approved by GOPunjab well ahead of planned project start-up; a tubewell-to-tubewell survey has been initiated; and implementation arrangements provide for an integrated, coordinated and flexible approach by the participating agencies.

Estimated Costs: 1/

	Local	Foreign	Total
	---- US$ million ----		
Electricity Distribution System	4.0	4.9	8.9
Private Tubewells	3.5	1.2	4.7
Irrigation and Drainage Improvements	1.5	0.4	1.9
Monitoring & Evaluation	0.5	0.4	0.9
Technical Assistance & Training	0.7	0.2	0.9
Project Management	0.5	0.2	0.7
Base Cost	10.7	7.3	18.0
Physical Contingencies	0.9	0.8	1.7
Price Contingencies	1.2	0.9	2.1
Total Project Cost	12.8	9.0	21.8

Financing Plan:

	Local	Foreign	Total
	---- US$ million ----		
Government	6.2	0.4	6.6
Farmers/ADBP	3.9	1.3	5.2
IDA	2.8	7.2	10.0
	12.9	8.9	21.8

Estimated Disbursements:

	FY87	FY88	FY89	FY90	FY91
Annual	2.6	4.1	2.1	0.9	0.3
Cumulative	2.6	6.7	8.8	9.7	10.0

Economic Rate of Return: 23%

Appraisal Report: None

Maps: IBRD #19247-19249, 19349

1/ Includes about US$2.9 million in taxes and duties

INTERNATIONAL DEVELOPMENT ASSOCIATION

REPORT AND RECOMMENDATION OF THE PRESIDENT TO THE EXECUTIVE DIRECTORS ON A PROPOSED CREDIT TO THE ISLAMIC REPUBLIC OF PAKISTAN FOR A SCARP TRANSITION PILOT PROJECT

1. I submit the following report and recommendation on a proposed credit to the Islamic Republic of Pakistan for SDR 8.7 million (US$10.0 million equivalent) on standard IDA terms to help finance a SCARP Transition Pilot Project.

PART I - THE ECONOMY

2. The most recent economic report, "Pakistan: Economic and Social Development Prospects" (No. 5962-PAK, dated February 18, 1986), was distributed to the Executive Directors on March 3, 1986.

3. Economic growth rebounded strongly in FY85 after the slowdown in the previous year. Assisted by a strong recovery in the agricultural sector, real GDP increased by 8.4%, compared to 3.5% in FY84. Value added in agriculture grew by 9.9% and in manufacturing by 8.6%. Both fixed investment and private investment rose by about 12%. Improved availability of agricultural commodities helped to reduce the rate of inflation to 7.5% from 8.4% in FY84. On the other hand, the budget deteriorated markedly, national savings decreased, and the balance of payments came under pressure. Government current revenues fell short of the budgeted amount while expenditures substantially exceeded the budgeted amounts. As a result, government borrowing from the domestic banking system increased from 1.9% of GDP in FY84 to 3.9% of GDP. Reflecting largely the sharp drop in public savings, national savings fell from 12.8% to 11.2% of GNP. Although the immediate growth prospects are good, budgetary and balance of payments developments will need to be carefully watched.

4. The balance of payments deteriorated in FY85. The current account deficit stood at US$1.6 billion, compared to US$1 billion in FY84. Lower exports and remittances were the main contributing factors. Exports declined by 7.3% as the country's major exports, cotton and rice, suffered the effects of lower prices and lower volumes, respectively. Furthermore, remittances declined for the second successive year, falling by 10.6% in FY85. According to recent projections, net migration is expected to decline and thus remittances will be lower over the medium term. As a result of the higher current deficit and low net capital flows, the reserve drawdown reached US$960 million. Gross official gold and foreign exchange reserves were US$1.2 billion at the end of FY85, which was equivalent to 2 months of imports of goods and services.

5. The process of gradually eliminating interest rates from the economy, initiated in 1980, was completed in July 1985. All transactions are now based on new financing modes consistent with Islamic principles. Existing interest-based commitments have been honored and transactions with foreign governments and financial institutions are not affected. It is too early to determine with any certainty the potential costs of Islamization. Undoubtedly, the operation of the new system will initially involve some costs, but whether long-run efficiency will be affected will depend on how the system is applied. To date, the Government has proceeded cautiously, and new financing modes have been applied flexibly and developments monitored closely.

6. The strong recovery in GDP growth in FY85 meant that the overall growth ratio achieved in the first two years of the Sixth Plan was consistent with the improved performance achieved during the Fifth Plan period (FY79-83). Growth in national output (6.5%), agriculture (4.2%), manufacturing (10.4%), exports (11%), and private investment (6.7%), though below Sixth Plan targets, was well above the rates achieved during FY70-78 and very respectable compared with the growth rates of other developing countries. Growth during this period--coupled with increased remittances--benefited large segments of the population. Performance improved despite a number of adverse factors: (a) a world recession; (b) a 30% decline in the external terms of trade after 1979; and (c) the Afghanistan crisis with its attendant expenditures for increased defense and refugee assistance.

7. Fiscal performance and the balance of payments improved significantly during the Fifth Plan. The overall budget deficit and Government bank borrowing, which in FY79 stood at 8.8% and 4.3% of GDP respectively, fell to 6.4% and 1.7% by FY83. As the levels of Government borrowing from banks dropped and overall credit expansion was restrained, the growth of the money supply slowed down and inflationary pressures lessened; inflation dropped from 8% to 5% by the end of the Plan period. The improved fiscal performance was largely the result of expenditure restraint rather than better revenue performance. Real expansion in current expenditures on economic and social services barely kept pace with population growth, and development expenditures declined relative to GDP. Government revenues remained constant at 16% of GDP, and public savings, having risen in the first half of the Plan period from 1% to 3.8% of GNP, dropped to 1.6% by FY83. Assisted by remittances, but also strong export growth, the current account deficit fell from 5% of GNP to 2% by the end of the Plan Period. Gross reserves increased from 3.5 to 4.5 months of imports of goods and services.

8. In addition to improving economic management through fiscal and monetary policies, the Government took measures to improve performance in the commodity-producing sectors. In agriculture, all major crops reached record output levels, with wheat and sugar achieving self-sufficiency. Subsidies on pesticides were virtually eliminated, while fertilizer prices were raised to reduce the subsidy burden. Crop procurement prices were adjusted to bring them closer to world prices. Provincial allocations for operations and maintenance in irrigation were increased, along with water charges. Encouraged by improved policies and incentives, private manufacturing investment grew by 10.9% per annum. Areas open to the private sector were widened, most agricultural processing units were denationalized, and sanctioning limits increased. A flexible exchange rate policy adopted in 1982 was instrumental in stimulating manufactured exports, while import liberalization increased the availability of raw materials and capital goods.

In energy, measures were taken to accelerate the development of domestic resources, rationalize prices, and improve policy formulation and energy planning capabilities.

9. The developments in Pakistan's economy since FY78 represent welcome steps toward the solution of problems that are essentially structural and long-term in nature. Nevertheless, further wide-ranging measures must be introduced to address structural issues. Pakistan's long-term growth prospects depend on the resolution of two such issues: (a) the need to increase the level and efficiency of public investment; and (b) the need to encourage export expansion and efficient import substitution. If Pakistan is to sustain high economic growth, it must make major infrastructure investments, upgrade existing facilities, and strengthen its neglected social base. The last has fared badly as a result of resource constraints, as is reflected in Pakistan's social indicators, which lag seriously behind those of other developing countries at comparable levels of development. It will not be possible to increase public investment and recurrent allocations without a major domestic resource mobilization effort. Although Pakistan should give priority to reforming indirect taxation through a broad-based sales tax, it should also rely more on user charges, should curtail subsidies, and increase self-financing by public enterprises. Given the continuing constrained outlook for official assistance and the likelihood of lower remittance flows, sustained improvements in both export expansion and efficient import substitution will be necessary to support high growth with sustainable external capital requirements. If trade performance is to be improved, structural adjustment must be continued and strengthened in the key sectors of agriculture, industry, and energy. Both agriculture and industry have considerable potential for increased exports and some degree of efficient import substitution. In energy, the accelerated development of Pakistan's under-exploited resources can contribute considerably to the reduction of energy imports.

10. In agriculture, high growth has been largely the result of increased acreage; yet average yields remain low by world standards and by those of progressive farmers within Pakistan. Before agricultural productivity and diversification can be increased, institutional support must be strengthened, appropriate pricing policies must be put in place, and the core investment program identified and implemented. More effective institutional support should be sought through improvements in the quality and quantity of services to farmers. In particular, strengthening the seed program requires more efficient seed multiplication and dissemination, increased efficiency in public sector plants, and a greater role for the private sector. The delivery of agricultural credit also needs to be improved to ensure that it actually reaches small farmers and tenants, whose credit needs are greatest. Furthermore, marketing costs need to be reduced and research and extension services strengthened. Agricultural pricing policies should create appropriate incentives to farmers, while minimizing subsidies. Multicrop approaches to pricing should complement the single-crop, cost-of-production approach currently used. Finally, a core investment program in agriculture and water is needed to reduce the possibility of distortions in investment priorities. Low cost programs that yield quick returns should be emphasized along with critical infrastructure investments that raise farm productivity. Greater emphasis on the complementarity of investment programs, especially between agriculture and water, would ensure that priority is accorded to programs that increase agricultural productivity rather than merely augment the supply of physical infrastructure.

11. Despite fairly rapid industrial growth accompanied at times by rapid expansion of manufactured exports in recent years, there are a number of issues the Government must address if this performance is to be sustained. High levels of protection have led to high cost, low quality domestic production both by raising input prices and by reducing the demand for new technology to raise productivity and improve product quality. If Pakistan is to increase and diversify its manufactured export base and encourage efficient import substitution, industrial incentives must be rationalized to reduce both the level and dispersion of effective protection rates. The objective here is to increase the efficiency of the industrial sector by exposing protected producers to greater foreign competition and to reduce the anti-export bias inherent in the present incentives. In addition, the Government should reform the regulations affecting investment sanctioning and cost-plus pricing in order to improve competition among domestic firms. It should limit sanctioning to a few cases of strategic importance, leaving most investment decisions to the private sector, which is better able to assess investment opportunities. Cost-plus pricing arrangements with a number of key private and public manufacturing enterprises, which provide insufficient incentives to minimize costs or allocate capital efficiently, should be replaced by market-oriented approaches, which better reflect supply/demand conditions and provide adequate incentives for reinvestment and operational efficiency.

12. Issues that needed to be addressed in the energy sector pertain to three broad areas: (a) investment and development; (b) pricing; (c) institutional strengthening. In the power subsector, the Government has formulated least-cost development plan for the period 1986-2005 and has outlined a core investment program of Rs 30 billion consisting of high priority projects to be implemented during FY86 to FY88. Given the likelihood of domestic resource constraints and persistent power shortages, the Government is also undertaking a number of measures including tariff increases to ensure that a large portion of this investment program would be financed from WAPDA's self-generated resources. The gas producer pricing formula for new discoveries has been adjusted to provide adequate incentives to attract private sector exploration. Because consumer gas prices were kept artificially low to encourage the substitution of gas for imported oil, relative prices became distorted and the use of gas uneconomic. Since 1982, the Government policy has been to progressively increase consumer prices of gas in order to reach two-thirds of fuel oil parity by 1988; the FY86 budget increased the average gas price by over 50%. Assisted by domestic price increases and lower international prices for fuel oil, the Government's target has been realized. The Government should continue the policy of gradually adjusting gas prices with a view to reaching full parity as early as possible. Electricity tariffs, which are currently below the long-run marginal cost, should be adjusted to reflect this cost, not only to ensure the efficient use of electricity and encourage energy conservation, but also to mobilize the substantial additional funds required by the power investment program. Finally, the Government should consider increasing the autonomy of public enterprises in the energy sector to improve their efficiency and should continue to strengthen energy planning and policy coordination.

13. The Sixth Five-Year Plan (FY83-88) articulates a pragmatic strategy for Pakistan's continued rapid development that includes an expanded role for the private sector, increased public development expenditures, and increased allocations for energy, agriculture, irrigation, and the social

sectors. Although the size and composition of the Plan are appropriate, development expenditures during the first two years of the Plan have been 8.5% lower than the amounts projected because of insufficient domestic resources. Although this would not appear overly large, the way in which sectoral shortfalls have been distributed contradicts Plan priorities. Education, energy, health, and agriculture have received considerably lower allocations than called for in the Plan. Furthermore, without a predefined core investment program, there is a tendency to distribute shortfalls evenly over a large number of projects within a sector; thus too many projects have been initiated, and projects that should receive priority are underfunded. To address this issue, the Government has re-introduced a Three-Year Priority Investment Program (FY86-88). The Government has emphasized that the adoption of a rolling medium-term program does not mean that plan strategies and priorities are being revised, or that shortfalls are considered inevitable. The program will merely identify sectoral core investment programs to be given priority in annual plans. If priority investments, especially in key areas, could be protected, the public investment program would become more effective and its priorities would be sharpened.

14. The improved performance and policy framework of the Fifth Plan, which the Government intends to continue during the Sixth Plan, have improved Pakistan's creditworthiness for a blend of Bank and IDA borrowing and commercial borrowing. At the end of 1984, Pakistan's external public debt (excluding the undisbursed pipeline) stood at US$9.9 billion, of which US$4.6 billion was owed to bilateral members of the Pakistan consortium, US$1.2 billion to OPEC, US$2.3 billion to multilateral agencies, and the balance to other bilateral and private lenders. At the same time, the Bank Group's share in Pakistan's external public indebtedness was 16.2%, and in external debt service it was 8.0%. According to Bank projections, if recent policy improvements are sustained and structural issues addressed, Pakistan's debt service will remain about 20% during the remainder of the 1980s, even with somewhat higher levels of commercial borrowing.

PART II - THE BANK GROUP OPERATIONS IN PAKISTAN

15. As of September 30, 1985, the cumulative total of Bank/IDA commitments to Pakistan (exclusive of Loans and Credits or portions thereof that were disbursed in the former East Pakistan) amounted to approximately US$3.7 billion, and IFC's investments totalled $193.5 million. (Annex II contains a summary Statement of Bank loans, IDA credits, and IFC investments.)

16. During its long association with Pakistan, the Bank Group has been involved in most sectors of the economy. For example, it has participated with other donors, over a 20-year period, in a major program of works to develop the water resources of the Indus Basin. Approximately 30% of total Bank/IDA commitments to Pakistan have been for agriculture and irrigation; 28% for industry, including import program credits; 18% for transport, telecommunications, and public utility services; 14% for energy, including power, gas pipelines, and petroleum; 5% for social programs in education, population, and urban development; and 5% for structural adjustment lending and technical assistance.

17. Currently, the Bank's assistance strategy is to support the Government of Pakistan's efforts to formulate and implement policy reforms

in three sectors--energy, industry, and agriculture--which shape the structural adjustment of the economy. To ensure that the gains from adjustment are sustained in the long term and shared more broadly, the strategy also includes investments in physical infrastructure and the social sectors (education, population, etc.) that have been neglected in Pakistan's development efforts. If this strategy is to succeed, the full range of traditional instruments of Bank support must be flexibly deployed--from sector work and active policy dialogue, to policy- and project-based lending, technical assistance and aid coordination. The Bank Group's lending program comprises two components, the larger of which supports specific high-priority investments in productive sectors and physical and social infrastructure. The smaller but nonetheless strategic component focuses on policy reforms in the key sectors of agriculture, industry, and energy and relies heavily on high-quality economic and sector work. The program includes a series of technical assistance credits to finance studies and formulate action programs for policy reform. The experience with the first of these has been extremely positive. In addition, through its annual Country Economic Memorandum, the Bank Group tries to foster greater understanding on the part of Consortium members of the Government's structural adjustment program and aid requirements. This effort, coupled with increased cofinancing, should enhance the policy relevance and effectiveness of other official aid and help attract additional resources to Pakistan from nonconcessional sources.

18. Historically, the Bank Group has placed special emphasis on lending for agriculture, which is the mainstay of Pakistan's economy. The Bank and the Government have agreed that the main objective of the agricultural strategy and, consequently, lending to the sector should be to increase agricultural productivity through improvements in the efficiency of the irrigation system and supporting agricultural services. Among the issues being addressed are: the balance between short-gestation projects and projects with a longer-term focus, rationalization of input and output prices, marketing, improvements in operation and maintenance, cost recovery, and a wider role for the private sector. Projects in the sector have ranged from irrigation/drainage to agricultural inputs, research, and extension and have included institution-building components. Overall, progress in agriculture has been satisfactory.

