

PD-AAZ-101

60595

**Second
Evaluation:
Tribal Areas
Development
Project,
Pakistan**

Prepared for the U.S. Agency for International Development under
contract number PDC-5315-I-06-8101-00.

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December 1988



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BASIC PROJECT IDENTIFICATION DATA

1. Country: Pakistan
2. Project Title: Tribal Areas Development Project
3. Project Number: 391-0471 - Grant
4. Project Dates:
 - a) First Project Agreement: September 25, 1982
 - b) Final Obligation: FY 1989
 - c) Project Assistance Completion Date: Sept. 24, 1992
5. Project Funding:
 - a) A.I.D. Bilateral Funding (Grant and/or Loan): \$24 million - Grant
 - b) Other major Donors: None
 - c) Host Country Counterpart Funds: None

Total: \$24 million
6. Mode of Implementation: PASA Contract with the U.S. Department of Agriculture No. IPK-0471-P-AG-3156-00
7. Project Design: AID/W, USDA, TransCentury Corp., Louis Berger International, Inc., Harvard University, USAID/Islamabad, and Government of Pakistan
8. Responsible Mission Officials: (For the full life of the project)
 - a) Mission Director(s): (1) Donor M. Lion (2) Eugene S. Staples (3) James S. Norris
 - b) Project Officer(s): (1) Richard B. Scott (2) Fred Zumwalt (3) Michael McGovern (4) Tariq Durrani
9. Previous Evaluation(s): One
10. Cost of the Present Evaluation:

a) Direct Hire:	<u>Person Days</u>	<u>Dollar Costs</u>
i) AID/W TDY	-	-
ii) USAID staff	-	-
b) Contract: DAI	199	\$116,180
c) Other:	-	-

PREFACE

In October, 1988, a four-person team from Development Alternatives, Inc. (DAI) began the Second Evaluation of the Tribal Areas Development Project (TADP). DAI, which also carried out the first evaluation three years earlier, was interested to learn how the project had evolved, and asked to suggest new directions for future USAID support to the Federally Administered Tribal Areas (FATA) in Northwest Pakistan. The members of the team were:

Donald R. Mickelwait, Team Leader, President of DAI; team leader for four previous assignments for USAID/Pakistan totaling ten months working in the Northwest Frontier Province; Project Director for an 18-month study to provide a Master Plan for rainfed areas of the Punjab; leader of the Interim Evaluation of TADP in 1985.

Dr. Richard English, Anthropologist, with three years' experience among Afghan Refugees in NWFP, and two special assignments for UNHCR and the World Bank on refugee unemployment and repatriation. With more than ten years experience in sub-continent highland subsistence economies and tribal societies, Dr. English speaks Pushto, the principal language of the tribal areas.

Jonathan Greenham, Agriculturalist, with one year's experience working in the Northwest Frontier Province Area Development Project, and 18 months preparing natural resource programs for the Master Plan for rainfed agriculture in the Punjab. A total of 13 years experience in agricultural production, research and marketing, with resident assignments in Pakistan, Africa and the Caribbean.

Thaddeus E. Knowles, Engineer, Planner, and Management Consultant with 35 years' professional experience as Resident Engineer in Iraq, Iran, Egypt, Solomon Islands, the Bahamas, and the Eastern Caribbean, with direct responsibility for planning, design and construction of civil engineering projects; and short-term assignments in 52 countries.

The DAI team was joined in Peshawar by two representatives of the Government of Pakistan: **Jamil Amjid**, Assistant Chief of the Special Development Plan Section of the Planning and Development Department (P&D), NWFP, and **Faj Mohammad Afridi**, Additional Director, Design and Planning, for the Federally Administered Tribal Areas Development Corporation (FATA-DC), who shared the extensive field trips, and patiently answered questions on processes and structures of the government.

The Evaluation Team received briefings from AID/Washington, and USAID/ Islamabad and began field work in Pakistan on October 23, travelling more than 2,000 kilometers throughout FATA in a three-week period. After seeing the sub-projects, reviewing project documents and meeting with the Secretaries and other department staff to obtain the perspectives of all government agencies involved in TADP, an issues session was held in Islamabad on November 23. A field draft of the report was submitted to the Mission and the GOP. Comments were obtained on the draft in a review by the Mission on 11 December and by P&D on 17 December. The final report was submitted from Washington, D.C. on January 4, 1989.

The evaluation of performance and the prospective options for the future of TADP could not have been completed without the help of the Regional Affairs Office in Peshawar and the staff members of TADP. Many worked long hours to produce the documentation presented in this report. The involved staff in P&D, FATA-DC, Communications and Works, and Local Government and Rural Development, both in their headquarters and in the field, gave generously of their time, knowledge and insights. The final report reflects many perspectives and contributions, distilled by the Team into options and recommendations.

It has been a pleasure working with USAID/Pakistan and the Government of Pakistan on this assignment. This evaluation, in contrast to the first of TADP, is conducted as the project is demonstrating success against project objectives. Concern is no longer focused on survival but on new directions and possibilities, including a potential follow-on project. We acknowledge the personal effort necessary, in exceedingly demanding circumstances, to have brought TADP from the brink of the precipice, to halfway up the mountain. This report is as much focused on the rest of the climb as it is on how the journey has progressed to date.

TADP has proved the success of donor support to the tribal areas. There can now be more. We wish the project as much success in the future as it achieved in the last three years.

Donald R. Mickelwait
Washington, D.C.
January 1989

ACRONYMS

ACS	Additional Chief Secretary (the senior GOP development officer within NWFP province who oversees the Planning and Development Department)
ADB	Asian Development Bank
ADP	Annual Development Programme (containing details of the yearly development budget of GOP)
A&E	Architecture and Engineering
AR	Afghan Refugee
ARD	Agriculture and Rural Development (an office within USAID/Pakistan)
CDO	Central Design Office (within C&W)
C&W	Communication and Works (Department)
D.D.A.	Deputy Director of Agriculture
EAD	Economic Affairs Division (USAID's primary liaison agency within the GOP)
EEC	European Economic Community
E&E	Energy and Engineering (USAID)
EPI	Extended Program for Immunization
FAR	Fixed Amount Reimbursement
FATA	Federally Administered Tribal Areas (the seven tribal agencies and four frontier regions displayed on Map 1)
FATA-AG	The FATA section of the Provincial Agriculture Department
FATA-DC	Federally Administered Tribal Areas Development Corporation
FR	Frontier Region (a transition zone between tribal agencies and districts in NWFP, within FATA)
GOP	Government of Pakistan
INM	International Narcotic Matters, U.S. Department of State
IRC	International Rescue Committee
ICRW	International Centre for Research on Woman

IFAD	International Fund for Agricultural Development
KM	Kilometers
KFW	Kreditanstalt Fur Wiederaufbau (the development bank of the Federal Republic of Germany)
KPH	Kilometers per Hour
LGRD	Local Government and Rural Development (Department)
M.	Meters
MNA	Member of the National Assembly
MPA	Members of Provincial Assembly
M&E	Monitoring and Evaluation
MCH	Mother Child Health
NAU	Narcotics Affairs Unit (of the U.S. Department of State, a subordinate office of INM located in Islamabad)
NESPAK	National Engineering Services Pakistan, A State Corporation
NGO	Non Governmental Organizations
NWA	North Waziristan Agency
NWFADP	North West Frontier Area Development Project
NWFP	North West Frontier Province
PA	Political Agent (Senior GOP administration official in a tribal agency)
PACD	Project Assistance Completion Date
PASA	Participating Agency Service Agreement (an agreement by which USAID contracts for the services of other US government agencies)
PC-1	A GOP planning document that sets forth funding for one development project
PCC	Plain Cement Concrete
PCRB	Project Coordination and Review Board (under P&D, NWFP)
P&D	Planning and Development (Department)
PDM	Project Development and Monitoring (USAID)