19. In industry, the strategy has two complementary aspects: to strengthen and broaden the structural adjustment in Pakistan's industrial sector and to support the Government's efforts to revitalize the private sector through industrial financing. The industrial reform program has been designed to improve the competitiveness of the sector with a view to promoting export expansion and import substitution. Issues being addressed include trade and industrial incentives, deregulation, efficiency of public enterprises, pricing decontrol, and improvements in the credit delivery system. Lines of credit extended to development finance institutions and other financial intermediaries have been mainly for the private sector. Direct lending for industry has also included assistance to three large fertilizer plants and a refinery engineering loan. IFC's investments in 16 Pakistan enterprises were by way of loans (US$182 million) and equity participation (US$11.3 million); these are shown in Annex II. Although individual operations have generally achieved their objectives, the agenda for overall industrial reform remains formidable.

20. As a result of the progress under the Structural Adjustment Loan (SAL) in 1981/82 and the Energy Sector Loan in 1985, our lending program in

energy is expanding rapidly. The overall objective here is to expand the domestic supply from all energy subsectors and simultaneously increase the efficiency of energy use through appropriate pricing, conservation, and other methods of managing demand. No less central have been the efforts to strengthen key institutions in the sector. In power, the Bank has helped both the Karachi Electric Supply Corporation and the Water and Power Development Authority to finance their power generation and transmission programs. The construction of the Mangla and Tarbela dams under the Indus Basin Development Program, in which the Bank played a leadership role, has also assisted in achieving the objectives of the sector strategy. In oil and gas, the Bank has financed a sound exploration and development program and has assisted in developing the extensive gas transmission system. Smaller efforts, involving mainly engineering studies and technical assistance, have been undertaken to support coal exploration, energy audits, and oil refining. Despite much progress, however, the Bank will need to continue participating in institution building and help the Government mobilize adequate funds for energy investments through tariffs, co-financing, and greater private sector participation.

21. Bank Group lending for transport and communications has focused both on new capital investments and on improving the efficiency of existing assets. Efforts have also been made to strengthen the institutions responsible for these services, especially the Karachi Port Trust, Pakistan Railways, the Telephone and Telegraph Department and federal and provincial highway agencies. However, inadequate transport infrastructure is now considered to be critical constraint to overall growth, in large measure because infrastructure stock has run down. Thus, the balance between new investments and the efficient operation and maintenance of existing investments needs greater attention.

22. With an overall literacy rate of only 24%, a population growth rate of about 3.1%, and rapid urbanization, Pakistan faces an equally formidable development agenda in the social sector. The Bank has supported the Government's programs in education through five credits designed to upgrade primary, post-secondary, and higher technical and agricultural education as well as middle-level training of primary teachers and agricultural extension agents. The focus has been and will continue to be on the lower end of the education spectrum (primary, technical, and nonformal education). A first population project designed to expand the demand for population control services was approved in FY83. Furthermore, the Bank has financed four projects in the urban and water supply sector. Besides providing urban services, these operations are designed to improve local resource mobilization and cost recovery; planning and efficiency of resource utilization; and urban management, especially at the provincial and municipal levels.

23. In addition to the above, policy-based lending was pursued through the SAL and an Energy Sector Loan mentioned in para. 20. The SAL program introduced a number of significant reforms in government development planning and in policies and programs in the agriculture, energy, and industrial sectors; by the time the loan was fully disbursed at the end of FY83, significant progress had been achieved in the above areas. The ESL supports the Government reform program for the energy sector and assists in the implementation of a core investment program for the sector. Continuing support for the structural adjustment process is envisioned under other sector loans in the next few years.

24. In general, disbursements have been satisfactory. Some projects have experienced initial delays owing to protracted government procedures for project approval (but these problems are now being addressed), and the procurement of goods and services. Rapid turnover of managerial and technical staff, partly due to migration to the Middle East and partly to budgetary constraints, has also been a problem in some projects.

25. A number of operations are currently being prepared or appraised. These include projects for power transmission, generation, and conservation; oil and gas exploration and development; coal development; lines of credit for industrial financing for the private sector, and for industrial subsector restructuring, balancing, and modernization; irrigation/drainage, and agricultural inputs and services; highway construction and maintenance; primary and informal education; urban development and water supply. Sector loans that would support further structural adjustment in industry and agriculture are being discussed with the Government. Where successful, such loans would provide a policy umbrella for projects in those sectors. To help the Government finance agricultural and other high-priority projects having low foreign exchange component, the Bank Group is financing some local expenditures on a case-by-case basis.

26. Economic and sector work provides the basis for the continuing dialogue between the Bank Group and the Government of Pakistan on development strategy, the sector and project lending strategy and operations, and the coordination of external assistance within the Pakistan Consortium. The work program emphasizes resource mobilization, structural adjustment in the three key sectors, and the development of the physical and social infrastructure.

PART III - THE AGRICULTURE SECTOR

27. Role of Sector and Recent Performance. Despite its declining relative importance, agriculture continues to be the mainstay of Pakistan's economy. It contributes about 30% of gross domestic product, provides about two-thirds of total exports, and employs approximately 55% of the country's labor force. It has close linkages with other sectors of the economy. After a period of sluggish growth in the 1970s, agricultural output rose rapidly at an average rate of 4.4% per annum between FY79 and FY83. In the first two years of the Sixth Five-Year Plan period (FY84-88), agricultural value added has grown at an average annual growth rate of only 1%. In FY84, partly due to untimely rains affecting the wheat crop (the most significant agricultural commodity) and serious infestation of the important cotton crop, this growth trend was interrupted, resulting in a fall in agricultural value added. However, a return to the earlier rapid growth trend was reported for FY85, with a sectoral growth rate of nearly 10%.

28. Pakistan's potential for sustained high growth remains unrealized. Yields have stagnated, with expansion of acreage alone providing the bulk of the increase in output. Application of existing technologies by farmers to close this yield gap is constrained by various factors, including: fragmented institutional arrangements for the planning and implementation of agricultural policies and supporting programs; deficient provision of key inputs by the public sector, coupled with slow progress in broadening the role of the private sector; inadequate infrastructural facilities, such as rural roads, electrification, and drainage; and inadequate and unreliable surface canal and public groundwater irrigation supplies.

Government Policy and Bank Group Assistance and Strategy

29. Over the past six years, performance of the sector and prospects for overcoming the above production constraints have been closely linked with the Government's sectoral policies. These are reviewed below, along with the Bank Group assistance strategy. The Government's National Agricultural Policy, announced in 1980, recognized many of the above production constraints, and reversed many of the inappropriate policies of the 1970s by emphasizing: (i) a progressive adjustment of prices of key agricultural inputs and outputs to reflect real resource costs, as opposed to restraining output prices and continuing input subsidies; (ii) a gradual transfer to the private sector of activities such as the distribution of key inputs and the exploitation of fresh groundwater; and (iii) a re-orientation in its recurrent and investment expenditures on optimizing the use of existing irrigation facilities, rather than on new, large infrastructural investments. These policies recognize that sustaining agricultural growth and extracting the potential benefits of huge investments made thus far in irrigation infrastructure would require improved operation and maintenance (O&M), increased efficiency and reliability of water delivery and use, expanded drainage facilities in saline groundwater (SGW) areas, and improved supporting agricultural services. Many of the above policies and related programs grew out of a UNDP-financed Indus Basin study in the late 1970s, the Revised Action Program for Irrigated Agriculture (RAP), for which the Bank acted as executing agency. The agricultural policies and programs pursued under the Fifth Plan (FY79-83) and now continued under the Sixth Plan (FY84-88) address many of the above issues. The Bank Group has supported sectoral reform through complementary program and project operations, including the Fertilizer Imports Credit (Credit 1066-PAK, 1980 fully disbursed), Structural Adjustment Loan (Loan 2166/Credit 1255-PAK, 1982, fully disbursed), and priority projects in on-farm water management (OFWM), irrigation rehabilitation, drainage in SGW areas, extension and research, and credit.

30. Actions taken by the Government to implement the above policies were sustained through FY83. Procurement prices for most outputs were increased to border parity and key input prices were increased substantially. Pesticide distribution was privatized (and subsidy eliminated), and the private sector's share in fertilizer distribution was increased. Public recurrent expenditure on irrigation O&M increased rapidly, and investment priorities shifted toward rehabilitation and improved efficiencies and management of existing assets. In FY84 and FY85, however, the momentum of policy change slackened, particularly in phasing out water and fertilizer subsidies and in broadening privatization efforts.

31. The Bank and the Government are in general agreement that sustaining agricultural growth and reaping the potential of the agriculture sector will require resumption of actions to implement sectoral policy reforms initiated in the early 1980s. The Bank Group assistance program aims at assisting the Government in accelerating the pace of reform through a proposed Agricultural Sector Loan (under preparation), and through additional projects in drainage, water management, research and extension, and credit that are designed to alleviate bottlenecks to increased agricultural production. The proposed project would address some of these bottlenecks, namely, the management of a key input (groundwater), broadening the role of the private sector, and reducing irrigation O&M subsidies, through privatizing the pumpage of water in selected areas having fresh groundwater (FGW) supplies. The nature of the

issues to be addressed in the irrigation sub-sector through the proposed project are highlighted below.

32. Irrigation System. Irrigation dominates Pakistan's agricultural production. The country has about 40 million (M) irrigated acres, representing nearly 75% of the country's cultivable land. The Indus irrigation system commands about 34.5 M acres and generates nearly 90% of the nation's total value of agricultural output. Following partition of the subcontinent in 1947, and subsequent agreement on division of the Indus waters in 1960, large irrigation investments were made in Pakistan. In general, the projects constructed in the 1960s and 1970s sought to replace water supplies lost to India under the Indus Treaty on account of partition and to increase water supplies primarily by providing reservoir storage. Secondarily, by developing Pakistan's extensive groundwater resources, they were designed to increase the irrigated area and to intensify production on existing irrigated areas, and thereby accelerate agricultural development. The Indus irrigation system, which now comprises three major storage reservoirs (Tarbela, Mangla, and Chasma), 19 barrages or headworks, 12 link canals, 43 canal commands, and some 89,000 watercourses, is the largest continuous irrigation system in the world.

33. Emerging Drainage Problems. While extensive development of the Indus irrigation system over the last century has made possible vast increases in agricultural production, it has not been without cost. The greatly increased and continuous use of Indus waters for irrigation was developed without adequate drainage facilities, and therefore has significantly altered the hydrological balance of the Indus Basin. Seepage losses from irrigation canals, distributaries, minor canals, and watercourses, as well as deep percolation from irrigated lands, have caused a gradual rising of the groundwater table. This has resulted in waterlogging and salinity in large areas of Punjab and Sind Provinces, where most of the country's food and fiber crops are produced. At the beginning of this century, the watertable was generally more than 50 feet (ft) below the surface throughout the Indus Plain. However, by 1960 the watertable had risen to about 10-15 ft of the surface over a sizable proportion of the Indus Basin; by the late 1970s, the Indus Basin Salinity Survey reported that about 22% of the Indus Basin had a depth to watertable within 6 ft of the surface, and an additional 30% of the area had a watertable within 10 ft. Studies, including those carried out for the IDA-supported Left Bank Outfall Drain Stage I Project (Cr.1532-PAK), show that a watertable within about 6 ft of the surface is a major constraint to increasing Pakistan's crop yields, which are already low by international standards.

34. SCARP Program. In 1958, the Government assigned the Water and Power Development Authority (WAPDA) responsibility for alleviating Pakistan's expanding problems of waterlogging and salinity. Based on various studies, WAPDA initiated a salinity control and reclamation project (SCARP) concept of vertical drainage using large public tubewells (TW) to achieve the primary objective of controlling waterlogging and salinity. A secondary objective was to develop Pakistan's extensive fresh groundwater (FGW) resources for increased agricultural production by supplementing surface irrigation supplies with public pumpage facilities. A comprehensive multi-decade plan based on the SCARP concept for the whole of Pakistan was prepared in the early 1960s by WAPDA, with the assistance of international consultants. Owing to the immense financial resources required to implement the plan, and to some debate regarding the technological options and role of public and

private sectors in developing Pakistan's groundwater resources, the plan was reviewed by several groups of international experts, including a group of consultant firms appointed by the Bank at the Government's request. These reviews generally endorsed the SCARP concept as an appropriate drainage technology and basis for subsequent SCARP investments. The plans proposed that the SCARPS be financed and operated by the public sector because of the limited role of private tubewells in Pakistan's agriculture at that time and to ensure public management of ground and surface water deliveries.

35. The SCARP program was launched in 1961 with SCARP I, which involved the installation of 2,100 public TWs covering about 1.4 M acres (ac) of waterlogged area in Punjab Province. Since then, 11 additional major and numerous minor SCARPs have been completed, adding up to a total installation of about 12,500 large-capacity TWs (2-5 cusecs). These investments cover an area of about 7.4 M ac (or 20% of the Indus Basin's cultivable area), and cost about US$550 million (in current prices). The Government's target of achieving 15.5 M ac of SCARP coverage has not been reached, primarily because of the high installation costs of SCARPs in the context of a severely constrained financial environment. Although the SCARP TWs were installed chiefly to meet drainage requirements, in practice their provision of supplemental irrigation has become the more dominant objective, with drainage viewed as a by-product. This pattern is evident in the fact that about 90% of the SCARP TWs have been located in FGW areas, even though more than 50% of the Indus Plain is underlain with saline groundwater (SGW). Moreover, about 75% of the SCARP TWs are located in Punjab, which has an abundant FGW aquifer. Most of Pakistan's extensive SGW areas that rely on irrigated agriculture still require drainage facilities. As stated in Pakistan's Sixth Five-Year Plan document, Government policy is to promote private sector involvement in fresh groundwater development, including privatization of SCARP pumpage in FGW areas, and to limit all future public sector SCARP projects to the SGW areas for the sole purpose of providing drainage relief. This policy is based on recognition that pumping for drainage is not sufficient motive for farmers to invest in TWs. As a result, most of the public SCARPs currently under construction are in areas underlain with SGW (the location of SCARPs in FGW and SGW areas, completed and under construction, are shown in Map No. 19349).

36. Emerging SCARP Performance Problems. Numerous evaluation reports have assessed the performance and impact of the SCARP TWs and have arrived at two main conclusions: First, the SCARPs successfully provided urgently required drainage relief to waterlogged areas during the first 10-15 years following TW installation. However, due to O&M problems, SCARP TWs have deteriorated and have a limited capacity to meet drainage requirements on a sustained basis. Second, SCARPs have not performed satisfactorily in providing adequate and reliable supplemental irrigation at a sustainable cost to the Government. In practice, SCARP TW performance, particularly in FGW areas, has fallen short of its pumpage and agricultural targets for several reasons, including some design problems, high O&M costs, and organizational problems associated with public and centralized management of public TWs. O&M activities for SCARP TWs in FGW areas are quite inefficient because of excessive breakdown of equipment and encrustation of screens; an overloaded electric power supply system; frequent motor burnouts; untimely and unreliable groundwater deliveries, including poor coordination with surface deliveries; deficiencies of SCARP TW operators, and substantial shortfalls in O&M funding. As a result, TW discharge has fallen sharply from design capacity and expected levels; TW utilization rates are well below planned and

required levels; agricultural production targets have not been reached and are far below their potential levels; and the watertable in some SCARP areas is rising to near or above pre-SCARP levels. The shortage of O&M funding is partly due to high subsidies on SCARP TWs provided by Provincial Governments -- amounting to about 80% in financial prices, excluding a subsidy on power tariffs--that are accorded to beneficiaries of SCARP irrigation water supplies. SCARP TWs consume a substantial portion of total irrigation O&M funds for the entire country (43% in FY85), and specifically in Punjab Province (54% in FY85), and thereby effectively reduce the availability of O&M funds for the country's vast surface irrigation system. Simultaneously, Pakistan's surface irrigation system has deteriorated, partly due to insufficient O&M funding. (Annex III, Table 1 shows the relative importance of SCARP O&M outlays as a proportion of total irrigation O&M expenditures for Pakistan and for Punjab Province). It is critical to focus attention on Punjab Province, where about 75% of the SCARP TWs are located. Also, the Provincial Government, which has responsibility for irrigation O&M, confronts a major recovery/expenditure gap. Numerous efforts to overcome the above problems, particularly in order to meet agricultural requirements in FGW areas, have had limited effect.

37. Private Tubewell Boom. Documentation of inadequate SCARP TW performance in FGW areas, as cited above, is contrasted with reports of the spontaneous boom, beginning in the mid-1960s, in private TW installation and pumpage in FGW areas. In fact, private TWs have performed a major portion of the Indus Basin's drainage and supplemental water supply functions. Of an estimated 36 M ac ft (Maf) of water pumped in 1983/84 from the FGW zones in the Indus Basin, about 27 Maf (75%) were pumped by approximately 200,000 private TWs; the remaining pumpage (25%) is provided by the public sector's larger-capacity SCARP TWs. Nearly 90% of the private TW pumpage occurs in the Punjab. Although the SCARP TWs have provided a favorable demonstration effect, many private TWs have been installed in SCARP areas, partly to compensate for the unreliability of the SCARP TWs in meeting crop water requirements on a timely basis. These private TWs have also contributed an important public service as a by-product in helping to control the watertable in areas where they are located.

38. Constraints to Further Private TW Development. Notwithstanding the above, it is significant that private TWs have been installed primarily by the larger farmers (usually having a farm size greater than 25 ac), comprising about 10% of total farmers. The rate of private TW installation has slowed significantly since the late 1970s. For example, during the period 1964/65-1975/76, installations increased by nearly 20% per year; since the mid-1970s, the rate has slowed to about 3% per year. This trend confirms the existence of various constraints in further installation of private TWs, which limit the prospects of TW installation by the remaining 90% of farmers, most of whom have landholdings of less than 12.5 ac. These constraints, many of which are interrelated, include relatively small farm size; limited dissemination of recently available low-cost and small-capacity TW technology; limited availability of electrification facilities and TW electrical hookups; and deficient credit delivery system for promoting private TW installation, particularly by small farmers. In recent years, progress has been made in relieving some of these constraints on a piecemeal basis. However, extending private TW installation to a significant portion of farmers would require an institutionally coordinated effort to provide farmers with an attractive incentive package (para. 51).

PART IV - THE PROJECT

Background and Rationale for Bank Involvement

39. The O&M problems of SCARP TWs, pressing financial constraints on the Government, and the success of private TWs in tapping usable groundwater for irrigation and meeting drainage requirements, have been important factors in the origin of the SCARP transition concept. Stated simply, this concept involves shifting responsibility for groundwater development from Government to farmers, mainly by using small-capacity (less than one cusec), low-cost TW technology, in order to meet irrigation requirements on a reliable and timely basis. As a by-product, drainage requirements are also expected to be met. Therefore, it is proposed to phase out SCARP TW pumpage by the public sector in FGW areas and to replace it with privately-operated TWs, mainly by small farmers. Implementation of the concept as a phased program was a major recommendation of the RAP study completed in 1979. The Government's intention to adopt the SCARP transition concept as a policy was first indicated in the National Agricultural Policy, and subsequently in the Sixth Plan.

40. At the Government's request, the Bank agreed to serve as executing agency for the UNDP-funded feasibility study for the proposed project. The project represents the culmination of about two and a half years of preparation work, and intensive policy dialogue between the Bank and the Government. During project preparation, various options were reviewed; namely, to maintain the status quo, to improve existing SCARP O&M arrangements, or to proceed with SCARP transition. Privatization was considered the best alternative in view of broader efforts by the Government to liberalize the economy and the history of poor performance under existing arrangements, including limited effects of past efforts to improve SCARP O&M. Based on a draft feasibility report submitted by consultants, the Government of Pakistan and the Government of Punjab decided to implement SCARP transition on a pilot basis within Khanqah Dogran block, a selected area of SCARP I, because it exhibits prospects for success in a representative area (e.g. watertable under control, adequate quality groundwater, typical land tenure arrangements, farmer receptivity to private pumpage). Project implementation on a pilot scale is viewed as an essential step in assessing the practicability and replicability of the SCARP transition concept over a vastly expanded area. If proven feasible, the demonstration effects of the pilot phase are likely to hasten the implementation of a SCARP transition program on a country-wide basis. During the implementation of the pilot scheme, it would be crucial to monitor it closely and to make changes as rapidly as indicated. Therefore, both flexibility in design and monitoring are very important (para. 59).

41. The rationale for Bank involvement, beginning with project preparation, is based on several considerations. First, the Bank has a long and ongoing association with the Government of Pakistan in developing and sustaining the productivity of the Indus irrigation system. In particular, the Bank served in an advisory role during the initial stages of the SCARPs and is currently financing several SCARPs located in SGW areas. Second, privatization of public pumpage to meet multiple objectives is an innovative concept that requires careful testing and evaluation before replication over a large area. Bank involvement during this critical pilot phase is a logical extension of its active and catalytic role during project preparation and, more importantly, would enhance prospects of replicating the transition concept in other SCARP areas within a reasonable period of time. Third, the

need to overcome constraints to further groundwater development by small farmers requires close institutional coordination within and between sectors (OFWM, agricultural extension, energy, credit) that involve ongoing and proposed Bank operations. Bank involvement would help the Government focus on issues of institutional fragmentation and ensure a consistent approach in the context of its efforts to broaden the private sector's role. Given that there is no comparable project, no Operational Evaluation Department report has been prepared for a project offering relevant experience.

42. The project was prepared by the Government of Pakistan, assisted by consultants, and appraised in June/July 1985. Negotiations were held in Washington from March 11 - 17, 1986; the Pakistan delegation was led by Mr. A. Wahab Shaikh, Secretary, Ministry of Water and Power. There is no Staff Appraisal Report. Key aspects of the project are set out in Annex III, and a supplementary project data sheet is attached as Annex IV. Approval by the Executive Committee of the National Economic Council (ECNEC) of the PC-1 document for the project would be an additional condition of credit effectiveness. 1/

Project Area Characteristics

43. The pilot project would cover the Khanqah Dogran block of SCARP I in Punjab Province (Map No.19247). The block, located in a wheat-rice agro-climatic zone, has about 114,000 cultivable ac. It is one of Pakistan's more important areas for growing superior quality (Basmati) rice. The area is currently being irrigated by a combination of surface perennial irrigation supplies, 213 SCARP TWs pumping for both irrigation and drainage, and about 1,500 small-capacity, privately installed TWs. The amount of surface canal irrigation supplies allocated to the project area is fixed as a policy decision according to historical allocations, and is unlikely to be changed on account of the proposed project. Surface irrigation currently provides about 25% of total irrigation. There are relatively high conveyance losses due to inadequate O&M by Government on the canals and by farmers on the communal watercourses and farm ditches. The role of groundwater is critical in the pilot project area: nearly 75% of the total irrigation supply is pumped from a FGW aquifer, of which slightly more than half is provided by the SCARP TWs and the remainder by private TWs. Deterioration of the SCARP TWs, most of which have now exceeded their useful life, has resulted in declining public pumpage and increasing private pumpage. Insufficient and unreliable irrigation supplies, particularly from the SCARP TWs, and deficient cultivation practices are the main constraints to increasing cropping intensities and currently low crop yields in the pilot area.

44. There are about 11,500 farm units in the pilot project area, with an average farm size of about 10 ac. Small farm units predominate with about 75% of the total having less than 12.5 ac, which is the average farm size in Pakistan. While the majority of farms are cultivated by owners and owner-tenants, about 30% of the units are farmed by share-cropping tenants.

1/ A PC-1 (Planning Commission Proforma No. 1) is an internal government project appraisal document necessary for the Government of Pakistan approval procedures.

45. Existing and proposed agricultural support services in the project area are considered adequate to meet project objectives, although such services need to be strengthened country-wide over the long term. In particular, the Punjab Agricultural Extension and Adaptive Research Project (Cr. 813-PAK), which was based on the training and visit (T&V) system, has strengthened extension services in part of the project area. The Government of Punjab is covering the remaining area during project implementation under an Agricultural Development Project recently launched, which would enhance the project's impact. Provision of credit facilities to small farmers, particularly by the Agricultural Development Bank of Pakistan (ADBP), has improved in recent years. ADBP's operations in the project area, which have intensified and are to be supported by a recently negotiated Sixth ADBP project, are expected to meet the project farmers' credit requirements. The Sixth ADBP project aims at providing more flexible requirements for securing loans than at present and at increasing lending to landless borrowers on a pilot basis. The project area has been selected as one of the priority areas to be covered by ADBP's lending operations for TWs. Provided there is adequate implementation of the project's policy/incentives package (para. 51), the marketing and pricing of inputs and products offer sufficient incentives to farmers to intensify agricultural production.

Objectives and Scope

46. The project would be the pilot phase of a proposed SCARP transition program to privatize TW development in SCARP areas having adequate quality FGW. The pilot area covers 114,000 ac and 213 SCARP TWs. Ultimately the program would cover 4 M ac being served by some 7,500 SCARP TWs. 1/ Specific project objectives would be to develop a replicable package of technical and institutional components for: (a) implementing Government policy of transferring to the private sector the main responsibility for FGW pumpage in a representative SCARP area to meet more effectively both irrigation and drainage requirements; (b) confirming that farmers, particularly small farmers, would be willing and able to participate in the privatization of groundwater development; and (c) increasing agricultural production and farm incomes through improved conjunctive use of surface and groundwater supplies. If proven feasible in the pilot phase, a SCARP transition program would contribute to the important objectives of reducing significantly the accelerating financial burden on Government of maintaining SCARP TWs (both O&M and replacement costs), and of releasing financial resources for other priority investments.

Project Description

47. Components. The project would include the following components to be financed either under the proposed project or under ongoing Government programs (paras. 56 and 57): (a) improvements in the electricity distribution system; (b) private installation of TWs; (c) irrigation/drainage improvements; and (d) institutional development, including technical assistance and training, monitoring and evaluation, and project management.

1/ Another 2 M ac being served by about 3,700 SCARP TWs are classified as having FGW supplies, but the water's suitability for irrigation is questionable. These areas would need to be addressed in the future as part of an expanded SCARP transition program.

48. Electricity Distribution System Improvements. The project would upgrade and extend the electricity distribution infrastructure in the pilot area by reconditioning existing 11 KV lines; constructing new 11 KV lines; providing 33/11 KV circuit breakers and accessories; providing distribution transformers and low-tension electrical connections for privately installed TWs; and installing suitable load management equipment to help induce pumpage during non-peak hours.

49. Private Tubewells. (a) Installation - It is anticipated that most of the 213 SCARP TWs in the project area would be terminated and their water supply replaced by approximately 2,100 small-capacity private TWs to be installed mostly by individual farmers and, to a lesser extent, by small groups of cooperating farmers. While farmers would choose the source of power preferred (electricity or diesel) and the capacity of the TW to be installed, observed trends and consultations with project area farmers suggest that the vast majority of TWs (some 1,500) would be small-capacity and electrically powered, provided that essential electrical infrastructure under the project is in place on a timely basis. The remainder are expected to be diesel-driven. Even with planned increases in the power tariff over the next few years, most farmers are expected to opt for electrically-driven TWs in view of the improved electricity distribution system to be provided under the project. Since credit funds and the delivery system are already available under ADBP's recently improved private TW credit operations, credit requirements for the private TWs would not be financed by the proposed project. ADBP estimates that it would finance about 60% of total private TW investments, with the remainder to be provided by farmers. The project would also benefit from improvements in lending and outreach activities to be implemented by ADBP in the project area (para. 45). (b) Drilling Works - As an incentive to farmers and to ensure adequate spacing and timely installation of diesel TWs in accordance with the schedule to phase out SCARP TW pumpage, the project would provide these farmers (estimated at 600) who choose to install a diesel- driven TW Rs 4,000 to cover the costs of drilling of boreholes. Experience with an unreliable power supply is expected to influence some farmers to install a diesel-powered tubewell, although O&M costs are currently higher than for an electric tubewell. The full cost of diesel TW materials and equipment would be covered by farmers, many of whom are expected to use credit facilities.

50. Irrigation/Drainage Improvements. Notwithstanding the constraints of fixed allocations and high water losses of the surface canal irrigation supplies, all farmers would continue to use all available (yet insufficient) surface irrigation supplies. These supplies cost some five times less than groundwater, which involves costly energy for pumping. Water allocations are fixed and will not allow for increased surface flows into the project area in order to compensate for the phasing out of SCARP pumpage. Therefore, the following project actions would contribute directly to the project's objectives and enhance farmer participation in the project by increasing the availability of surface supplies through reducing water losses and by providing tangible evidence of Government assistance to farmers during SCARP transition.

(a) Lining of Minors. All minor canals and smaller distributaries feeding the project area (covering a length of about 20 miles) would be lined to help reduce significant seepage losses occurring along the minors, control waterlogging, and improve reliability of surface and

groundwater for increased agricultural production, particularly by farmers in the lower reaches of the canal system.

(b) On-Farm Water Management (OFWM). To facilitate the efficient use of watercourse channels for conveyance of surface and private TW water supplies, and to promote the buying/selling of water supplied by private TWs, watercourses and related field-level distribution systems would be improved by farmers, to whom materials and technical advice would be provided.

51. Key Design Features and Approach. The design of the proposed four-year pilot project (FY87-90) has three key features: a policy/incentives package; field survey on a SCARP tubewell-to-tubewell basis; and integrated project management. The policy/incentives package consists of:

(a) phasing out public sector pumpage from 213 SCARP TWs in Khanqah Dogran block in accordance with the project's estimated implementation schedule;

(b) waiving the water charge on SCARP TWs as public pumpage is phased out; and rebating, for a limited period in accordance with existing policy, the irrigation water charge to farmers who install private TWs;

(c) providing institutional credit (through ADBP) of up to 95% of the total investment cost of private TW installation to all qualifying farmers and offering production credit (including advances against cost of energy) to such credit customers;

(d) providing on a subsidized basis and in a timely manner electrical hook-up lines to farmers installing new TWs; and

(e) providing Rs 4,000 to farmers who intend to install new TWs with diesel-driven pumping units to cover drilling costs.

52. The SCARP tubewell-to-tubewell survey, based on consultations with farmers in each TW command area, is intended to assess TW condition and irrigation arrangements, including farmer intentions regarding replacement of SCARP TW irrigation supplies and installation of private TWs (e.g., electric or diesel, TW capacity and location, and degree to which joint ownership and the water selling/buying of TW water would be practiced). The survey would further indicate whether farmers prefer one of three possible approaches to SCARP transition under the pilot project: (a) replacement of SCARP TWs with smaller-capacity private TWs; (b) higher utilization of existing private TWs; or (c) transfer of a SCARP TW in good condition to a farmer or group. Any combination of approaches could be used in a given SCARP TW area. Field surveys during project preparation indicate that the dominant mode would be replacement of the deteriorated SCARP TWs by small-capacity TWs installed by individuals and small groups of cooperating farmers, coupled with higher utilization of existing private TWs. Prior to phasing out SCARP pumpage by the public sector, farmers in any SCARP TW command area would be notified at least one crop season in advance that the SCARP TW irrigation supply be cut off. Given the strong motivation of farmers to maintain irrigation supplies in the absence of public pumpage, it is expected that many farmers would

engage in joint ownership of TW facilities and sell surplus groundwater to those farmers who do not install a private TW.

53. Integrated Project Management would entail the coordination of participating agencies who would implement project components as part of their ongoing programs. Specific project mechanisms would be put in place to: deliver elements of a policy/incentives package on a timely basis; interact with farmers; to coordinate various project components; and exercise flexibility with project implementation.

Project Implementation

54. Enabling Conditions for Implementation. The most important enabling condition is the implementation of the policy/incentive package (para. 51), which would influence the outcome and timing of farmers' decisions to replace public pumpage. Both the Federal and Provincial Governments have a strong interest in ensuring successful implementation of this package. Assurances have been obtained that the Government of Punjab would implement the elements of project policy/incentives package, particularly the phasing out of SCARP TW pumpage, in a manner and within a time-frame satisfactory to the Association. A requirement for the project is the timely upgrading of certain power supply infrastructure in the project area which the Government is financing outside the project. Completion of the Khanqah Dogran grid station, which is to be given priority under the ongoing Fourth WAPDA Power Project (Ln. 2499-PAK), together with the project's electricity distribution system improvements (para. 48), would help ensure adequate and reliable power supply to meet the requirements of the privately installed TWs. The incremental power requirements of the project are negligible. The project also would require effective and timely institutional coordination of the various implementing agencies influencing farmer participation in the project: WAPDA (Power Wing) for electrification; ADBP for credit; Punjab's Department of Irrigation (DI) for lining of minor canals; and Punjab's Department of Agriculture (DA) for OFWM and agricultural extension. As outlined below, the key to the project's implementation involves coordination of actions to be provided primarily by agencies already operating in the project area. Electrification and credit facilities, which are the project's two key components, would be provided by two of Pakistan's most competent federal agencies--WAPDA (Power Wing) and ADBP. The project would formalize the institutional coordination arrangements through a Memorandum of Understanding among the key agencies (para. 58) to help ensure timely responses from farmers to the project's policy/incentives package.