PDWP	Provincial Development Working Party, a review and approval committee for provincial and FATA-DC PC-1 projects
PIL	Project Implementation Letter (from USAID authorizing expenditures, procedures, etc.)
PIO/C	Project Implementation Order/Commodities (an AID form authorizing commodity procurement)
PIO/T	Project Implementation Order/Technical (an AID form authorizing technical assistance services)
PSC	Personal Services Contract (an AID method of hiring non-permanent contract employees)
RA	Reimbursement Agreement
RAO	Regional Affairs Officer (USAID/Peshawar)
RAO/P/ENG	Regional Engineering Office (USAID/Peshawar)
RCC	Reinforced Cement Concrete
R&E	Research and Evaluation
SAFRON	States and Frontier Region Ministry (the federal ministry responsible for special areas, tribal areas and the frontier regions of NWFP)
SCF	Save the Children Fund
SCS	Soil Conservation Service
SDEP	Special Development and Enforcement Plan
SDMD	Special Development and Monitoring Division
SDO	Sub Divisional Officer (a field engineer within C&W)
SDP	Special Development Plan (of the Planning and Development Department, NWFP)
SDU	Special Development Unit (of the Planning and Development Department, NWFP)
SWA	South Waziristan Agency
TADP	Tribal Areas Development Project
UNFDAC	United Nations Fund for Drug Abuse Control
UNICEF	United Nations Children and Environment Fund

USAID	United States Agency for International Development
WAPDA	Water and Power Development Authority
WID	Women in Development
XEN	Executive Engineer

This report is divided between the basic document (printed on white paper) and annexes (printed on buff paper). The annexes explain the reasoning behind the report's concepts and provide further detail and documentation. The busy reader can bypass the annexes without losing principal points. For a comprehensive understanding, the annexes contain essential data and rationale for the conclusions of the report.

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EXECUTIVE SUMMARY

Project Performance

With its goal of assisting the Government of Pakistan to integrate an isolated population into the social and economic mainstream of the nation, the Tribal Areas Development Project is in its sixth year of providing development benefits to the Federally Administered Tribal Areas (FATA) of northwest Pakistan. After a long and difficult start-up period, during which four of TADP's eight earmarked sub-projects were cancelled and three had stalled, USAID, in late 1985, revised the project's management structure and introduced some flexibility to the project's Fixed Amount Reimbursement agreements. Since then, the project has made encouraging progress.

The project has had two principal purposes: the construction of infrastructure that promotes development in the tribal areas; and institutional strengthening of government line departments responsible for implementing projects in FATA. In the three years since the Interim Evaluation, the Chief Engineer of RAO/Peshawar, who has been the Project Officer, has built a staff of dedicated professionals capable of moving TADP construction activities forward under some of the most difficult social and political constraints to development ever encountered by USAID. Thirty sub-project activities have been completed, 27 are underway and a number of additional projects are in the planning stages. The quality of the finished work is good, and there has been no repeat of the major clash and confusion over construction standards that plagued TADP in its first three years. With the addition of the Thall-Parachinar road, which will add \$21 million in construction funds to the project, the U.S. Government has fulfilled its commitment to help create infrastructure in the tribal areas.

TADP has contributed to institutional strengthening by creating computer centers in each of four line-departments responsible for FATA. The introduction of computer technology has enabled the departments to build project information data bases, and to develop monitoring and reporting applications for ongoing activities. More importantly, however, this computer technology provides each of the departments with the potential, as yet untapped, for a planning capacity that would far outstrip any of the other provincial governments in the country.

There remains unfinished project business: \$10 million in obligated but far from disbursed road construction funds, irrigation systems to bring on line, school buildings and potable water systems to put in place. TADP cannot overlook the demands of ongoing construction, or ignore the attention to detail that has made the project successful to date. Nevertheless, with four years remaining on the PACD, it is appropriate to look toward satisfying other project purposes. There are three such opportunities: a) further strengthening of implementation agencies; b) building of a planning and field research capacity; and, c) shifting the central direction for project activities from USAID to the Government of Pakistan.

Future Prospects

There have been major shifts in the integration of tribal areas into the national mainstream in the last few years, promoted by development projects funded by TADP

and the GOP, but propelled by the influx of Afghanistan refugees and the economic activity connected with their support. With less than eight percent of the annual development budget, TADP will always be a minor contributor to FATA development. Nevertheless, TADP can make a specific impact on tribal area development within the existing budget by contributing to institutional strengthening, planning, and project management during the next four years.

Institutional Strengthening

There are many opportunities to do more than build infrastructure. TADP has successfully encouraged technology transfer to the groundwater research and monitoring division of FATA-DC, and in computerized management applications. TADP's selected attempts to introduce institutional strengthening through the appropriate applications of technology, technical assistance, training, and equipment support have been highly positive. In the future, TADP could provide major contributions to the shaping of new strategies and procedures for FATA development, helping to improve construction design and inspection skills, and in creating field planning and research capacity. This evaluation report contains detailed recommendations for TADP support to institutional strengthening.

Building a Planning Capacity

One of the choices facing the project is whether to concentrate resources within defined areas to increase the impact of development funds. Such a concentration could result in a vivid demonstration of the benefits of cooperating with and accepting GOP development initiatives. Clearly identifiable pockets of increased economic activity and social services might provide a more realistic and obtainable objective for the Project than a broad dispersion of resources. A redefinition of the project's focus and a concentration on specific locations calls for the creation of a planning capacity that generates a strategy for exploiting development possibilities in tribal agencies. This evaluation report contains detailed recommendations for TADP support to the creation of a planning and field research capacity.

Moving the Project into the GOP

Until now, TADP has been an USAID-directed project. Considering the project's difficult beginnings and its struggle to complete construction to FAR requirements, USAID oversight of the entire process from design through completed structures made sense. However, since the project's inception, the GOP has encouraged a number of development initiatives in the tribal areas. The operation of TADP exclusively within USAID has limited it from seizing these expanded opportunities for FATA development. One institution that might provide appropriate support to TADP is the Special Development Unit of the Planning and Development Department. The process to be considered in shifting TADP to the GOP, as well as the support required from USAID and P&D to ensure that current project momentum is not lost, are contained in this evaluation report.