55. Project Management and Coordination. Timely coordination of the various project components would be the responsibility of the Project Management Office (PMO), to be established in Punjab's Department of Irrigation and headed by a Project Director of Superintendent Engineer rank, assisted by consultants. The PMO would be responsible, inter alia, for the following: coordinating the tubewell-to-tubewell survey; planning and coordination of field implementation; monitoring; preparation of consolidated quarterly and annual project progress reports and submission of these to the Association; maintenance of project accounts; monitoring the Special Accounts; coordinating and arranging (as necessary) procurement of goods and services; and supervision of technical assistance and training inputs. The Project Director would be assisted by three Deputy Directors and their staff and supporting personnel: a Deputy Director (Electrification) and required support staff provided by WAPDA to implement the electrification component; a

Deputy Director for handling project monitoring and accounts; and a Deputy Director for implementing, surveying and planning, and field coordination/implementation of the transitional modes selected by farmers. The PMO's effectiveness would be largely influenced by its capacity to mobilize farmers through effective communication of the project concept and coordination of the participating agencies. A Project Area Coordination Committee (PACC), comprised of senior project area officials of participating agencies, local government authorities and farmer representatives from the project area, would be established to provide implementation guidance and assist the PMO in overcoming possible coordination bottlenecks and consolidating support from local officials and farmers. A Provincial Policy Committee (PPC), chaired by the Chairman of the Government of Punjab's Planning and Development Board, and comprised of senior officials of the concerned agencies, would provide overall policy guidance and would help overcome coordination problems not solved by the PMO or the PACC. PPCs with similar functions and composition have been established for several other IDA-supported irrigation projects currently under implementation and have proved helpful in overcoming implementation bottlenecks. The establishment of the PMO, PACC, and PPC would be additional conditions of credit effectiveness. These institutional arrangements have been designed so as to be replicable in an expanded SCARP program if proven successful during the pilot phase.

56. Implementation Arrangements. Implementation of the project's physical components and supporting activities have been grouped into an Implementation Program which may be amended as necessary in consultation with the Association. The power component of the project would be executed through WAPDA's Power Wing, with a special project unit to be established under the direction of a Project Deputy Director (Electrification). Implementation of the OFWM component would follow similar arrangements to those established under the Government of Punjab's ongoing OFWM program so that farmers along a given watercourse would be required to form a Water Users' Association (WUA) as a condition of obtaining financial assistance in renovating the watercourse. The Department of Agriculture, through the OFWM Directorate, would provide the necessary materials and OFWM field staff to assist farmers. The Government of Punjab have given assurances that criteria satisfactory to the Association would be used in carrying out the OFWM component, including selection of watercourses to be renovated, determining the length to be lined, and formation of WUAs. Given the requirement of securing farmer-donated labor and forming a WUA, it is estimated that about 90 percent of the project area watercourses would be improved under the project. The minor canal lining works would be designed by the Department of Irrigation, with designs and specifications satisfactory to the Association, and construction would be supervised by the Department's divisional staff stationed in the project area.

57. While credit and agricultural extension activities are not financed by the project, the project would help to ensure that these critical facilities are adequately provided. Credit for TW facilities and short-term credit for their operation and other farm inputs would be provided by ADBP. Functional Mobile Credit Officers, specially trained through the Minor Irrigation Unit of ADBP, would intensify their activities in the project area and establish contact with farmers/investors to provide technical guidance on the most cost-effective TW investments, and extend credit to interested farmers complying with ADBP lending criteria. Recent improvements in ADBP's TW lending operations are expected to enable ADBP to promote TW lending to

small farmers in the project area, including small groups of cooperating farmers, and to promote TW water buying/selling to enhance financial viability of TW investments and access to groundwater by all interested farmers. Improved water management extension, including that for TW supplies, would be provided by the Directorate of Agricultural Extension of the Department of Agriculture through the existing organization in the project area.

58. The project's activities would be integrated into the day-to-day activities of ongoing programs of participating agencies; thus, the project would require relatively minor changes in institutional arrangements and a small cadre of staff, with most project personnel coming from the concerned agencies. To ensure clarity and full agreement on the roles and staffing requirements of each participating agency in accordance with the project's Implementation Program, a Memorandum of Understanding (MOU) has been drawn up and agreed on with the relevant agencies. Signing of the MOU would be an additional condition of credit effectiveness. Implementation of the project policy/incentives package, institutional arrangements, and physical improvements would follow a number of benchmark dates by which such actions should be taken and completed. These actions and dates have been set out in an Operational Action Plan which would be reviewed annually and, as necessary, amended in consultation with the Association.

59. Monitoring and Evaluation (M&E) and Possible Changes in Project Approach. The project's pilot nature and uncertainties about farmers' responses and the project's ability to meet drainage requirements over time warrant an effective M&E system to be comprised of five main elements. First, day-to-day monitoring of project implementation and coordination activities would be carried out by the PMO under a unit headed by a Deputy Director. Second, intensified monitoring by the PMO of key physical parameters, primarily involving groundwater trends (depth to watertable, private pumpage, and water quality), would be carried out in coordination with WAPDA's SCARPS Monitoring Organization and its ongoing monitoring activities. This performance monitoring, which would continue beyond the project's implementation period, would assess the project's capacity to meet drainage requirements on a sustained basis. Third, the project includes funds so that the PMO can arrange to carry out special studies in the event that unforeseen issues arise during implementation. Fourth, the project would have a mid-term review to assess progress and validity of project concept and approach and, if necessary, to formulate appropriate remedial actions in project design and/or implementation. Fifth, the Government of Punjab's Planning and Development Board, in coordination with the PMO, would make appropriate arrangements to carry out an independent project evaluation study. The study would assess farmers' responses to SCARP transition and its initial impact, particularly on small farmers and tenants, and the feasibility of and most effective approach for replicating SCARP transition. The criteria for determining whether or not SCARP transition can be replicated would center on the following indicators: (i) rate and extent of replacement of public pumpage by farmers, particularly smallholders, under the various modes of transition, and (ii) the extent of private pumpage to increase cropping intensity and meet drainage requirements. The study's terms of reference would emphasize these criteria. Taken together, these five M&E instruments are aimed at providing flexibility in project design and implementation, so that mid-course corrections, as warranted, could be undertaken.

60. Technical Assistance and Training. In order to enable the PMO to fulfill its role in project's planning and implementation/supervision, the project would provide about 378 man-months of consultancy services. About 95% of this requirement would be met by local consultants with demonstrated experience who would be encouraged to utilize international sources for specialized inputs.

61. The PMO would arrange for Punjab's OFWM Training Institute to provide TW water management training to the agricultural field assistants in the project area in accordance with a program satisfactory to the Association. Some of the international consultancy inputs would be used to assist the Training Institute to amplify the current course on water management, adding special emphasis on TW water management. This four-week training course would also strengthen the field assistants' capacity to implement the project's field demonstration studies on TW water distribution, which are expected to accelerate the expansion of the TW water market accompanying transition.

Status of Project Preparation

62. Project design is based on the feasibility study, appraisal mission findings, and the initial findings of a tubewell-to-tubewell survey in the project area, initiated in September 1985. In August 1985, the Government of Punjab approved the project's policy/incentives package and the Punjab Law Department indicated that there are no legal impediments to implementing SCARP transition. While the first phase of the TW-to-TW survey is being carried out by consultants who prepared the feasibility report, officials from project implementing agencies currently posted in the project area are also participating. These officials are providing a key role in informing farmers of the Government's intentions to implement the policy/incentives package. Of 213 SCARP TWs included under the pilot phase, about 100 TWs will have been surveyed by mid-1986, which would meet the implementation requirements of the project's first two years. The remaining SCARP TWs would be surveyed by about mid-way in the project implementation period. Appointments of key staff are expected to be achieved by July/August 1986, the estimated project start-up date. Draft terms of reference for the project's performance monitoring component and evaluation study, consultancy services, and field demonstration studies have been prepared, and appointment of consultants is envisioned by project start-up. Tender documents for the procurement of electrification equipment and materials are under preparation and are expected to be issued by about mid-1986, with deliveries of the first contract during the first half of 1987.

Operation and Maintenance (O&M)

63. Water Users' Associations (WUAs) would be established (para. 56) by the OFWM Directorate in all the watercourse command areas having an improved water delivery system. The WUAs would be responsible for O&M of the renovated watercourses. The lined sections in the tails of minor canals and distributaries would be maintained by the appropriate canal division of Punjab's Department of Irrigation covering the project area. WAPDA (Power Wing) would be responsible for O&M of the power lines, associated electrical works, and collection of TW electricity charges based on prevailing arrangements. Currently, all newly installed TWs include a meter as a basis

for estimating electricity charges. The farmers would have full responsibility for O&M (of which about 75% comprises electricity charges) and capital replacement of their individual TW facilities.

Project Costs

64. Total project costs, including contingencies, are estimated at US$21.8 million including US$2.9 million in taxes and duties. Foreign exchange costs are estimated at US$9.0 million, or about 40% of total project costs. Base costs are expressed in March 1986 prices. Project costs include physical contingencies (ranging from 0-15%, averaging 10% of base costs), and price contingencies on foreign costs of 3.2% in FY86, 7% in FY87, 7.3% in FY88, 7.6% in FY89 and FY90, and on local costs of 10% in FY86, 8.5% in FY87, and 7.5% through FY90. Farmer-donated labor, valued at US$0.5 million, for watercourse renovation, has been excluded from the cost estimates. (Annex III, Tables (a)-(c) provide summary project costs).

Financing

65. Project financing requirements would be provided by the Federal and Provincial Governments, participating farmers/ADBP, and the Association. The proposed IDA credit of US$10.0 million comprises about 80% of costs (excluding taxes and duties, reserve procurement items, and the private TW component) and covers about 80% of foreign costs and 23% of local costs. Vehicles and cement would be financed entirely by the Government. The private TW component (US$5.2 million) would be financed by farmers, with credit facilities offered by ADBP. The IDA credit would help finance electrification, civil works and equipmer , OFWM materials (excluding cement) and civil works for lining minor canals, office and other equipment, technical assistance and training, and the evaluation study. Remaining project costs of US$6.6 million (including taxes and duties, all costs for drilling works, vehicles, cement, and project management salaries and expenses), would be financed by Government.

Procurement 1/

66. The project's proposed procurement methods are summarized below:

Component	Procurement Method a/ (US$ million) ICB	LCB	Other	Total Cost
A. Civil Works				
1. Electrification (installation)	-	-	2.1 (0.8)	2.1 (0.8)
2. Lining of Minors	-	0.7 (0.4)	-	0.7 (0.4)
3. OFWM (materials)	-	1.1 (1.0) b/	0.6	1.7 (1.0) b/
4. Drilling	-	-	0.2	0.2
B. Private TWs	-	-	4.7	4.7
C. Materials & Equipment				
1. Electrification	6.6 (6.4)	-	-	6.6 (6.4)
2. Other Equipment	-	-	0.1 (0.1)	0.1 (0.1)
3. Vehicles	-	-	0.3	0.3
D. Consultants & Training	-	-	0.8 (0.7)	0.8 (0.7)
E. Project Evaluation	-	-	0.7 (0.6)	0.7 (0.6)
F. Salaries/Other Expenses	-	-	1.0	1.0
G. Duties and Taxes	-	-	2.9	2.9
	6.6 (6.4)	1.8 (1.4)	13.4 (2.2)	21.8 (10.0)

a/ Figures in parentheses are amounts to be financed out of the credit.
b/ Excludes financing of cement.

Given their small and scattered nature, civil works associated with lining minor canals and OFWM materials (excluding cement) would be procured by local competitive bidding (LCB). Each contract estimated to cost the equivalent of US$100,000 or more would be sent to the Association for prior review. LCB

1/ All figures include contingencies.

procedures for procurement of OFWM materials are being followed satisfactorily under various IDA-assisted projects. Drilling works for diesel TWs, to be financed entirely by Government, would be in accordance with Government procedures. Privately installed TWs, to be financed by farmers (with credit facilities offered by ADBP), would be purchased from local suppliers and, where applicable, in accordance with ADBP procedures. Because of the pilot project's requirement for flexibility and the close coordination required to match farmers' TW investment decisions with the provision of credit by ADBP, installation work of electrification facilities would be carried out by WAPDA through force account. Electrification materials and equipment would be procured through international competitive bidding (ICB) procedures in accordance with Bank guidelines. Local manufacturers would receive a margin of preference in bid evaluation of 15% on equipment and materials. Such contracts would be subject to prior IDA review. A relatively small amount of office and other equipment would be procured following Government of Punjab procedures satisfactory to IDA, comparing prices of at least three independent sources. The aggregate amount of such procured equipment would not exceed US$200,000 equivalent. Selection of consultants would be done in accordance with Bank guidelines.

Disbursements

67. Disbursements from the proposed credit would be made against:

(a) Civil Works

(i) Electrification installation: 30%
(ii) OFWM (materials, excluding cement): 90%
(iii) Canal Lining Works: 65%

(b) Materials and Equipment

(i) Electrification: 100% of foreign expenditures
100% of local expenditures (ex-factory cost)
70% of other local expenditures

(ii) Office & Other Equipment: 70%

(c) Consultants' Services and Training: 100%

(d) Project Evaluation Study: 100%

68. Disbursements for items (a) (i), (ii), (iii) and (b) (i) (relating to other local expenditures), and (ii) would be made against statements of expenditure certified by the PMO. Supporting documents would be retained by the implementing agencies for review by IDA. Disbursements for items (b) (i) (excluding other local expenditure items), (c), and (d) would be made against full documentation. It is anticipated that final disbursement of the credit would be completed by December 30, 1990, about six months after project completion. The project's disbursement profile, which is less than that of IDA-supported irrigation projects in Pakistan, reflects the project's pilot phase, Government policy to phase out public control of SCARP TWs in the project area over the next four years according to an agreed schedule, and the need for an early assessment of project experience prior to replicating the project over a larger area and a longer time-frame. In addition, the

project's relatively minor works are well within the demonstrated capacities of the implementing agencies. Since most of the electrification works financed by IDA are to be installed ahead of private TWs, a major proportion of IDA disbursements are expected to proceed in the project's early stages. Therefore, the currently available disbursement profile of the conventional project is not applicable to the pilot phase.

Special Accounts: Project Accounts: Auditing

69. To facilitate adequate and timely project financing, the Government of Punjab and WAPDA would each open and maintain in Dollars a Special Account in the National Bank of Pakistan, in accordance with procedures and on terms and conditions satisfactory to the Association, for purposes of watercourse renovations and the electricity distribution system improvement components, respectively. Each implementing agency would prepare and maintain project accounts which would be audited annually according to current practice. The PMO would consolidate project accounts. Audit reports would include a statement verifying that credit funds disbursed in advance for the Special Account and those reimbursed against statements of expenditure had been used for the project. These reports would be furnished to the Association through the PMO no later than nine months after the end of each fiscal year.

Cost Recovery and Fiscal Implications

70. Cost recovery for irrigation and drainage is a central issue in the Bank's dialogue on agriculture with the Federal and Provincial Governments, including the Government of Punjab. Irrigation cost recovery, including that from the SCARP TWs, is a provincial responsibility. Under the Command Water Management Project (Cr. 1487-PAK),the Government of Punjab reaffirmed its commitment to move progressively towards full recovery of the cost of O&M of the irrigation system by July 1, 1990, through increasing water charges periodically or making other appropriate financing arrangements. In FY85, the Government of Punjab's total irrigation recoveries were about Rs 790 million, or only 53% of total irrigation expenditures. Full recovery of O&M expenditures through direct charges by the target date would not be easy because of the extremely high O&M subsidy for SCARP TWs. In FY85, O&M expenditures for 9,000 SCARP TWs in the Punjab were Rs 800 million, or about 55% of total irrigation O&M expenditures (Rs 1470 million) in the Province. About 75% of the SCARP TW O&M costs comprise energy charges. Direct recoveries from SCARP TW beneficiaries were Rs 170 million, only 20% of expenditures. The Government of Punjab strongly supports the privatization of SCARP TWs in FGW areas in order to reduce public irrigation O&M expenditures and enable their full coverage from user charges. Currently, irrigation O&M expenditures are the second largest item in the Government of Punjab's recurrent budget, and moreover, are equivalent to 33% of its capital budget.

71. Two project-specific charges, based on current policies, would be levied on beneficiaries of the pilot project. In addition, farmers would be enlisted in cost-sharing with Government for a third item. First, the watercourse improvement program would recover at least 25% of the total cost of materials (in installments over seven years) from beneficiaries, in addition to a substantial amount of farmer-donated labor. Second, any electrical hook-up costs in excess of Rs 30,000 (FY86 constant prices) per private TW would be charged to beneficiary farmers. Third, to provide sufficient incentive to farmers installing a diesel TW, the project would cover drilling

costs estimated at about Rs 4,000 per well, about 15% of the total investment in a diesel TW. The balance would be provided by the farmer. Overall, the subsidies implicit in the project's cost recovery arrangements are modest if they are successful in inducing privatization of groundwater development by smallholders in FGW areas. To the extent that private TWs contribute to meeting drainage requirements as a by-product (para. 37), such TWs would provide substantial social benefits. Over time, however, the subsidies would need to be carefully monitored to ensure that they are effective instruments in meeting the project's objectives and continue to be affordable by the Provincial budget.