Bridging TADP to TADP II

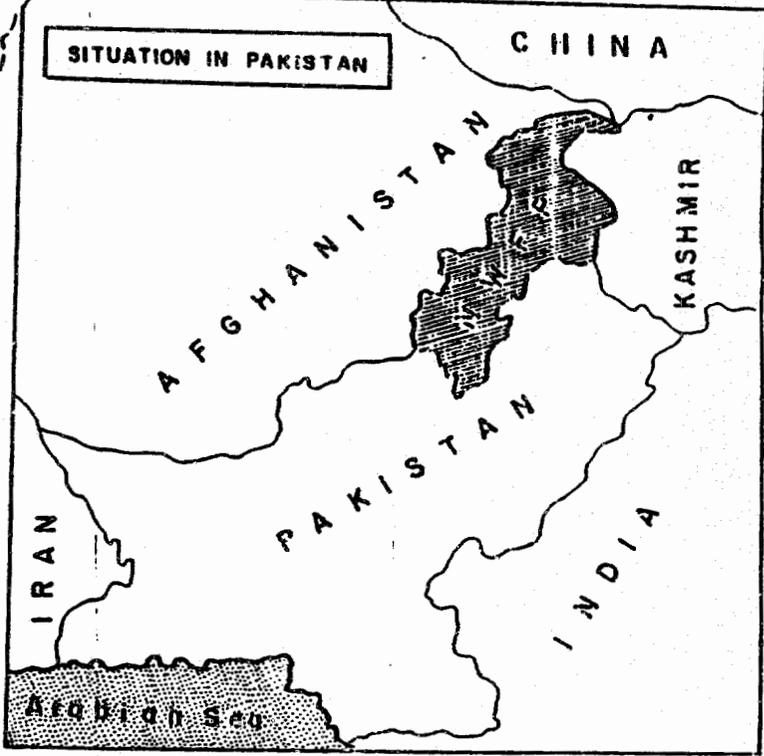
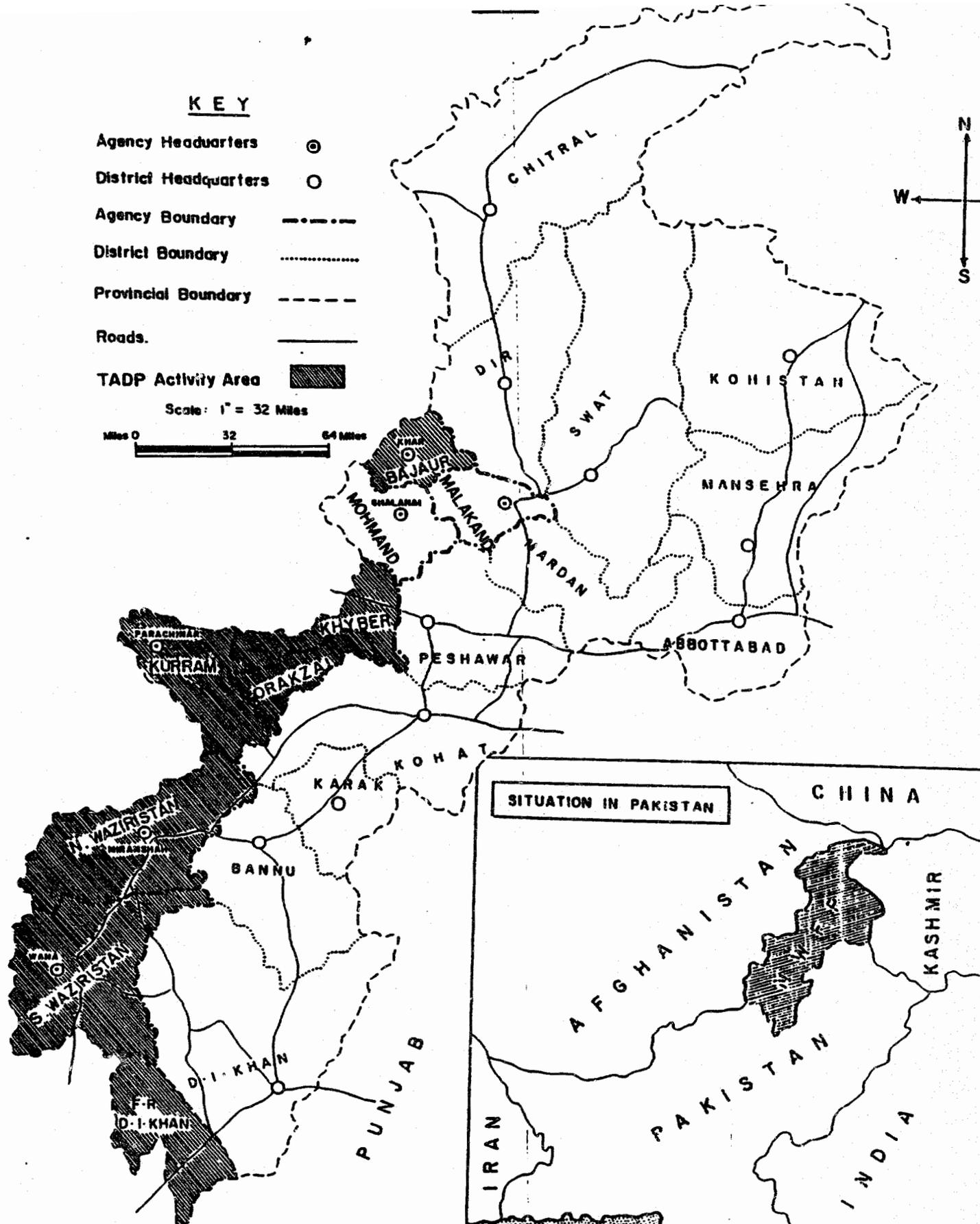
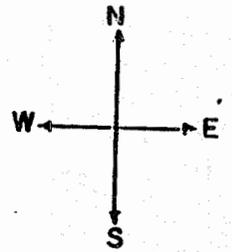
There are other possibilities for TADP, depending upon USAID/Pakistan's decisions regarding a possible follow-on project. Three points along a long continuum might be: 1) funding only for main highway construction that avoids local political issues and requires no TADP I bridge. This is called the "Transfer" option; 2) funding for infrastructure projects and those line department activities that directly utilize infrastructure (e.g., agriculture and on farm water management tied to irrigation systems construction) with stronger institutional strengthening and support for sub-projects scattered throughout FATA. This is called the "Expanded TADP" option; and, 3) funding for initiatives that are concentrated within selected and receptive tribal agencies, in which many line departments contribute to the development of a defined area. This is called the "Focused Development" option. Each more difficult and challenging option calls for greater changes in TADP in order to prepare the way for the next generation of FATA development support.

In response to Mission request, this evaluation report sets forth the requirements for a follow-on project (TADP II) defined by the "Focused Development" option beginning with a development strategy based upon a planning model. TADP II would contain support for infrastructure development, institutional strengthening, and agriculture-related services. TADP would draw upon existing (forestry) or planned (health and education) resources and strategies already supported by the Mission, and introduce them into the tribal areas through TADP-supported field staff. With development plans for specific tribal agencies, an institutional home within the Planning and Development Department, and the positive experience of TADP I, a new project could begin with many of the elements required for success.

KEY

- Agency Headquarters ⊙
- District Headquarters ○
- Agency Boundary - - - - -
- District Boundary ······
- Provincial Boundary - - - - -
- Roads ————
- TADP Activity Area 

Scale: 1" = 32 Miles



**THE NORTH WEST FRONTIER PROVINCE (NWFP)
AND THE
TRIBAL AREAS DEVELOPMENT PROJECT (TADP)**

SECTION I

PROJECT PERFORMANCE

OVERVIEW: TADP IN PERSPECTIVE

The Historical Perspective

USAID/Pakistan, in 1982, elected to extend development assistance to the Federally Administered Tribal Areas (FATA) of northwestern Pakistan, a barren and mountainous region that extends along 400 kilometers of the Afghanistan-Pakistan border. Sparsely populated, possessing limited natural resources and cultivable land, and inhabited by a society that has jealously guarded its autonomy and independence from centralized rule for centuries, the tribal area remains one of Pakistan's most underdeveloped regions.

FATA is divided into the seven Tribal Agencies and four Frontier Regions for administrative purposes. Historically, the region provided a buffer between the British-controlled portions of the Northwest Frontier (of what was then India), and Afghanistan. The many Pathan tribal groups inhabiting the region were often contained but never conquered by the British. Through a series of treaties and agreements, the British succeeded in obtaining tribal acknowledgement of the government's territorial sovereignty. In exchange, the tribals were allowed to maintain their own customary code of law and conduct. The government's Political Agents maintained the balance of power in each Agency through a system of official patronage that awarded compliant tribal elders with stipends, employment and contracts. Upon independence, Pakistan inherited both the area and the ongoing agreements and, because of the inherent complexities of administration, and the shift of tribal populations back and forth across the border with Afghanistan, assigned the region to the Federal Government. The Federally Administered Tribal Areas (FATA), the focus of development through TADP assistance, are displayed on Map 1.

There were both strong developmental and political reasons for the creation of TADP. No foreign donors had provided development funding for FATA, and, except for FATA budgets, the federal development budget then, as now, contains almost no funding for projects that affect the tribal areas. At the request of the Government of Pakistan, USAID was to blaze the trail and demonstrate that foreign donors could provide assistance in the highly complex political environment of semi-independent tribal fiefdoms within the parameters set by the donor's own internal processes. This was the development agenda. The political agenda was equally pressing. The establishment of a Communist regime in Afghanistan in 1978 and its direct support by the Soviet Union made the integration of the tribal areas, whose population is closely related to that of Afghanistan, into the Pakistan body politic, a geo-political priority. The opportunity to assist in the integration of the tribal area population with Pakistan, and away from the influence of a hostile neighboring government, proved a strong rationale for the project.

But no one said it would be easy. The first three years of the project were dominated by frustration and failure.¹ A less determined donor would have cut their losses and run. USAID stayed the course, modifying its own internal procedures to allow slightly more flexibility in dealing with the internal complexities found within FATA. The second three years has seen real progress in completed infrastructure and a beginning to institutional strengthening of GOP agencies and departments. TADP is now entering the concluding portion of the 10-year undertaking and must now consider what might be the most appropriate follow-on.

This evaluation attempts to look backwards from November 1988, to determine how TADP emerged from near disaster, and to look forward to the future. Section I considers what has occurred; Section II considers what might occur under three alternative development strategies. Together they provide a partial option set for USAID and GOP decisions on the shape of U.S. development assistance within FATA for the next decade.

TADP in Context of FATA Development

Until late 1988, TADP was a \$24,000,000, (Rs 446 million) project, delayed to the point that a full 10 years would be required to complete project activities.² As the second evaluation takes place, an additional \$21,000,000 (Rs 390 million), is likely to be added for a major highway reconstruction (Thall-Parachinar). Assuming no additional funds are programmed for TADP, USAID will have committed \$45 million dollars (Rs 837 million) for FATA development over 10 years. A comparison to the GOP's 1988-89 development allocation to FATA provides a useful comparative measure of funding levels. Table 1 details the government's Annual Development Programmes (ADP), and Special Development Plan (SDP) budget for the Federally Administered Tribal Areas.

¹ The "Interim Evaluation of the Tribal Areas Development Project, Pakistan," Development Alternatives, Inc., May 1986, Washington, D.C., remains a useful document that provides insight into TADP during the first three years. This second evaluation of TADP takes its starting point from December 1985, and surveys the second three-years of project activity. It is referenced in pages that follow as the "Interim Evaluation". Interested readers will find the two evaluations provide complementary coverage of the entire project. Details of the findings from the first three years are not repeated in this evaluation report.

² Exchange rate calculated at Rs 18.6 to \$1.

TABLE 1
GOP DEVELOPMENT BUDGET FOR FATA, 1988-89

	Rs (000,000)	\$ (000,000)
NWFP/ADP	540	29.0
FATA-DC/ADP	91	4.9
SDP	217	11.7
TOTAL	848	45.6

Note: Unless otherwise stated, the conversion rate between Pakistan Rupees and U.S. Dollars is Rs 18.60 to \$1

USAID's \$24 million project (disbursed over 10 years) would have been approximately 5 percent of the GOP's annual development budget for FATA. Adding the additional \$21 million for the Thall-Parachinar road, TADP will provide funds equivalent to approximately 9 percent of the annual development budget for FATA.³ Either figure demonstrates the limited contribution USAID will make to total development funding, particularly when the contributions are very lumpy with one road amounting to nearly 50 percent of total USAID funding. There is the potential for frustration from implementing line agencies when faced with far more stringent demands on TADP expenditures than on the larger block of funds made available under the GOP's own development programs.

TADP Components

During the first six years, infrastructure construction under a Fixed Amount Reimbursement (FAR) system has been the overwhelming concern of TADP. Project construction activity has been earmarked, to date, as follows:⁴

³ These are very rough figures, assuming that the Development budget for FATA will average to the 88-89 allocation (it has been higher in prior years), that all TADP funds will actually be disbursed, and that approximately \$2 million from TADP is assigned to USAID Project Management costs as distinct from development funding. The GOP's development budgets do not include recurrent costs of maintenance or permanent staff salaries. The percentages are calculated as TADP total allocation minus \$2 million divided by 10, divided by the FATA total GOP budgets for FY88-89.

⁴ "Earmarked" denotes funds that are designated for a particular purpose or activity after executing documents that commit funds have been signed. Sub-projects under design, or with a completed design but as yet no reimbursement agreement, are not included in the earmarked category.

TABLE 2
EARMARKED CONSTRUCTION FUNDS THROUGH OCTOBER 1988

Component	Rs (000,000)	\$ (000,000)
Irrigation	45.5	2.4
Road Construction	169.9	9.1
Small Buildings	5.1	.3
TOTAL	<u>220.5</u>	<u>11.8</u>

There are other funding components that complement the construction budget, specifically commodities and technical assistance, but these are divided among several project activities and objectives. An annex details the financial management and expenditures of the project to date.

A second responsibility of the project was to strengthen institutions engaged in FATA development. Table 3 outlines the major and minor institutions engaged with TADP.

One clearly identifiable activity supporting institutional strengthening has been the creation of a central computer capacity for each of the agencies or departments associated with the project. Through the end of October 1988, approximately \$500,000 (Rs 9,300,000) has been earmarked for automation and supporting equipment, and another \$225,000 (Rs 4,185,000) in local computer technical assistance. The details of this program are provided in a following section.

A second activity has been the institutional strengthening associated with development of the ground water research and monitoring efforts of FATA-DC. Major improvements are evident that have occurred in the last three years. This program is described in the Institutional Strengthening Chapter that follows.

**TABLE 3
INSTITUTIONS PARTICIPATING IN TADP**

Institution	Activities
NWFP Planning and Development Department Special Development Plan Computer Cell	GOP Oversight Quarterly Review P&D Data Center
SAFRON⁵ FATA-DC Computer Cell	Revolving Fund Water Resource Development FATA-DC Data Center
NWFP Communications and Works Department Computer Cell	Roads and Buildings Construction C&W Data Center
NWFP Local Government and Rural Development Department Computer Cell	Small Buildings LGRD Data Center
NWFP Home and Tribal Affairs Department Commission's Office, Peshawar Division	Tribal Data Base

⁵ States and Frontier Regions (SAFRON) is the federal ministry that has responsibility for the Federally Administered Tribal Areas, Afghan Refugees, the Northern Areas, and Azad Jammu and Kashmir.