72. While the budgetary savings of the pilot project is negligible, the potential savings of its expansion into a SCARP transition program (i.e., some 7,500 TWs serving about 4 million acres in FGW areas) would be significant. Assuming projected increases in power tariffs implied in agreements reached under Bank-supported energy operations (e.g., Energy Sector Loan, Ln.2552-PAK), and considering the O&M and capital replacement costs of SCARP TWs, by 1990 the Government of Punjab's outlay for SCARP TWs in FGW areas is estimated to be some US$60 million per year (constant mid-FY86 prices). If an expanded SCARP transition program is adopted during the 1990s such a program is estimated to cost about US$40 million a year over approximately 10 years, which illustrates the magnitude of reduced budgetary outlays that could result. Without the SCARP transition program, the growing large number of worn-out SCARP TWs in FGW areas would require significant budgetary outlays for TW replacement. At the same time, the Government of Punjab would allocate substantial funds to meet the full O&M requirements of SCARP TWs in SGW areas, which would remain in the public sector. Therefore, shifting the burden to farmers for meeting their supplemental irrigation and the project area's drainage requirements, and for releasing budgetary resources, warrants attractive cost-sharing arrangements and subsidies, as outlined above, to provide farmers adequate incentives to privatize pumpage at a satisfactory level.

Benefits and Risks

73. Benefits. The benefits estimated for the pilot phase illustrate those that can be expected under an expanded program, adjusted for the area covered. The pilot project, if successful, is expected to increase substantially agricultural production over about 114,000 ac by providing increased and more reliable and timely irrigation supplies, complemented by improved TW water management practices. These supplies would be made possible by replacing the SCARP TWs with privately installed TWs, inducing additional utilization of existing private TWs, and effecting efficiencies of the surface irrigation system at or near the farm level by watercourse improvements and the lining of minor canals. The estimated economic rate of return (ERR) for the pilot project is about 23%. The base case assumes that, without the project, the Government of Punjab would provide some improvements to the O&M of SCARP TWs, resulting in some modest increases in production. Various sensitivity tests were carried out to show the robustness of the project's economic viability. For example, in the unlikely event that farmers' responses to replacing SCARP TW pumpage are delayed by three years, the project would still have a relatively high rate of return of about 20%.

74. Approximately 11,500 farm families, or 75,000 people, would benefit directly from the pilot project. Since about 40% of irrigation supplies in the project area are provided by SCARP TWs, all groups of farmers would have

a strong motivation to replace that pumpage, even at higher cost. Increases in income due to the proposed project are estimated at 25% to 90%, depending on farm size, land tenure, and source of TW supplies. The benefits would be expected to accrue primarily to families with annual incomes currently below US$100 per capita. These projected increases in farm income, enabled by the project's cost-sharing arrangements, offer adequate incentives for all farmers to participate in the privatization of SCARP TW pumpage. Based on existing practices of crop and input cost-sharing, including TW water supplies, tenant farmers, who comprise 30% of project area population, are expected to receive 50% of the increased net farm income. Tenants would be protected from eviction by a number of statutory and acquired rights, and the project-generated farm employment would further protect their right to the land through a higher demand for their labor and ensure that they receive an equitable return. In accordance with current practices, but on an expanded scale, small farmers who do not install a private TW (individually or jointly) are expected to purchase TW supplies from neighboring farmers and still reap substantial incremental net farm incomes. The annual income of typical smallholders (including tenants), who comprise about 75% of the total farmers in the project area, is expected to be about US$135 per capita with the project, as compared to about US$95 per capita without the project, and to US$75 at present (all in mid-FY86 prices). These income levels, even at full development of the project, are substantially below Pakistan's current per capita income of US$390.

75. On balance, the income distributional effects of the pilot project are likely to be positive, considering that the project would provide small farmers with a reliable source of TW irrigation supply, and therefore, proportionally higher increases in income than estimated for the large farmers already owning TWs. Under existing arrangements, the unreliable SCARP TW irrigation supplies, in practice, have an adverse impact on small farmers, because, unlike large farmers, they have limited (if any) options to compensate for shortfalls in SCARP pumpage. Given the project's pilot nature and the predominance of small farmers in the project area, impact on small farmers, particularly tenants, would be given special attention in the evaluation study (para. 59).

76. Environmental Impact. Over time, SCARP TW pumpage of FGW supplies in Punjab Province has resulted in deterioration of water quality due to the effects of pumping from greater depths (up to 250 ft) and consequent recirculation of water, with resulting concentration of minerals and salinity that limit use of groundwater for irrigation. While the project area has not yet experienced this deterioration, privatization of pumpage with small capacity TWs at shallow depths (up to 50 ft) is expected to have a sustainable positive impact on groundwater quality, at least in the near-to-medium term. The long-term effects of the project on groundwater quality are uncertain and will be an aspect of performance monitoring to be continued upon completion of project implementation.

77. Risks. Inadequate implementation of the project's policy/incentives package would jeopardize the success of the pilot project. In particular, any wavering of the Government's commitment to phase out the highly subsidized SCARP TW pumpage or any delays or restrictions on the provision of electrical and/or credit facilities would adversely affect farmers' responses to SCARP transition (i.e., leading to shortfalls and/or delays in the installation of private TWs and pumpage). To minimize this risk, the project policy package was approved by the Government of Punjab well ahead of planned

project start-up, a tubewell-to-tubewell survey has been initiated, and implementation arrangements provide for an integrated, coordinated, and flexible approach by participating agencies. The pilot project was designed to involve smallholders in privatizing public pumpage, and any associated risks would be minimized through attractive cost-sharing arrangements, emphasis on intensified lending to small farmers by ADBP for TWs, promotion of an expanded water market, and effective monitoring and evaluation, including a mid-term review of the project's initial implementation experience.

PART V - RECOMMENDATION

78. I am satisfied that the proposed credit would comply with the Articles of Agreement of the Association, and I recommend that the Executive Directors approve the proposed project.

A. W. Clausen
President

Attachments

April 15, 1986
Washington, D.C.

TABLE 3A

PAKISTAN - SOCIAL INDICATORS DATA SHEET

	PAKISTAN 1960/b	PAKISTAN 1970/b	PAKISTAN MOST RECENT ESTIMATE/b	REFERENCE GROUPS (WEIGHTED AVERAGES) /a (MOST RECENT ESTIMATE) /b LOW INCOME ASIA & PACIFIC	MIDDLE INCOME ASIA & PACIFIC
EDUCATION					
ADJUSTED ENROLLMENT RATIOS					
PRIMARY: TOTAL	30.0	40.0	44.0	92.6	100.7
MALE	46.0	57.0	57.0	105.5	104.4
FEMALE	13.0	22.0	31.0	79.3	97.2
SECONDARY: TOTAL	11.0	13.0	14.0	31.3	47.8
MALE	18.0	20.0	20.0	40.8	50.6
FEMALE	3.0	5.0	8.0	21.9	44.8
VOCATIONAL (% OF SECONDARY)	1.0	1.5	1.7	3.2	18.4
PUPIL-TEACHER RATIO					
PRIMARY	39.0	41.0	36.0	38.0	30.4
SECONDARY	24.0	20.0	18.0	17.4	22.2
CONSUMPTION					
PASSENGER CARS/THOUSAND POP	1.5	2.6	3.4 /g	0.9	10.1
RADIO RECEIVERS/THOUSAND POP	6.0	17.1	74.6	129.8	172.9
TV RECEIVERS/THOUSAND POP	..	1.6	11.5	19.8	58.5
NEWSPAPER ("DAILY GENERAL INTEREST") CIRCULATION PER THOUSAND POPULATION	13.2	..	19.4	25.7	65.3
CINEMA ANNUAL ATTENDANCE/CAPITA	1.7	3.0 /i	2.2 /c	6.0	3.4
LABOR FORCE					
TOTAL LABOR FORCE (THOUS)	14448.0	17364.0	25325.0	.	.
FEMALE (PERCENT)	8.6	9.3	10.6	33.2	33.6
AGRICULTURE (PERCENT)	61.0	59.0	57.0	69.6	52.2
INDUSTRY (PERCENT)	18.0	19.0	20.0	15.8	17.9
PARTICIPATION RATE (PERCENT)					
TOTAL	31.5	28.7	28.2	41.9	38.9
MALE	55.2	50.4	48.3	53.6	50.8
FEMALE	5.7	5.5	6.3	29.1	26.8
ECONOMIC DEPENDENCY RATIO	1.5	1.7	1.7	1.0	1.1
INCOME DISTRIBUTION					
PERCENT OF PRIVATE INCOME RECEIVED BY					
HIGHEST 5% OF HOUSEHOLDS	20.3 /k	17.8	..	..	..
HIGHEST 20% OF HOUSEHOLDS	45.3 /k	41.8	..	..	48.0
LOWEST 20% OF HOUSEHOLDS	6.4 /k	8.0	..	..	6.4
LOWEST 40% OF HOUSEHOLDS	17.5 /k	20.2	..	..	15.5
POVERTY TARGET GROUPS					
ESTIMATED ABSOLUTE POVERTY INCOME LEVEL (US$ PER CAPITA)					
URBAN	..	68.0 /i	176.0 /c	133.9	..
RURAL	..	47.0 /i	122.0 /c	111.6	151.9
ESTIMATED RELATIVE POVERTY INCOME LEVEL (US$ PER CAPITA)					
URBAN	..	34.0 /i	88.0 /c	..	177.9
RURAL	..	22.0 /i	58.0 /c	61.7	164.7
ESTIMATED POP. BELOW ABSOLUTE POVERTY INCOME LEVEL (%)					
URBAN	..	42.0 /i	32.0 /c	43.8	23.5
RURAL	..	43.0 /i	29.0 /c	51.7	37.8

.. NOT AVAILABLE
. NOT APPLICABLE

NOTES

/a The group averages for each indicator are population-weighted arithmetic means. Coverage of countries among the indicators depends on availability of data and is not uniform.

/b Unless otherwise noted, "Data for 1960" refer to any year between 1959 and 1961; "Data for 1970" between 1969 and 1971; and data for "Most Recent Estimate" between 1981 and 1983.

/c 1979; /d 1968; /e 1977; /f If registered, not all practising in the country; /g 1980; /h 1973; /i 1972; /j 1964.

TABLE 3A

PAKISTAN - SOCIAL INDICATORS DATA SHEET

	PAKISTAN 1960/b	PAKISTAN 1970/b	PAKISTAN MOST RECENT ESTIMATE/b	REFERENCE GROUPS (WEIGHTED AVERAGES) /a (MOST RECENT ESTIMATE) /b LOW INCOME ASIA & PACIFIC	MIDDLE INCOME ASIA & PACIFIC
AREA (THOUSAND SQ. KM)					
TOTAL	803.9	803.9	803.9	.	.
AGRICULTURAL	227.5	243.3	253.0	.	.
GNP PER CAPITA (US$)	..	..	390.0	278.3	1011.1
ENERGY CONSUMPTION PER CAPITA (KILOGRAMS OF OIL EQUIVALENT)	98.0	139.0	179.0	285.7	566.8
POPULATION AND VITAL STATISTICS					
POPULATION,MID-YEAR (THOUSANDS)	45851.0	60449.0	89729.0	.	.
URBAN POPULATION (% OF TOTAL)	22.1	24.9	29.1	22.3	35.9
POPULATION PROJECTIONS					
POPULATION IN YEAR 2000 (MILL)			133.1	.	.
STATIONARY POPULATION (MILL)			330.0	.	.
POPULATION MOMENTUM			1.9	.	.
POPULATION DENSITY					
PER SQ. KM.	57.0	75.2	111.6	173.8	386.9
PER SQ. KM. AGRI. LAND	201.5	248.4	344.4	353.3	1591.2
POPULATION AGE STRUCTURE (%)					
0-14 YRS	43.8	46.2	43.7	36.3	38.2
15-64 YRS	51.8	50.5	53.2	59.4	57.7
65 AND ABOVE	4.3	3.1	2.9	4.3	3.5
POPULATION GROWTH RATE (%)					
TOTAL	2.3	2.8	3.0	2.0	2.3
URBAN	4.6	4.0	4.4	4.1	4.1
CRUDE BIRTH RATE (PER THOUS)	48.6	46.6	42.0	27.5	30.1
CRUDE DEATH RATE (PER THOUS)	23.5	19.4	14.9	10.2	9.4
GROSS REPRODUCTION RATE	3.4	3.4	2.8	1.7	1.9
FAMILY PLANNING					
ACCEPTORS, ANNUAL (THOUS)	..	1908.1	1244.0 /c	.	.
USERS (% OF MARRIED WOMEN)	..	6.0 /d	14.3	49.4	56.5
FOOD AND NUTRITION					
INDEX OF FOOD PROD. PER CAPITA (1969-71=100)	89.0	102.0	107.0	116.6	124.4
PER CAPITA SUPPLY OF					
CALORIES (% OF REQUIREMENTS)	77.0	95.0	104.0	106.3	115.7
PROTEINS (GRAMS PER DAY)	53.0	58.0	61.0	60.1	60.3
OF WHICH ANIMAL AND PULSE	23.0	22.0	20.0 /e	14.4	14.1
CHILD (AGES 1-4) DEATH RATE	24.9	21.1	16.0	7.3	7.2
HEALTH					
LIFE EXPECT. AT BIRTH (YEARS)	43.1	46.0	50.2	60.5	60.6
INFANT MORT. RATE (PER THOUS)	161.5	143.0	119.0	69.2	64.9
ACCESS TO SAFE WATER (%POP)					
TOTAL	..	21.0	34.6	44.2	46.0
URBAN	..	77.0	72.0	77.2	57.6
RURAL	..	4.0	20.0	34.6	37.1
ACCESS TO EXCRETA DISPOSAL (% OF POPULATION)					
TOTAL	..	3.0	13.1	7.8	50.1
URBAN	..	12.0	42.0	28.8	52.9
RURAL	..	..	2.0	5.5	44.7
POPULATION PER PHYSICIAN	5400.0	4300.0 /f	3480.0 /g	3318.0	7751.7
POP. PER NURSING PERSON	38110.0	10580.0 /f	5820.0 /g	4690.7	2464.8
POP. PER HOSPITAL BED					
TOTAL	1790.0	1860.0	1560.0 /c	1039.2	1112.1
URBAN	510.0	650.0	710.0 /e	299.1	651.4
RURAL	22850.0	12480.0	11860.0 /e	6028.2	2596.9
ADMISSIONS PER HOSPITAL BED	..	..	..	52.3	41.1
HOUSING					
AVERAGE SIZE OF HOUSEHOLD					
TOTAL	5.4	5.3	6.1 /c	..	..
URBAN	5.6	5.5	6.4 /c	..	..
RURAL	5.4	5.2	6.0 /c	..	..
AVERAGE NO. OF PERSONS/ROOM					
TOTAL	3.1	2.8 /h	..	..	..
URBAN	3.1	2.7 /h	..	..	..
RURAL	3.1	2.8 /h	..	..	..
PERCENTAGE OF DWELLINGS WITH ELECT.					
TOTAL	..	17.9 /h	..	..	..
URBAN	..	54.4 /h	..	..	..
RURAL	..	4.9 /h	..	..	..

DEFINITIONS OF SOCIAL INDICATORS

Notes: Although the data are drawn from sources generally judged the most authoritative and reliable, it should also be noted that they may not be internationally comparable because of the lack of standardized definitions and concepts used by different countries in collecting the data. The data are, nonetheless, useful to describe orders of magnitude, indicate trends, and characterize certain major differences between countries.

The reference groups are (1) the same country group of the subject country and (2) a country group with somewhat higher average income than the country group of the subject country (except for "High Income Oil Exporters" group where "Middle Income North Africa and Middle East" is chosen because of stronger socio-cultural affinities). In the reference group data the averages are population weighted arithmetic means for each indicator and shown only when majority of the countries in a group has data for that indicator. Since the coverage of countries among the indicators depends on the availability of data and is not uniform, caution must be exercised in relating averages of one indicator to another. These averages are only useful in comparing the value of one indicator at a time among the country and reference groups.

AREA (thousand sq.km.)

Total—Total surface area comprising land area and inland waters; 1960, 1970 and 1983 data.

Agricultural—Estimate of agricultural area used temporarily or permanently for crops, pastures, market and kitchen gardens or to lie fallow, 1960, 1970 and 1982 data.

GNP PER CAPITA (US$)—GNP per capita estimates at current market prices, calculated by same conversion method as *World Bank Atlas* (1981-83 basis); 1983 data.

ENERGY CONSUMPTION PER CAPITA—Annual apparent consumption of commercial primary energy (coal and lignite, petroleum, natural gas and hydro-, nuclear and geothermal electricity) in kilograms of oil equivalent per capita; 1960, 1970, and 1982 data.

POPULATION AND VITAL STATISTICS

Total Population, Mid-Year (thousands)—As of July 1; 1960, 1970, and 1983 data.

Urban Population (percent of total)—Ratio of urban to total population; different definitions of urban areas may affect comparability of data among countries; 1960, 1970, and 1983 data.

Population Projections

Population in year 2000—The projection of population for 2000, made for each economy separately. Starting with information on total population by age and sex, fertility rates, mortality rates, and international migration in the base year 1980, these parameters were projected at five-year intervals on the basis of generalized assumptions until the population became stationary.

Stationary population—Is one in which age- and sex-specific mortality rates have not changed over a long period, while age-specific fertility rates have simultaneously remained at replacement level (net reproduction rate = 1). In such a population, the birth rate is constant and equal to the death rate, the age structure is also constant, and the growth rate is zero. The stationary population size was estimated on the basis of the projected characteristics of the population in the year 2000, and the rate of decline of fertility rate to replacement level.

Population Momentum—Is the tendency for population growth to continue beyond the time that replacement-level fertility has been achieved; that is, even after the net reproduction rate has reached unity. The momentum of a population in the year *t* is measured as a ratio of the ultimate stationary population to the population in the year *t*, given the assumption that fertility remains at replacement level from year *t* onward, 1985 data.

Population Density

Per sq.km.—Mid-year population per square kilometer (100 hectares) of total area; 1960, 1970, and 1983 data.

Per sq.km. agricultural land—Computed as above for agricultural land only, 1960, 1970, and 1982 data.

Population Age Structure (percent)—Children (0-14 years), working age (15-64 years), and retired (65 years and over) as percentage of mid-year population; 1960, 1970, and 1983 data.

Population Growth Rate (percent)—total—Annual growth rates of total mid-year population for 1950-60, 1960-70, and 1970-83.

Population Growth Rate (percent)—urban—Annual growth rates of urban population for 1950-60, 1960-70, and 1970-83 data.

Crude Birth Rate (per thousand)—Number of live births in the year per thousand of mid-year population; 1960, 1970, and 1983 data.

Crude Death Rate (per thousand)—Number of deaths in the year per thousand of mid-year population; 1960, 1970, and 1983 data.

Gross Reproduction Rate—Average number of daughters a woman will bear in her normal reproductive period if she experiences present age-specific fertility rates; usually five-year averages ending in 1960, 1970, and 1983.

Family Planning—Acceptors, Annual (thousands)—Annual number of acceptors of birth-control devices under auspices of national family planning program.

Family Planning—Users (percent of married women)—The percentage of married women of child-bearing age who are practicing or whose husbands are practicing any form of contraception. Women of child-bearing age are generally women aged 15-49, although for some countries contraceptive usage is measured for other age groups.

FOOD AND NUTRITION

Index of Food Production Per Capita (1969-71 = 100)—Index of per capita annual production of all food commodities. Production excludes animal feed and seed for agriculture. Food commodities include primary commodities (e.g. sugarcane instead of sugar) which are edible and contain nutrients (e.g. coffee and tea are excluded); they comprise cereals, root crops, pulses, oil seeds, vegetables, fruits, nuts, sugarcane and sugar beets, livestock, and livestock products. Aggregate production of each country is based on national average producer price weights; 1961-65, 1970, and 1982 data.

Per Capita Supply of Calories (percent of requirements)—Computed from calorie equivalent of net food supplies available in country per capita per day. Available supplies comprise domestic production, imports less exports, and changes in stock. Net supplies exclude animal feed, seeds for use in agriculture, quantities used in food processing, and losses in distribution. Requirements were estimated by FAO based on physiological needs for normal activity and health considering environmental temperature, body weights, age and sex distribution of population, and allowing 10 percent for waste at household level; 1961, 1970 and 1982 data.

Per Capita Supply of Protein (grams per day)—Protein content of per capita net supply of food per day. Net supply of food is defined as above. Requirements for all countries established by USDA provide for minimum allowances of 60 grams of total protein per day and 20 grams of animal and pulse protein, of which 10 grams should be animal protein. These standards are lower than those of 75 grams of total protein and 23 grams of animal protein as an average for the world, proposed by FAO in the Third World Food Supply; 1961, 1970 and 1982 data.

Per Capita Protein Supply From Animal and Pulse—Protein supply of food derived from animals and pulses in grams per day; 1961-65, 1970 and 1977 data.

Child (ages 1-4) Death Rate (per thousand)—Number of deaths of children aged 1-4 years per thousand children in the same age group in a given year. For most developing countries data derived from life tables; 1960, 1970 and 1983 data.

HEALTH

Life Expectancy at Birth (years)—Number of years a newborn infant would live if prevailing patterns of mortality for all people

at the time of of its birth were to stay the same throughout its life; 1960, 1970 and 1983 data.

Infant Mortality Rate (per thousand)—Number of infants who die before reaching one year of age per thousand live births in a given year; 1960, 1970 and 1983 data.

Access to Safe Water (percent of population)—total, urban, and rural—Number of people (total, urban, and rural) with reasonable access to safe water supply (includes treated surface waters or untreated but uncontaminated water such as that from protected boreholes, springs and sanitary wells) as percentages of their respective populations. In an urban area a public fountain or standpost located not more than 200 meters from a house may be considered as being within reasonable access of that house. In rural areas reasonable access would imply that the housewife or members of the household do not have to spend a disproportionate part of the day in fetching the family's water needs.

Access to Excreta Disposal (percent of population)—total, urban, and rural—Number of people (total, urban, and rural) served by excreta disposal as percentages of their respective populations. Excreta disposal may include the collection and disposal, with or without treatment, of human excreta and waste-water by water-borne systems or the use of pit privies and similar installations.

Population per Physician—Population divided by number of practising physicians qualified from a medical school at university level.

Population per Nursing Person—Population divided by number of practicing male and female graduate nurses, assistant nurses, practical nurses and nursing auxiliaries.

Population per Hospital Bed—total, urban, and rural—Population (total, urban, and rural) divided by their respective number of hospital beds available in public and private, general and specialized hospitals and rehabilitation centers. Hospitals are establishments permanently staffed by at least one physician. Establishments providing principally custodial care are not included. Rural hospitals, however, include health and medical centers not permanently staffed by a physician (but by a medical assistant, nurse, midwife, etc.) which offer in-patient accommodation and provide a limited range of medical facilities.

Admissions per Hospital Bed—Total number of admissions to or discharges from hospitals divided by the number of beds.

HOUSING

Average Size of Household (persons per household)—total, urban, and rural—A household consists of a group of individuals who share living quarters and their main meals. A boarder or lodger may or may not be included in the household for statistical purposes.

Average Number of Persons per Room—total, urban, and rural—Average number of persons per room in all urban, and rural occupied conventional dwellings, respectively. Dwellings exclude non-permanent structures and unoccupied parts.

Percentage of Dwellings with Electricity—total, urban, and rural—Conventional dwellings with electricity in living quarters as percentage of total, urban, and rural dwellings respectively.

EDUCATION

Adjusted Enrollment Ratios

Primary school - total, male and female—Gross total, male and female enrollment of all ages at the primary level as percentages of respective primary school-age populations. While many countries consider primary school age to be 6-11 years, others do not. The differences in country practices in the ages and duration of school are reflected in the ratios given. For some countries with universal education, gross enrollment may exceed 100 percent since some pupils are below or above the country's standard primary-school age.

Secondary school - total, male and female—Computed as above; secondary education requires at least four years of approved primary instruction; provides general, vocational, or teacher training instructions for pupils usually of 12 to 17 years of age; correspondence courses are generally excluded.

Vocational Enrollment (percent of secondary)—Vocational institutions include technical, industrial, or other programs which operate independently or as departments of secondary institutions.

Pupil-teacher Ratio - primary, and secondary—Total students enrolled in primary and secondary levels divided by numbers of teachers in the corresponding levels.

CONSUMPTION

Passenger Cars (per thousand population)—Passenger cars comprise motor cars seating less than eight persons; excludes ambulances, hearses and military vehicles.

Radio Receivers (per thousand population)—All types of receivers for radio broadcasts to general public per thousand of population; excludes un-licensed receivers in countries and in years when registration of radio sets was in effect; data for recent years may not be comparable since most countries abolished licensing.

TV Receivers (per thousand population)—TV receivers for broadcast to general public per thousand population; excludes unlicensed TV receivers in countries and in years when registration of TV sets was in effect.

Newspaper Circulation (per thousand population)—Shows the average circulation of "daily general interest newspaper," defined as a periodical publication devoted primarily to recording general news. It is considered to be "daily" if it appears at least four times a week.

Cinema Annual Attendance per Capita per Year—Based on the number of tickets sold during the year, including admissions to drive-in cinemas and mobile units.

LABOR FORCE

Total Labor Force (thousands)—Economically active persons, including armed forces and unemployed but excluding housewives, students, etc., covering population of all ages. Definitions in various countries are not comparable; 1960, 1970 and 1983 data.

Female (percent)—Female labor force as percentage of total labor force.

Agriculture (percent)—Labor force in farming, forestry, hunting and fishing as percentage of total labor force; 1960, 1970 and 1980 data.

Industry (percent)—Labor force in mining, construction, manufacturing and electricity, water and gas as percentage of total labor force; 1960, 1970 and 1980 data.

Participation Rate (percent)—total, male, and female—Participation or activity rates are computed as total, male, and female labor force as percentages of total, male and female population of all ages respectively; 1960, 1970, and 1983 data. These are based on ILO's participation rates reflecting age-sex structure of the population, and long time trend. A few estimates are from national sources.

Economic Dependency Ratio—Ratio of population under 15, and 65 and over, to the working age population (those aged 15-64).

INCOME DISTRIBUTION

Percentage of Total Disposable Income (both in cash and kind)—Accruing to percentile groups of households ranked by total household income.

POVERTY TARGET GROUPS

The following estimates are very approximate measures of poverty levels, and should be interpreted with considerable caution.

Estimated Absolute Poverty Income Level (US$ per capita)—urban and rural—Absolute poverty income level is that income level below which a minimal nutritionally adequate diet plus essential non-food requirements is not affordable.

Estimated Relative Poverty Income Level (US$ per capita)—urban and rural—Rural relative poverty income level is one-third of average per capita personal income of the country. Urban level is derived from the rural level with adjustment for higher cost of living in urban areas.

Estimated Population Below Absolute Poverty Income Level (percent)—urban and rural— Percent of population (urban and rural who are "absolute poor."

Comparative Analysis and Data Division
Economic Analysis and Projections Department
June 1985

ECONOMIC DEVELOPMENT DATA

GNP PER CAPITA IN 1982: US$380 /a

GROSS NATIONAL PRODUCT IN 1983/84 /b	US$ Billion	%	ANNUAL RATE OF GROWTH (%, constant prices) 1969/70-1974/75	1975/76-1980/81	1981/82	1982/83	1983/84
GNP at market prices	33.68	100.0	3.5	7.1	4.3	7.4	4.2
Gross domestic investment	5.23	15.5	-5.5	4.1	10.5	9.6	3.4
Gross national saving	4.20	12.5	-2.1	6.7	6.9	24.9	-6.5
Current account balance	-1.00	-3.0	.	.	.	.	.
Exports of goods, NFS	3.44	10.2	-3.5	7.3	-5.6	27.5	-3.2
Imports of goods, NFS	7.06	21.0	-7.1	5.5	0.7	1.1	22.0

OUTPUT, LABOR FORCE AND PRODUCTIVITY IN 1983/84	Value Added $ Million	%	Labor Force /c Million	%	V. A. Per Worker US$	%
Agriculture	6,652	24	14.1	51	472	47
Industry /d	8,096	29	5.2	19	1,557	155
Services	12,931	47	8.3	30	1,558	155
Total/Average	27,679	100	27.6	100	1,003	100

GOVERNMENT FINANCE

	Central Government /e (Rs billion) 1983/84 /f	% of GDP 1983/84	% of GDP 1978/79-1983/84	Federal Government (Rs billion) 1983/84 /f	% of GDP 1983/84	% of GDP 1978/79-1983/84
Current receipts	73.2	17.4	16.6	58.2	13.9	12.4
Current expenditures	80.3	19.1	23.5	62.8	15.0	13.2
Current surplus	-7.2	-1.7	-6.3	-4.6	-1.1	-0.4
Capital expenditures /g	34.2	8.1	9.4	34.2	7.0	8.0
External assistance (net)	6.0	1.4	2.1	6.0	1.4	2.1

MONEY, CREDIT AND PRICES

	1974/75	1975/76	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84 /h
					(Rs billion)					
Money and quasi money /i	33.1	41.6	51.7	63.7	76.5	90.7	103.5	113.6	146.0	162.5
Bank credit to public sector	21.2	28.1	36.6	43.5	54.9	61.8	70.9	79.7	95.5	105.6
Bank credit to private sector	16.0	17.8	23.0	26.5	30.9	36.9	41.9	51.3	62.8	77.8
					(percentages or index numbers)					
Money and quasi money as % of GDP	29.5	31.5	34.6	36.7	39.0	38.3	37.0	35.1	40.1	38.7
Consumer price index (1969/70=100)	211.3	229.4	256.7	277.0	295.6	331.9	375.4	403.9	418.1	462.0
Annual percentage changes in:										
Consumer price index	23.6	8.6	11.9	7.9	6.7	12.3	13.1	7.6	3.5	10.5
Bank credit to public sector	..	32.5	30.2	18.8	26.2	12.6	14.7	12.4	19.8	10.6
Bank credit to private sector	..	11.2	29.2	15.2	16.6	19.4	13.5	22.4	22.4	23.9

/a Based on World Bank Atlas methodology and calculated at an average of 1980-82 prices and exchange rates. All other conversions to dollars in this table are at the average exchange rate prevailing during the period covered.
/b Provisional.
/c Projection for 1983/84. Does not include unemployed labor force.
/d Includes manufacturing, mining, construction and electricity and gas.
/e Consolidated revenues and expenditures of Federal and Provincial Governments (excluding Federal-Provincial Government transfers).
/f Revised budget data.
/g Excluding principal repayments of foreign loans. Capital expenditures as defined in government budget include certain current expenditures also.
/h Provisional.
/i Monetary statistics of Pakistan have been fully adjusted for demonetized notes, devaluation and revaluation of the rupee, etc. as from June 30, 1975. Data for 1974/75 from State Bank sources are not strictly comparable with IMF estimates for earlier years.

. Not applicable.
.. Not available.

March 1985

BALANCE OF PAYMENTS

	1979/80	1980/81	1981/82	1982/83	1983/84
		(US$ million)			
Exports of goods, NFS	2,955	3,461	3,052	3,416	3,439
Imports of goods, NFS	5,709	6,466	6,679	6,588	7,058
Resource gap (deficit =	-2,754	-3,005	-3,627	-3,172	-3,619
Interest payments	-285	-357	-453	-421	-477
Workers' remittances	1,748	2,097	2,224	2,887	2,737
Other factor payments (net)	151	274	321	195	359
Net transfers	..	..	..	..	..
Balance on current account	-1,140	-991	-1,535	-511	-1,000
Direct foreign investment	..	..	..	..	..
Net MLT borrowing					
Disbursements	1,134	956	1,102	1,301	1,248
Amortization	-310	-516	-492	-386	-569
Sub-total	824	440	610	915	679
Transactions with IMF /a	78	315	358	413	-1
Other items n.e.i. /b	600	546	318	285	142
Increase in reserves (-)	-362	-310	249	-1,102	180
Gross reserves (end year) /c	748	1,058	809	1,911	1,731
Petroleum imports /d	1,079	1,535	1,710	1,610	1,423
Petroleum exports /d	178	126	194	77	40

MERCHANDISE EXPORTS (AVERAGE 1979/80-1983/84)

	US$ million	%
Raw cotton	315.3	11.9
Cotton yarn	214.7	8.1
Cotton cloth	281.1	10.6
Rice	417.9	15.8
All other commodities	1,422.4	53.6
Total	2,651.4	100.0

EXTERNAL DEBT, JUNE 1984

	US$ million
Public debt, including guaranteed	9,890.4
Non-guaranteed private debt /e	..
Total outstanding and disbursed	9,890.4

DEBT SERVICE RATIO FOR 1983/84 /f

	%
Public debt, including guaranteed	15.6
Non-guaranteed private debt	..
Total	15.6

RATE OF EXCHANGE

Through May 11, 1972	From May 12, 1972-Feb. 15, 1973
US$1 = Rs 4.7619	US$1 = Rs 11.00
Rs 1 = US$0.21	Rs 1 = US$0.09

From Feb. 16, 1973-Jan. ', 1982	From July 1981-June 1982 /g	From July 1982-June 1983 /g	From July 1983-June 1984 /g
US$ 1 = Rs 9.90	US$1 = Rs 10.55	US$1 = Rs 12.75	US$1 = Rs 13.50
Rs 1 = US$0.10	Rs 1 = US$0.095	Rs 1 = US$0.078	Rs 1 = US$0.074

IBRD/IDA LENDING (December 1983) (US$ million)

	IBRD	IDA
Outstanding and disbursed	350.7	1,144.7
Undisbursed	197.0	617.2
Outstanding including undisbursed	547.7	1,761.9

/a Including Trust Fund.
/b Including net short-term borrowing and errors and omissions.
/c Excluding gold reserves of about 1.8 million troy ounces.
/d Crude and derivatives.
/e Non-guaranteed private debt service is negligible.
/f Ratio of actual debt service to exports of goods, factor and non-factor services; debt service includes IMF charges.
/g Effective January 8, 1982, the rupee is to be managed with reference to a weighted basket of currencies. The average exchange rate shown is vis-a-vis US$ for the period shown.