INFRASTRUCTURE DEVELOPMENT

Overview

The Project Paper sets the goal of TADP as accelerating the integration of the Federally Administered Tribal Areas (FATA) into the social and economic main-stream of Pakistan and improving the quality of life of its inhabitants. One of the primary means that has been used to achieve this end, in TADP and other projects, is the construction of basic infrastructure (roads, irrigation works, and small buildings) in order to support the continued development of the region.

In October-November 1985, an Interim Evaluation of the project recommended that USAID revise project outputs and revamp the project management structure. The evaluation found that in the first three years since the Project Agreement was signed (1982-1985), eight sub-project components were initiated, four were cancelled, three had serious difficulties and one had yet to begin. For this reason, the Interim Evaluation judged the project to be unsuccessful; it would not achieve its stated goals or purpose under the then existing operating procedures. The evaluation recommended a refocusing of the project to overcome problems that were inhibiting progress. The PACD was extended to September 30, 1990. The project is now on its way to achieving the revised project infrastructure outputs, however, major constraints continue to exist and progress in the road sector is especially slow.

Important recommendations of the Interim Evaluation were acted upon and a new direction was established for the project. In the spring of 1986 a new Project Officer was assigned. During the two and a half year period from the Spring of 1986 to the Fall of 1988, major infrastructure construction activity has taken place. The Engineering Office in Peshawar (RAO/P/Eng), with the Chief Engineer serving as the Project Officer, has undertaken sub-project selection, planning, design review, and USAID documentation processing as well as contracting and construction monitoring and observation. The performance of these functions under the difficult social and political conditions that exists in the tribal areas is a demanding task not without its occasional dangers. However, as of November 1988, the project had succeeded in completing or getting underway a significant amount of infrastructure construction.

The sub-projects of TADP are shown in the tables that follow.

TABLE 4
TADP SUB-PROJECTS

	Initiated	Construction Started	Construction Completed
Surface water	27	10	6
Ground water	21	17	8
Roads (Total 177.9 KM)	7	4	1
Rural development (small buildings)	26	26	15
Total	81	57	30

The sub-projects that have been constructed to date are distributed over six agencies (South Waziristan, North Waziristan, Kurram, Orakzai, Khyber and Bajaur) and one Frontier Region (FR D.I.Khan). The distance from the northern part of Bajaur to the southern part of FR D.I.Khan is over 400 kilometers. Much of the area is mountainous and driving through the agencies is slow, difficult and time consuming.

Targeted Infrastructure Outputs

The project paper outlined a series of targeted project outputs. In summary form, the physical infrastructure outputs established were as follows, Figure 1:

**FIGURE 1
TADP SUB-PROJECTS**

ORIGINAL OUTPUT (PP)	REVISED OUTPUT (Sept. 88)
160 water course improvements designed and constructed in Bara, Khyber Agency.	5 watercourses improved in Bara.
20,000 acres of new land brought under irrigation and 20,000 additional acres developed using appropriate land development practices in Bara.	20,000 acres rainfed land irrigated.
20 tubewells drilled and made operational using improved ground water investigation equipment and techniques in various tribal areas.	20 tubewells installed.
Approximately 100 acres per tubewell (2,000 acres) brought under irrigation.	80 acres/tubewell irrigated.
Three to four minor irrigation schemes constructed or rehabilitated and 4,000 to 8,000 acres of new farm land bought under irrigation.	27 small irrigation schemes constructed.
25.6 Kilometers of gravel road built between Sadda and Marghan in Kurram Agency.	(Road completed)
40,000 people in Kurram Agency with more reliable access to regional markets.	
100 Kilometers of additional penetration roads constructed into isolated underdeveloped areas.	104 Kilometers roads constructed.
At least twenty small scale self-help rural development activities completed.	Minimum 26 rural development activities completed.
4 persons trained in the US and 9 in in Pakistan.	14 persons trained the US/third country and 73 in Pakistan.
(Not included)	Computer capability of five implementing departments established and enhanced.

Sub-project Selection, Design and Administration

Sub-Project Selection Criteria

The current selection criteria for choosing sub-projects for TADP funding is:

- Political clearance: The Political Administration must commit their support to the sub-project.
- Security: Sub-projects can only be undertaken in accessible areas where the personal safety of line-department and TADP staff will not be compromised.
- Beneficiary initiation: RAO/P/ENG attempts to ensure that the proposed beneficiaries of any sub-project actually initiated the request for that sub-project.
- Technical feasibility and reasonable cost: The sub-project must be based on an adequate technical proposal and reasonable cost estimate.
- Poppy cultivation: The sub-project can only be undertaken in areas that do not violate TADP's "poppy clause".

These criteria are not formally established but project files show them addressed in sub-project selection. However, even when sub-projects successfully meet these criteria, problems arise under implementation.

Sub-Project Types and Locations

The infrastructure sub-projects in TADP consist of development "schemes" that do the following:⁶

- Deliver surface water by gravity for irrigation;
- Develop ground water through pumps for irrigation;
- Provide roads to connect villages with the tribal areas administrative centers and markets outside the tribal areas;
- Provide schools buildings, health care centers and staff residences in the villages;

The following six maps (Maps 2-7 beginning on page 15) illustrate the sub-project activity areas with color coded symbols to identify the sites according to their current status.

⁶ "Scheme" is the accepted word within the GOP to describe a specific project with a defined objective, budget and timetable. TADP's "sub-projects" are the "schemes" of the Planning and Development Department.

Constraints to Infrastructure Construction Completion

An analysis of the project output targets currently in place cannot be complete without reviewing the constraints to development that exist in the Federally Administered Tribal Areas. Five constraints were outlined in the Project Paper,

- The System of Administration;
- Local Politics;
- Accessibility;
- Inter-tribal Rivalry; and
- Contracting Procedures.

A description of these constraints and their relevance to implementing sub-projects follows.

The System of Administration

Each agency is administered by a Political Agent (PA) who is appointed by the Governor of NWFP. In a system that remains largely intact since the days of British colonial rule, the Political Agent exercises extraordinary powers of discretion in his day to day administration of the agency. He is the judge and jury on virtually every matter of local concern. No development interventions occur without his expressed consent. Thus, the acceptability and eventual success of any development sub-project is clearly dependent on the Political Agent's commitment and support.

Local Politics

Some segments of the tribal population are eager for development activity. However their destiny is in the hands of the Political Agent whose overriding concern is to open areas of the agency which are as yet inaccessible to the GOP, or to improve control over areas that are accessible. The PA uses development interventions as a tool to achieve this end. Therefore sub-project selection is not generally a product of an optimal development strategy or overall development plan. Rather, it is more typically a matter of "horse trading" between the Political Agent and the tribal elders (Maliks), who have both constituent and personal agendas of their own. Construction stoppages or the kidnapping of government functionaries are common methods by which the Maliks gain negotiating leverage with the Political Agent.

The average tenure for a PA is twenty months and sometimes less if tribal unrest indicates a change of agency administration is necessary. A sub-project can be initiated as part of one Political Agent's agenda and then be placed on the "back burner" by his successor who may have a slightly different agenda.

Accessibility and Safety

There are a number of areas within the tribal areas that are off limits to all but their residents. Even in the accessible areas, tribal conflict can flair up at any time. Roads can be blocked without notice thus preventing TADP engineers from visiting the construction sites, although national highways are rapidly cleared by "sending in the army". Such conflicts stop construction. During TADP-funded sub-project investigation and construction activities, a contractor's servant killed and a surveyor, working under an AID direct design contract, was shot. Because of the threat of kidnapping in some areas, the Political Agent typically insists that all government officials and the supervisors of government-sponsored construction projects obtain an armed escort from his office when travelling and reside in secure accommodations during their stay in the Agency.⁷

Accessibility and safety are major constraints to development in portions of all seven tribal agencies. When security situations arise that would threaten TADP staff, those areas closed to outsiders by the PA, even if there is on-going work. TADP maintains numerous formal and informal contacts in the seven agencies and keeps abreast of these tribal conflicts. This understanding of the situations and the players is a major factor in insuring sub-project success.

Inter-tribal Rivalry

Throughout the tribal areas, customary rivalries are common between the inhabitants of single villages or among the inhabitants of a number of villages. This inter-village rivalry becomes important when the government plans a road intervention that links many villages. Each piece of the road comes under the jurisdiction of a particular village. The Maliks will usually insist that a contractor from their village build that portion of the road. For example, the Wana-Tattai-Shin Warsak Road in South Waziristan, a 20 km road, had 18 contractors, all with little experience building roads, let alone building to the construction standards required by the USAID Reimbursement Agreement (RA). The rivalry that exists between the leaders of the various village groups almost guarantees that construction delays and work stoppages will take place.

Contracting Procedures

To date, competitive bidding on TADP sub-projects, as well as work funded under the provincial ADP (Annual Development Program), is rare in the tribal areas, and is only commonly practiced in Kurram Agency. Once a project has been selected and designed in a particular tribal area locale, the Maliks proceed to nominate contractors to the Political Agent, who then approves the nomination after

⁷ A FATA-DC Executive Engineer (XEN) with his SDO has been kidnapped, together with a Senior Geologist and two Assistant Geologists.

negotiating with the Malikis.⁸ The line departments (C&W, FATA-DC, LGRD) also enter into the negotiation procedure since the ultimate contract is between the line department and the nominated contractor.⁹

These contracting procedures result in considerable delays in the road construction sector. In South Waziristan, contractors insist that they cannot build roads to FAR specifications within the dictated unit price rate schedules. However, rate schedules are the same, regardless of whether the road is funded by GOP or USAID; each agency has an "approved agency rate schedule." Under GOP funding, nominated contractors provide the standard quality construction, which, in almost all cases observed, does not meet the standards of incorporated in TADP's RAs.¹⁰

When an Architectural and Engineer (A&E) consulting firm is involved in the daily inspection of work covered under a C&W contract, contractors often claim that the consultants enforce standards above and beyond that which the C&W normally settles for. Therefore, their profit on the contract is reduced. The contracting procedures on roads are further complicated by the fact that nominated local village contractors do not own heavy earthwork equipment. Equipment and operators are hired from C&W. The contractors compete for the pieces of C&W equipment that are available. The C&W machinery operators may not work unless they are paid additional wages by the contractor, since C&W wages are very low.

Nominated contractors frequently lack the skills to read contracts, drawings and specifications. As a result, they sometimes sub-contract specialized work (bridges, culverts, etc.) to more experienced contractors from outside the tribal areas. In addition the C&W sub-division officers (SDOs) in the field, are not accustomed to working with the sophisticated English language plans created by the A&E consultants for TADP roads. Building roads to tight line and grade specifications coupled with the high quality material standards established by the consultants in the TADP road specifications, is a difficult task. This creates a burden on consultants in the field as they have to both inspect and direct the road construction activity. The consultants represent another complicating factor in what is normally a two party contract between C&W and the nominated contractors.

⁸ In later years of TADP, a system where by TADP prequalifies contractors and the PA chooses from among those on the pre-approved list has emerged as one method of improving road construction in FATA.

⁹ FATA-DC is a state corporation, not formally a "line department" on a par with C&W. Because FATA-DC operates in the field like a line department, this language has been used in the Evaluation Report.

¹⁰ The question of whether a TADP FAR is a specification of the GOP's engineering standards, or of USAID's engineering standards, or some combination of both is fraught with the potential for acrimonious disagreement, such as developed during the Interim Evaluation. The Evaluation Team believes the standards are likely to be combinations of what the government expects and what USAID insists upon, but that this issue is not critical to TADP success. This fundamental issue is one of upholding any standard selected for construction quality.

Disputes and work stoppages are common. The TADP engineers can do little to resolve these disputes since they visit the site approximately usually every two weeks, and dispute resolution is the responsibility of the GOP. Yet, to their credit, they have intervened and accelerated resolution of problems on several occasions.

The contracting procedures become less difficult when applied to smaller sub-projects that are specifically related to one village. Surface water irrigation and small building schemes can usually be contracted with one nominated contractor from the concerned village. The FATA-DC or LGRD field staff can read the TADP plan sheets used in these sub-projects. With the periodic assistance of TADP engineers, the line agency officers can usually ensure that construction proceeds with reasonable efficiency in accord with plans and specifications. Ground water projects can also be undertaken with relative ease because they are constructed by FATA-DC personnel.

The constraints to development in the tribal areas are considerable. Few places exist in the world today where it would be more difficult to construct infrastructure to the standards and through the processes required by TADP's existing Fixed Amount Reimbursement agreements. To achieve a quality construction in this context is a daunting task. Yet TADP, primarily through RAO/P/Eng, has been able to complete a number of irrigation and building sub-projects to a standard of construction that is remarkably high.

Conclusion

The Annexes to this Chapter (beginning on page 27) contain conclusions and recommendations for each infrastructure component: groundwater, surface water, roads, and small buildings. For the infrastructure component as a whole, progress, procedures and output was judged to be remarkable given the complex working environment of the tribal areas and the requirements of the USAID reimbursement system. Finished construction, with the few exceptions mentioned in the following pages, is to a high standard. Design assistance, reviews, field inspections and continual monitoring from TADP engineering has kept the project on target (for these three years) and on track. USAID has learned how to plan and build high-standard irrigation systems and small structures. Road completion, although the quality is high, is problematic given present institutional arrangements.

Infrastructure development should be uncomplicated. The capacity to build to designed standards is available, when it can be applied. The difficulty is in mobilizing the political, tribal, governmental and donor resources to complete the task. Given the circumstances and the environment, TADP is to be commended for its engineering professionalism and work output over the last three years.

Completed Sub-Projects.