.. Not available.

March 1985

STATUS OF BANK GROUP OPERATIONS IN PAKISTAN

A. STATEMENT OF BANK LOANS AND IDA CREDITS (as of September 30, 1985) /a

(US$ million)
(Amount net of cancellations)

Loan/ Credit Number	Fiscal Year	Purpose	Bank	TW	IDA	Undisbursed
Ninety-eight loans and credits fully disbursed /b			781.4	32.0	1,001.6/f	
648	1976	Irrigation & Drainage (Khairpur)	—		14.0	2.7
1366T	1977	Punjab Livestock Development	—	10.0	—	2.8
754	1978	Salinity Control & Reclamation	—		70.0	66.6
813	1978	Punjab Ext. & Agric. Dev.	—		12.5	3.7
877	1979	Salinity Control & Recl. (Mardan)	—		60.0	49.4
892	1979	Primary Education	—		10.0	3.5
922	1979	Sind Agricultural Extension	—		9.0	4.2
968	1980	Third WAPDA Power	—		45.0	3.5
974	1980	Third Highway	—		50.0	11.9
1019	1980	PICIC Industrial Development	—		40.0	3.3
1109/e	1981	Vocational Training	—		25.0	7.8
1113/e	1981	Small Industries	—		30.0	0.3
1157/e	1981	Grain Storage	—		32.0	15.8
1158/e	1981	Agricultural Research	—		24.0	15.0
1163/e	1981	On-Farm Water Management	—		41.0	12.2
1186/e	1982	Industrial Development (IDBP II)	—		30.0	3.0
2122	1982	Fourth Telecommunication	40.0		—	11.9
2172	1982	Fertilizer Industry Rehabilitation	38.5		—	20.3
2247	1983	Reservoir Maintenance Facilities	10.2		—	10.0
2305	1983	Agricultural Dev. (ADBP V)	10.0		—	5.4
2324	1983	Fifth Sui Northern Gas Pipelines	43.0		—	39.9
1239/e	1982	Irrigation Systems Rehabilitation	—		40.0	23.7
1243/e	1982	Baluchistan Minor Irrig. & Agr.	—		14.0	10.9
1256/e	1982	Technical Assistance	—		7.0	2.9
1278/e	1982	Eleventh Railway Project	—		50.0	36.0
1348/e	1983	Lahore Urban Development	—		16.0	14.9
1350/e	1983	Population	—		18.0	14.3
1355/e	1983	Coal Engineering	—		7.0	6.2
1374/e	1983	Karachi Water Supply	--		25.0	20.4
1375/e	1983	Fourth Drainage	—		65.0	62.0
1380/e	1983	Agricultural Development (ADBP V)	—		47.8	14.2
2218	1983	Refinery Engineering Project	12.0		—	8.8
2351	1984	Petroleum Exploration	51.5		—	41.4
2374	1984	Second Toot Oil and Gas Development	30.0		—	22.8
2380	1984	Industrial Investment Credit	50.0		—	44.7
1439/e	1984	Industrial Investment Credit	—		50.0	44.5
1461/e	1984	Integrated Hill Farming Development	—		21.0	21.3
1480/e	1984	Second Technical Assistance	—		7.0	6.8
1487	1984	Command Water Management	—		46.5	46.0
1499	1984	Second Small Industries	—		50.0	41.1
1532	1985	Left Bank Outfall Drain - Stage 1	—		150.0	156.4
1533	1985	Baluchistan Agricultural Extension	—		8.3	8.7
2499	1985	Fourth WAPDA Power	100.0		—	100.0
1602/c	1985	Second Primary Education	—		52.5	52.5
1603/c	1985	Second On-Farm Water Management	—		34.5	34.5
2552	1985	Energy Sector Loan	178.0		—	178.0
2553	1985	Petroleum Resources Joint Venture	55.0		—	55.0
2556/c	1985	Fifth WAPDA Power	100.0		—	100.0
Total			1,499.6	42.0	2,202.9	1,461.2
of which has been repaid			501.1	4.6	44.3	
Total now outstanding			998.5	37.4	2,158.6	
Amount sold		29.9				
of which has been repaid		29.9	—	—	—	—
Total now held by Bank and IDA/d			998.5	37.4	2,158.6	
Total undisbursed			638.2	2.7	820.3	1,461.2

/a The status of the projects listed in Part A is described in a separate report on all Bank/IDA financial projects in execution, which is updated twice yearly and circulated to the Executive Directors on April 30 and October 31.

/b Excludes the disbursed portion of loans and credits wholly or partly for projects in the former East Pakistan which have now been taken over by Bangladesh.

/c Not yet effective.

/d Prior to exchange adjustment.

/e IDA Credits under the 6th Replenishment denominated in SDRs. The principal is shown in US$ equivalent at the time of negotiation. Disbursed amounts are computed at the exchange rate applicable on the transaction dates. Undisbursed amounts are valued at the exchange rate applicable on the date of this statement.

/f By using the market rate on dates of disbursements, the current principal for Credit 1066-PAK and Credit 1255-PAK (both fully disbursed) is $42.5 and $77.5, respectively.

B. STATEMENT OF IFC INVESTMENTS (as of September 30, 1985)

Fiscal Year	Obligor	Type of Business	Amount Loan	In US$ Equity	Million Total
1958	Steel Corp of Pakistan Ltd.	Rolled Steel Products	0.63	--	0.63
1959	Adamjee Industries Ltd.	Textiles	0.75	--	0.75
1962-1965	Gharibwal Cement Industries Ltd.	Cement	5.25	0.42	5.67
1963-1969-1975	PICIC	Development Financing	--	0.52	0.52
1965	Crescent Jute Products	Textiles	1.84	0.11	1.95
1965-1980-1982	Packages Ltd.	Paper Products	19.25	0.84	20.09
1967-1976	Pakistan Paper Corp Ltd.	Paper	5.38	2.02	7.40
1969	Dawood Hercules Chemicals Ltd.	Fertilizers	1.00	2.92	3.92
1979	Milkpak Ltd.	Food and Food Processing	2.40	0.36	2.76
1979	Pakistan Oilfields Ltd. and Attock Refinery Ltd.	Chemicals and Petrochemicals	29.00	2.04	31.04
1980	Fauji Foundation	Woven Polypropylene bags	1.78	--	1.78
1980	Premier Board Mills Ltd.	Particle Board	2.70	--	2.70
1981	Habib Arkady	Food and Food Processing	3.15	0.16	3.31
1982	Asbestos	Cement	4.02	--	4.02
1983	Pakistan Petroleum Ltd.	Chemical and Petrochemicals	100.89	1.56	102.45
1985	National Dev. Leasing Corp.	Money and Capital Market.	4.13	0.37	4.50
	Total Gross Commitments		182.17	11.32	193.49
	Less: Cancellations, Terminations, Repayments and Sales		133.05	0.38	133.43
	Total Commitments Now Held by IFC		49.12	10.94	60.06
	Undisbursed (including participants)		38.28	0.51	38.79

SCARP TRANSITION PILOT PROJECT
Irrigation O&M Expenditures and Receipts and Relative Importance of SCARP TWs (For Punjab Province and Pakistan)

	FY83	FY84	FY85
I. O&M Expenditures (Rs million)			
(a) Punjab Province			
Surface System	583	639	680
SCARP TWs	701	724	790
Total	1,284	1,363	1,470
(b) Pakistan			
Surface System	1,055	1,172	1,284
SCARP TWs	874	903	985
Total	1,929	2,075	2,269
(c) Punjab as % of Pakistan			
Surface System	55	55	53
SCARP TWs	80	80	80
Total	66	66	65
(d) SCARP O&M as % Total O&M			
Punjab	55	53	54
Pakistan	45	44	43
II. Irrigation Receipts (Rs million)			
(a) Punjab Province			
Surface System	519	594	611
SCARP TWs	142	167	172
Total	661	761	783
(b) Pakistan			
Surface System	759	859	897
SCARP TWs	144	169	197
Total	903	1,028	1,094
III. Receipts as % of O&M Expenditures			
(a) Punjab			
Surface System	89	93	90
SCARP TWs	20	23	22
Total	51	56	53
(b) Pakistan			
Surface System	72	73	70
SCARP TWs	16	19	20
Total	47	50	48

ANNEX III
Table (a)

PAKISTAN
SCAMP TRANSITION PILOT PROJECT
PROJECT COST SUMMARY

	(RS '000)					(US$ '000)				
	Local	Foreign	Total	% Foreign Exchange	% Total Base Costs	Local	Foreign	Total	% Foreign Exchange	% Total Base Costs
A. ELECTRICAL DISTRIBUTION SYSTEM	65,638.5	79,922.7	145,561.1	55	49	4,026.9	4,903.2	8,930.1	55	49
B. PRIVATE TUBEWELLS	57,409.8	18,793.3	76,203.1	25	26	3,522.1	1,153.0	4,675.0	25	26
C. IRRIGATION & DRAINAGE IMPROVEMENT WORKS	24,923.4	6,172.3	31,095.7	20	11	1,529.0	378.7	1,907.7	20	11
D. INSTITUTIONAL DEVELOPMENT										
1. MONITORING & EVALUATION										
PERFORMANCE MONITORING	4,244.4	1,265.7	5,510.1	23	2	260.4	77.6	338.0	23	2
EVALUATION STUDY	3,615.1	5,447.4	9,062.5	60	3	221.8	334.2	556.0	60	3
Sub-Total MONITORING & EVALUATION	7,859.5	6,713.1	14,572.6	46	5	482.2	411.8	894.0	46	5
2. TECHNICAL ASSISTANCE & TRAINING	11,201.6	3,956.9	15,158.5	26	5	687.2	242.8	930.0	26	5
3. PROJECT MANAGEMENT	9,252.4	2,627.3	11,879.7	22	4	567.6	161.2	728.8	22	4
Sub-Total INSTITUTIONAL DEVELOPMENT	28,313.5	13,297.3	41,610.8	32	14	1,737.0	815.8	2,552.8	32	14
Total BASELINE COSTS	176,285.1	118,185.6	294,470.7	40	100	10,815.0	7,250.6	18,065.7	40	100
Physical Contingencies	13,865.7	13,697.0	27,562.7	50	9	850.7	840.3	1,691.0	50	9
Price Contingencies	37,435.9	24,096.5	61,532.4	39	21	1,254.6	803.1	2,057.7	39	11
Total PROJECT COSTS	227,586.8	155,979.0	383,565.8	41	130	12,920.3	8,894.0	21,814.4	41	121

ANNEX III
Table (b)

PAKISTAN
SCARP TRANSITION PILOT PROJECT
Summary Account by Project Component
(RS '000)

	ELECTRICAL DISTRIBUTION SYSTEM	PRIVATE TUBEWELLS	IRRIGATION & DRAINAGE IMPROVEMENT WORKS	INSTITUTIONAL DEVELOPMENT: MONITORING & EVALUATION: PERFORMANCE MONITORING	INSTITUTIONAL DEVELOPMENT: MONITORING & EVALUATION: EVALUATION STUDY	INSTITUTIONAL DEVELOPMENT: TECHNICAL ASSISTANCE & TRAINING	INSTITUTIONAL DEVELOPMENT: PROJECT MANAGEMENT	Total	Physical Contingencies %	Physical Contingencies Amount
INVESTMENT COSTS										
A. CIVIL WORKS										
1. ELECTRIFICATION INSTALLATION	30,092.6	-	-	-	-	-	-	30,092.6	5.0	1,504.6
2. IRRIGATION WORKS										
OFWM	-	-	22,648.6	-	-	-	-	22,648.6	15.0	3,397.3
LINING OF MINOR CANALS	-	-	8,447.0	-	-	-	-	8,447.0	15.0	1,267.1
Sub-Total IRRIGATION WORKS	-	-	31,095.7	-	-	-	-	31,095.7	15.0	4,664.4
Sub-Total CIVIL WORKS	30,092.6	-	31,095.7	-	-	-	-	61,188.3	10.1	6,169.0
B. FARMER TW INVESTMENTS										
1. FARMER TWS	-	73,669.0	-	-	-	-	-	73,669.0	0.0	0.0
2. DRILLING COSTS FOR DIESEL TWS	-	2,534.1	-	-	-	-	-	2,534.1	10.0	253.4
Sub-Total FARMER TW INVESTMENTS	-	76,203.1	-	-	-	-	-	76,203.1	0.3	253.4
C. MATERIALS AND EQUIPMENT										
1. ELECTRIFICATION	115,468.5	-	-	-	-	-	-	115,468.5	15.0	17,320.3
2. PERFORMANCE MONITORING	-	-	-	585.8	-	-	-	585.8	10.0	58.6
3. TA/TRAINING	-	-	-	-	-	1,184.3	-	1,184.3	10.0	118.4
4. PROJECT ADMINISTRATION	-	-	-	-	-	-	194.6	194.6	10.0	19.5
Sub-Total MATERIALS AND EQUIPMENT	115,468.5	-	-	585.8	-	1,184.3	194.6	117,433.2	14.9	17,516.8
D. VEHICLES										
1. 4X4 VEHICLE	-	-	-	1,049.5	-	1,571.9	3,148.4	5,769.8	10.0	577.0
2. MOTORCYCLE	-	-	-	94.3	-	94.3	62.9	251.5	10.0	25.2
Sub-Total VEHICLES	-	-	-	1,143.8	-	1,666.2	3,211.3	6,021.3	10.0	602.1
E. CONSULTING SERVICES AND TRAINING										
1. TA/TRAINING CONSULTANTS	-	-	-	-	-	10,720.5	-	10,720.5	10.0	1,072.0
2. TW WATER MGT. TRAINING	-	-	-	-	-	142.8	-	142.8	10.0	14.3
Sub-Total CONSULTING SERVICES AND TRAINING	-	-	-	-	-	10,863.3	-	10,863.3	10.0	1,086.3
F. PROJECT EVALUATION STUDY CONTRACT	-	-	-	-	9,062.5	-	-	9,062.5	10.0	906.3
Total INVESTMENT COSTS	145,561.1	76,203.1	31,095.7	1,729.6	9,062.5	13,713.8	3,405.9	280,771.8	9.5	26,533.9
RECURRENT COSTS										
A. PROJECT SALARIES AND OPERATING EXPENSES										
1. SALARIES & ALLOWANCES	-	-	-	3,232.7	-	-	5,743.7	8,976.3	6.2	556.6
2. OTHER OPERATING EXPENSES	-	-	-	547.8	-	1,444.7	2,730.1	4,722.6	10.0	472.3
Sub-Total PROJECT SALARIES AND OPERATING EXPENSES	-	-	-	3,780.5	-	1,444.7	8,473.8	13,698.9	7.5	1,028.8
Total RECURRENT COSTS	-	-	-	3,780.5	-	1,444.7	8,473.8	13,698.9	7.5	1,028.8
BASELINE COSTS	145,561.1	76,203.1	31,095.7	5,510.1	9,062.5	15,158.5	11,879.7	294,470.7	9.4	27,562.7
Physical Contingencies	18,824.9	253.4	4,664.4	497.1	906.3	1,515.9	900.8	27,562.7	0.0	0.0
Price Contingencies	26,635.7	18,394.4	7,128.8	1,131.8	2,431.2	3,364.4	2,446.1	61,532.4	7.5	4,625.9
PROJECT COSTS	191,021.8	94,850.9	42,888.8	7,139.0	12,400.0	20,038.8	15,226.6	383,565.8	8.4	32,188.6
Taxes	36,699.5	9,312.6	2,144.4	781.8	-	804.1	1,685.0	51,427.5	10.1	5,217.7
Foreign Exchange	105,475.1	24,028.2	8,764.9	1,593.2	7,567.2	5,194.1	3,356.4	155,979.0	10.2	15,912.5

ANNEX III
Table (c)