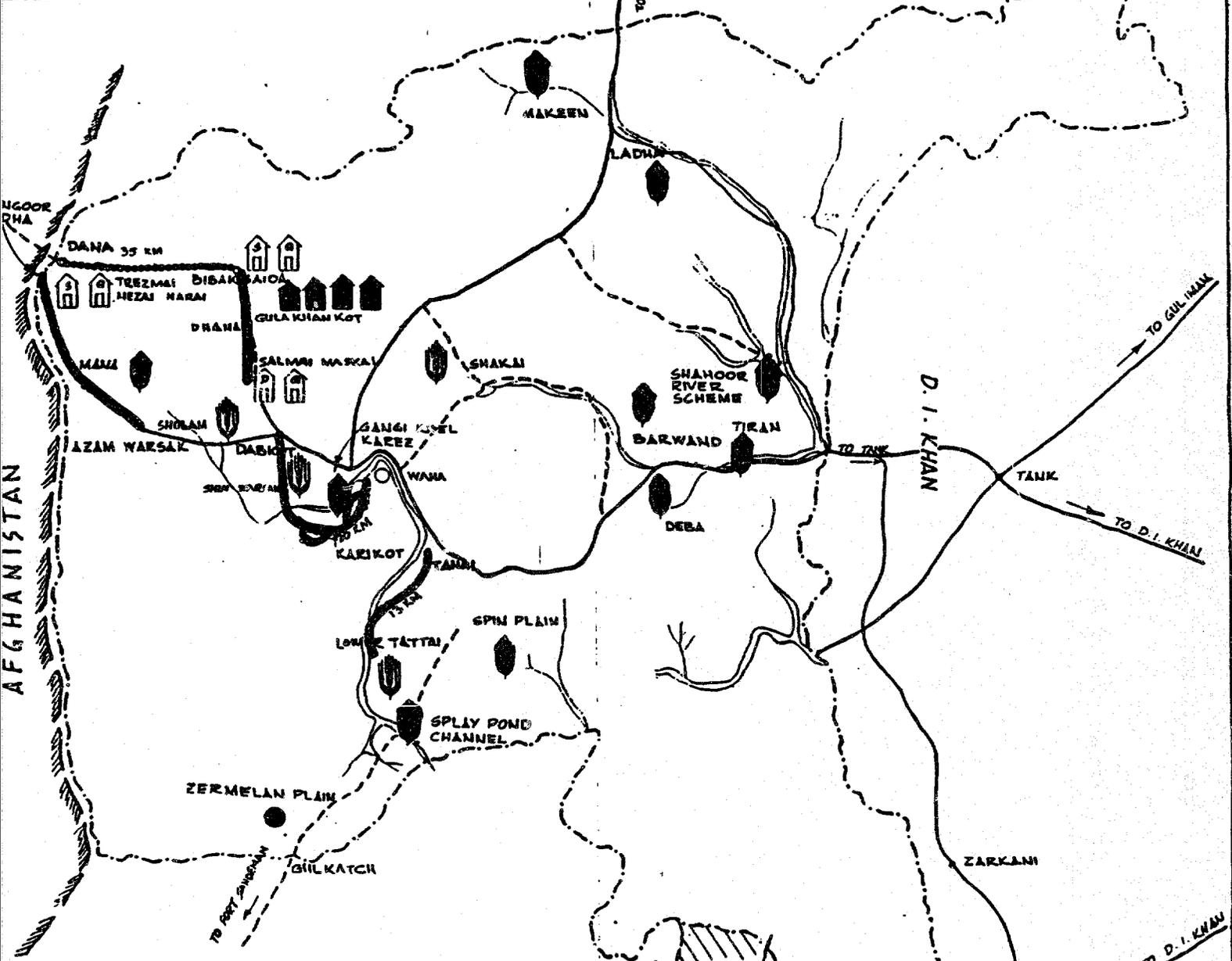
Selected For TADP Funding/
Final Review Underway.

Considered For TADP Funding/
Design and Review Underway.

Considered For TADP Funding/
Rejected.

TADP Funding Under Discussion.

NORTH WAZIRISTAN



BALUCHISTAN

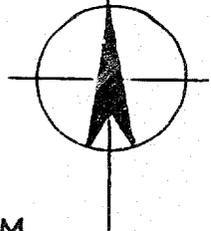


- KEY/TADP SUB-PROJECT LOCATION**
- IRRIGATION /LIFT IRRIGATION SUB-PROJECT.
 - ROAD
 - TUBEWELLS /TESTWELLS /DUG WELLS
 - SCHOOLS
 - TEACHER'S OR DOCTOR'S COMPOUND
 - DISPENSARY

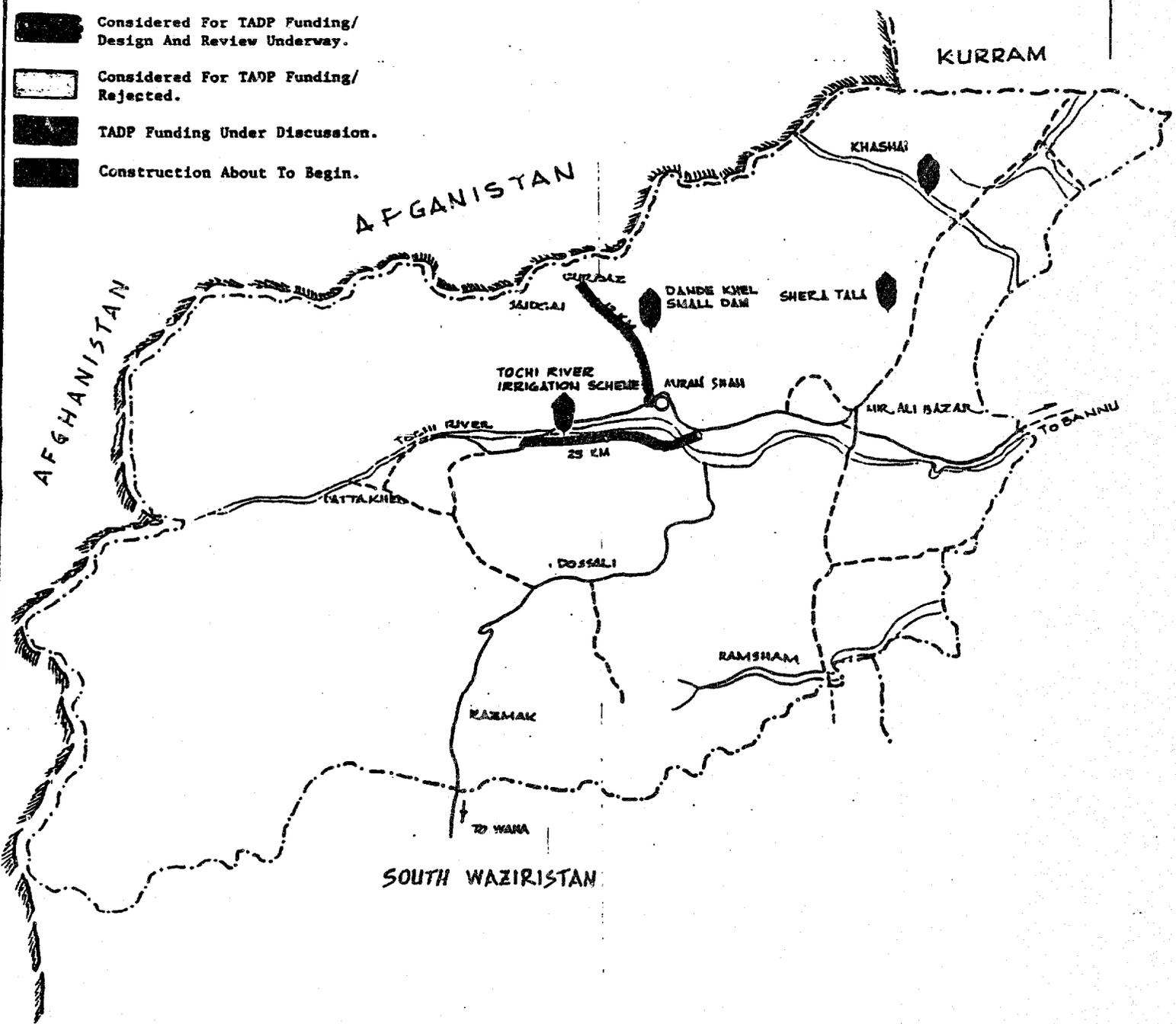
NOTE: Project status should be obtained from the