PAKISTAN
SCARP TRANSITION PILOT PROJECT
Project Components by Year

	Totals Including Contingencies (RS '000)					Totals Including Contingencies (US$ '000)				
	86/87	87/88	88/89	89/90	Total	86/87	87/88	88/89	89/90	Total
A. ELECTRICAL DISTRIBUTION SYSTEM	108,712.1	57,748.1	16,620.9	7,940.6	191,021.8	6,247.8	3,262.6	939.0	448.6	10,898.1
B. PRIVATE TUBEWELLS	10,048.1	30,107.3	36,062.1	18,633.4	94,850.9	577.5	1,701.0	2,037.4	1,052.7	5,368.6
C. IRRIGATION & DRAINAGE IMPROVEMENT WORKS	9,026.2	16,731.2	14,973.6	2,157.8	42,888.8	518.7	945.3	846.0	121.9	2,431.9
D. INSTITUTIONAL DEVELOPMENT										
1. MONITORING & EVALUATION										
PERFORMANCE MONITORING	3,240.4	1,206.8	1,297.2	1,394.6	7,139.0	186.2	68.2	73.3	78.8	406.5
EVALUATION STUDY	3,404.5	2,363.5	2,689.7	3,942.3	12,400.0	195.7	133.5	152.0	222.7	703.9
Sub-Total MONITORING & EVALUATION	6,644.8	3,570.3	3,987.0	5,336.9	19,539.0	381.9	201.7	225.3	301.5	1,110.4
2. TECHNICAL ASSISTANCE & TRAINING	6,734.4	5,078.6	4,509.3	3,716.6	20,038.8	387.0	286.9	254.8	210.0	1,138.7
3. PROJECT MANAGEMENT	6,633.6	2,659.8	2,859.1	3,074.0	15,226.6	381.2	150.3	161.5	173.7	866.7
Sub-Total INSTITUTIONAL DEVELOPMENT	20,012.8	11,308.7	11,355.4	12,127.5	54,804.4	1,150.2	638.9	641.5	685.2	3,115.8
Total PROJECT COSTS	147,799.3	115,895.3	79,012.0	40,859.3	383,565.8	8,494.2	6,547.8	4,464.0	2,308.4	21,814.4

PAKISTAN

SCARP TRANSITION PILOT PROJECT

SUPPLEMENTARY PROJECT DATA SHEET

Section I: Timetable of Key Events

(a) Time taken to prepare the project:
2-1/2 years

(b) Agency which prepared the project:
Government of Pakistan and Government of Punjab, assisted by consultants

(c) Date of first mission to consider the project:
May 1983

(d) Date of departure of appraisal mission:
June 1985

(e) Date of completion of negotiations:
March 17, 1986

(f) Planned date of effectiveness:
August 1986

Section II: Special IDA Implementation Action

None

Section III: Special Conditions

(a) Government of Punjab to implement the elements of the project policy/incentives package in a manner and within a timeframe satisfactory to the Association (para. 54); and

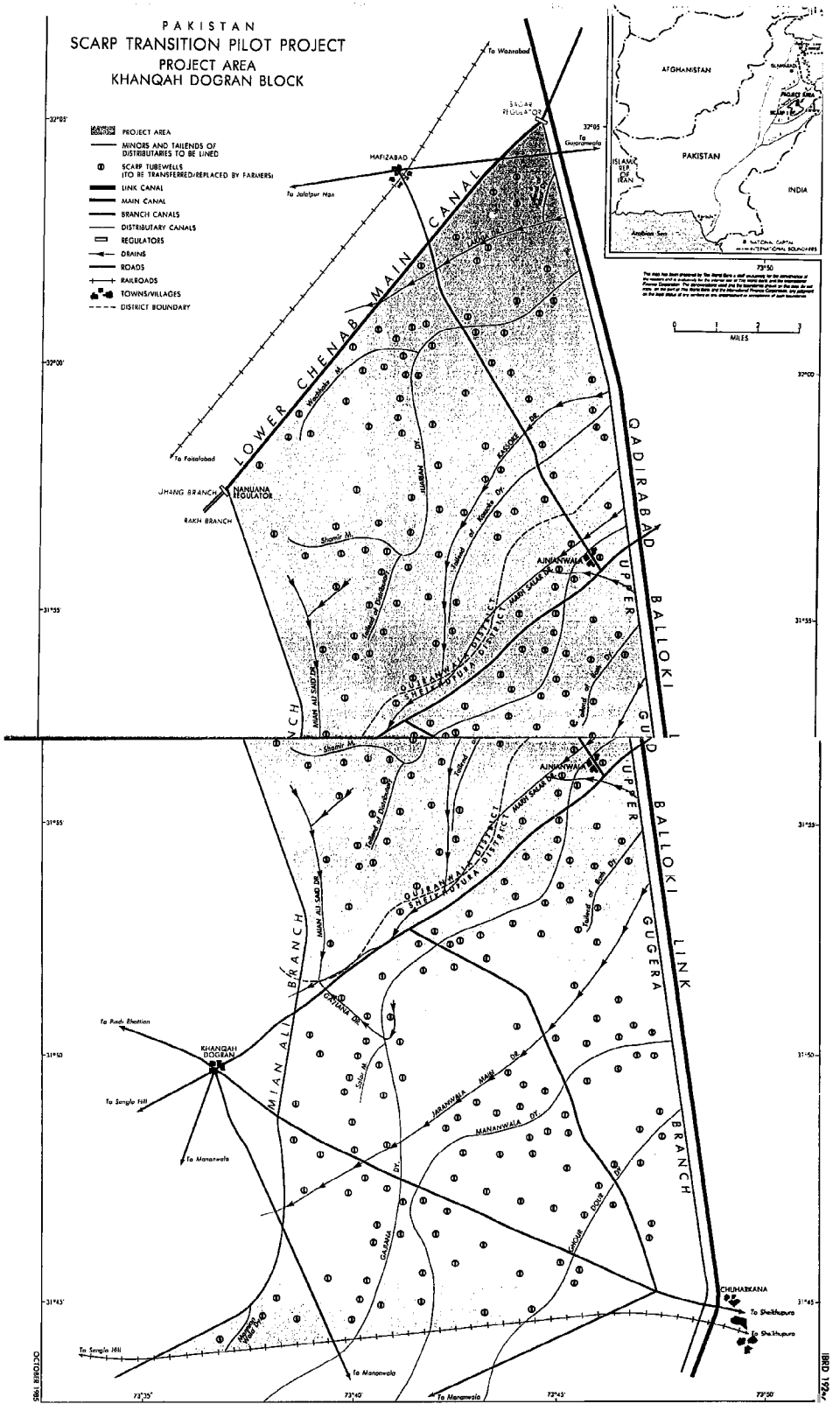
(b) Operational Action Plan to be reviewed annually and, as necessary, amended in consultation with the Association (para. 58).

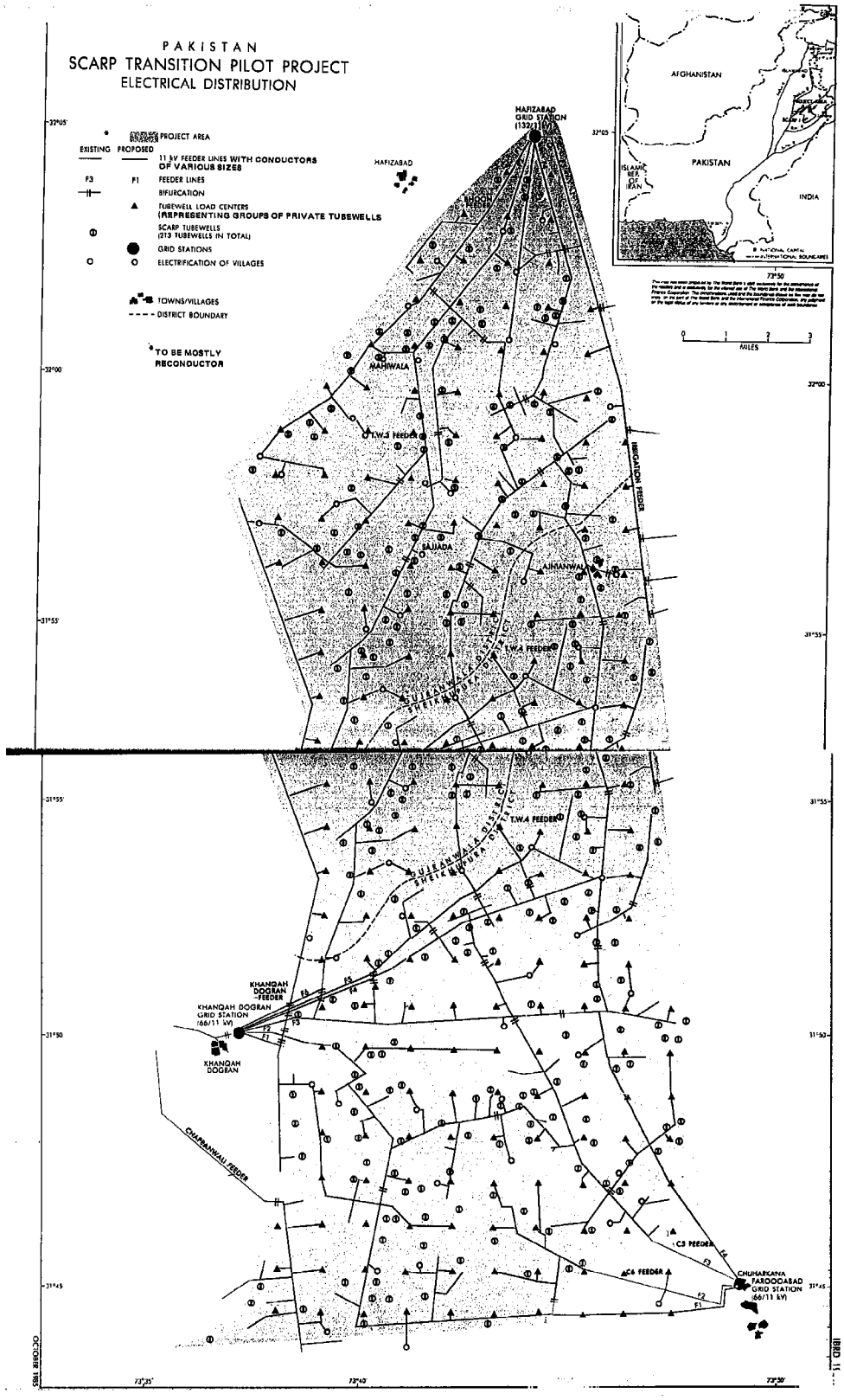
The following would be additional conditions of effectiveness:

(i) approval by ECNEC of the PC-1 document for the project (para. 42);

(ii) establishment of the Project Management Office, Provincial Policy Committee, and Project Area Coordinating Committee (para. 55); and

(iii) signing of a Memorandum of Understanding in form and substance satisfactory to the Association (para. 58).


PAKISTAN
SCARP TRANSITION PILOT PROJECT
PROJECT AREA
KHANQAH DOGRAN BLOCK
PROJECT AREA
MINORS AND TAILENDS OF DISTRIBUTARIES TO BE LINED
SCARP TUBEWELLS (TO BE TRANSFERRED/REPLACED BY FARMERS)
LINK CANAL
MAIN CANAL
BRANCH CANALS
DISTRIBUTARY CANALS
REGULATORS
DRAINS
ROADS
RAILROADS
TOWNS/VILLAGES
DISTRICT BOUNDARY
AFGHANISTAN
PAKISTAN
INDIA
ISLAMIC REP. OF IRAN
Arabian Sea
NATIONAL CAPITAL
INTERNATIONAL BOUNDARIES
MILES
LOWER CHENAB MAIN CANAL
QADIRABAD BALLOKI LINK
UPPER GUDDU BALLOKI LINK
GUGERA BRANCH
MIAN ALI BRANCH
JHANG BRANCH
RAKH BRANCH
NANWANA REGULATOR
SAGAR REGULATOR
HAFIZABAD
AJNANWALA
KHANQAH DOGRAN
CHUHARKANA
GUJRANWALA DISTRICT
SHEIKHUPURA DISTRICT
To Wazirabad
To Gujranwala
To Jalalpur Pir
To Faisalabad
To Pindi Bhattian
To Sangla Hill
To Manawala
To Sheikhupura
32°05'
32°00'
31°55'
31°50'
31°45'
73°35'
73°40'
73°45'
73°50'
OCTOBER 1985
IBRD 19244


PAKISTAN
SCARP TRANSITION PILOT PROJECT
ELECTRICAL DISTRIBUTION
PROJECT AREA
EXISTING PROPOSED
11 kV FEEDER LINES WITH CONDUCTORS OF VARIOUS SIZES
F3 F1 FEEDER LINES
BIFURCATION
TUBEWELL LOAD CENTERS (REPRESENTING GROUPS OF PRIVATE TUBEWELLS
SCARP TUBEWELLS (213 TUBEWELLS IN TOTAL)
GRID STATIONS
ELECTRIFICATION OF VILLAGES
TOWNS/VILLAGES
DISTRICT BOUNDARY
* TO BE MOSTLY RECONDUCTOR
HAFIZABAD GRID STATION (132/11 kV)
HAFIZABAD
MAHNWALA
T.W.3 FEEDER
BAJWADA
T.W.4 FEEDER
IRRIGATION FEEDER
GUJRANWALA DISTRICT
SHEIKHUPURA DISTRICT
KHANQAH DOGRAN FEEDER
KHANQAH DOGRAN GRID STATION (66/11 kV)
KHANQAH DOGRAN
CHUHARKANA FEEDER
C3 FEEDER
C4 FEEDER
CHUHARKANA FAROOQABAD GRID STATION (66/11 kV)
AFGHANISTAN
PAKISTAN
INDIA
ISLAMIC REP. OF IRAN
NATIONAL CAPITAL
INTERNATIONAL BOUNDARIES
MILES
32°05'
32°00'
31°55'
31°50'
31°45'
73°25'
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73°50'
OCTOBER 1985
IBRD 11...

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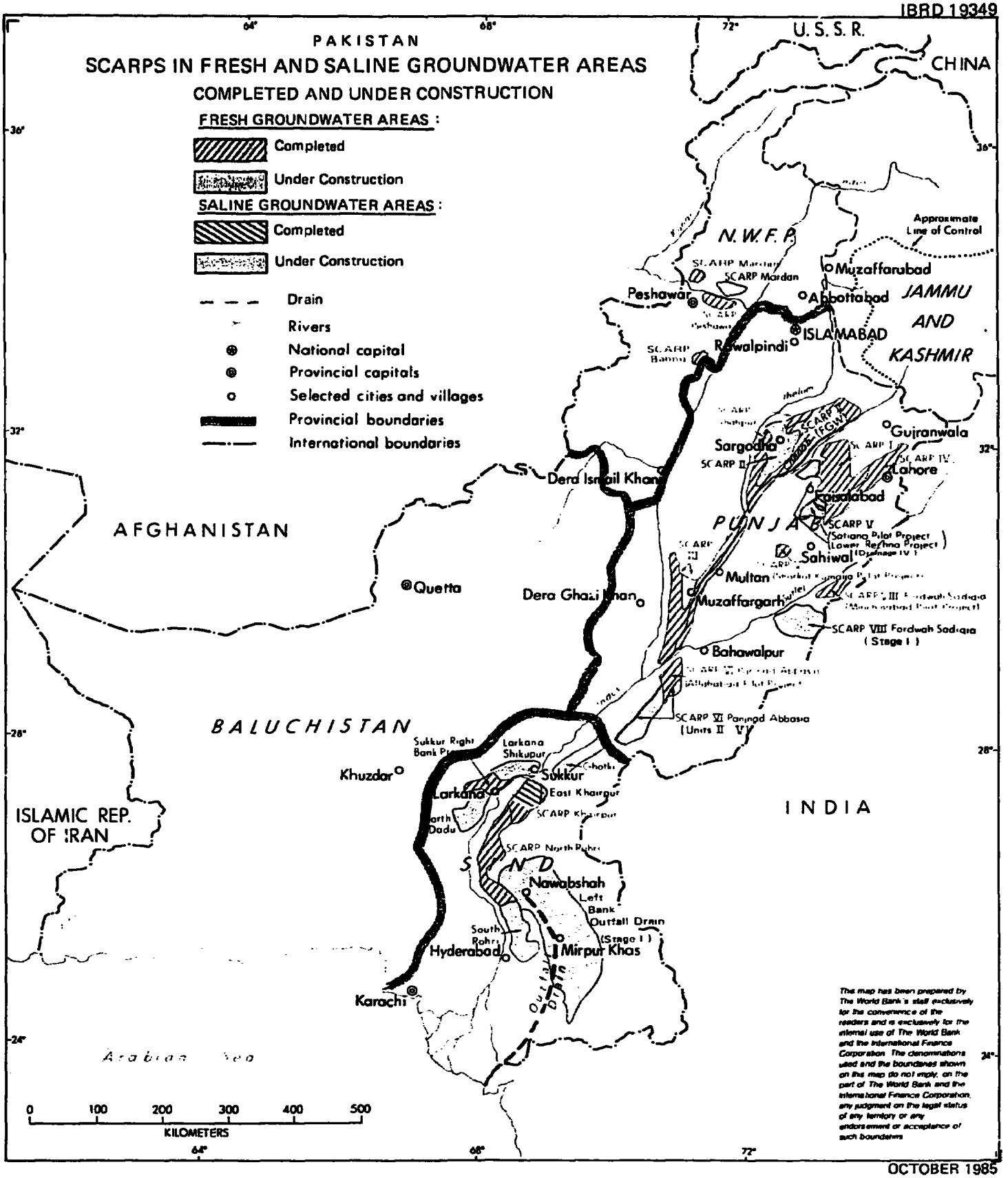

OCTOBER 1985