TRIBAL AREAS DEVELOPMENT PROJECT	
391-0471	
PROJECT ACTIVITIES IN SOUTH WAZIRISTAN AGENCY	
DATE PREPARED AND REVISED	
Shabeen	5 Feb 82
-	30 Nov 88

NORTH WAZIRISTAN AGENCY



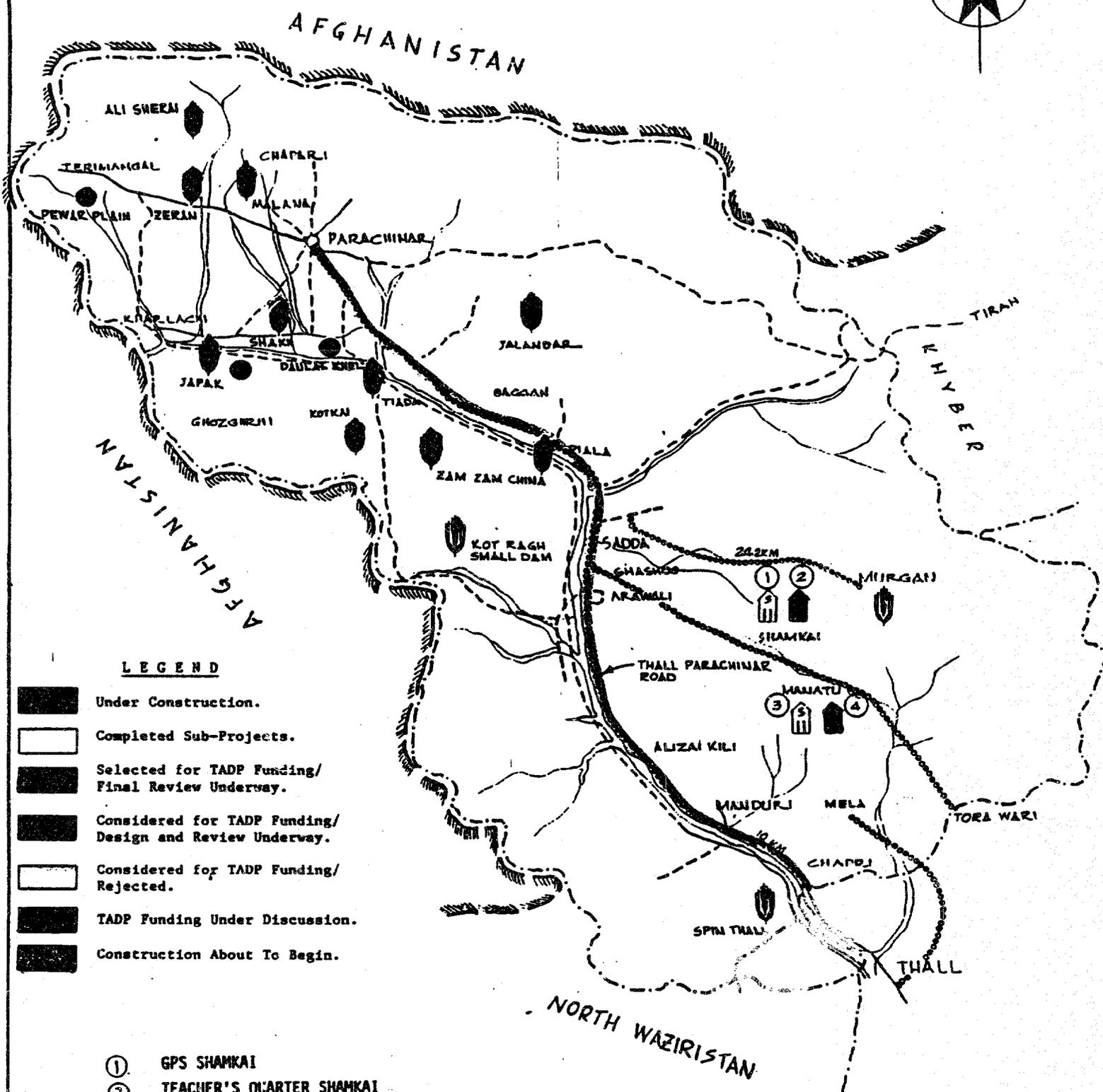
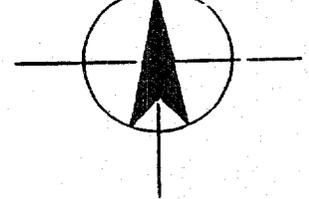
- Under Construction.
- Completed Sub-Projects.
- Selected For TADP funding/
Final Review Underway.
- Considered For TADP Funding/
Design And Review Underway.
- Considered For TADP Funding/
Rejected.
- TADP Funding Under Discussion.
- Construction About To Begin.



- KEY/TADP SUB-PROJECT LOCATION**
- IRRIGATION /LIFT IRRIGATION SUB-PROJECT
 - ROAD
 - TUBEWELLS/TESTWELLS/ DUGWELLS.
 - SCHOOLS
 - TEACHER'S OR DOCTOR'S COMPOUND
 - DISPENSARY

TRIBAL AREAS DEVELOPMENT PROJECT			
391 - 0471			
PROJECT ACTIVITIES			
III			
NORTH WAZIRISTAN AGENCY			
DATE PREPARED AND REVISED			
Shabaz	6 Feb 82		
-	30 Nov 82		

NOTE: Project status should be obtained from the

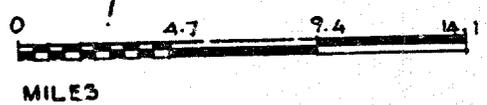


LEGEND

- Under Construction.
- Completed Sub-Projects.
- Selected for TADP Funding/ Final Review Underway.
- Considered for TADP Funding/ Design and Review Underway.
- Considered for TADP Funding/ Rejected.
- TADP Funding Under Discussion.
- Construction About To Begin.

- ① GPS SHAMKAI
- ② TEACHER'S QUARTER SHAMKAI
- ③ GPS MANATO
- ④ TEACHER'S QUARTER MANATO

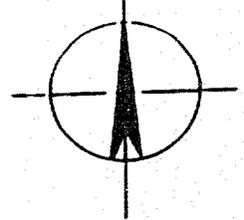
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- IRRIGATION/ LIFT IRRIGATION SUB-PROJECT
 - ROAD
 - TUBEWELLS / TEST WELLS/DUG WELLS
 - SCHOOLS
 - TEACHER'S OR DOCTOR'S COMPOUND
 - DISPENSARY



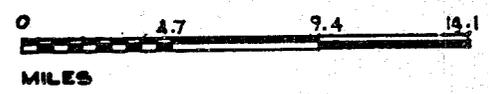
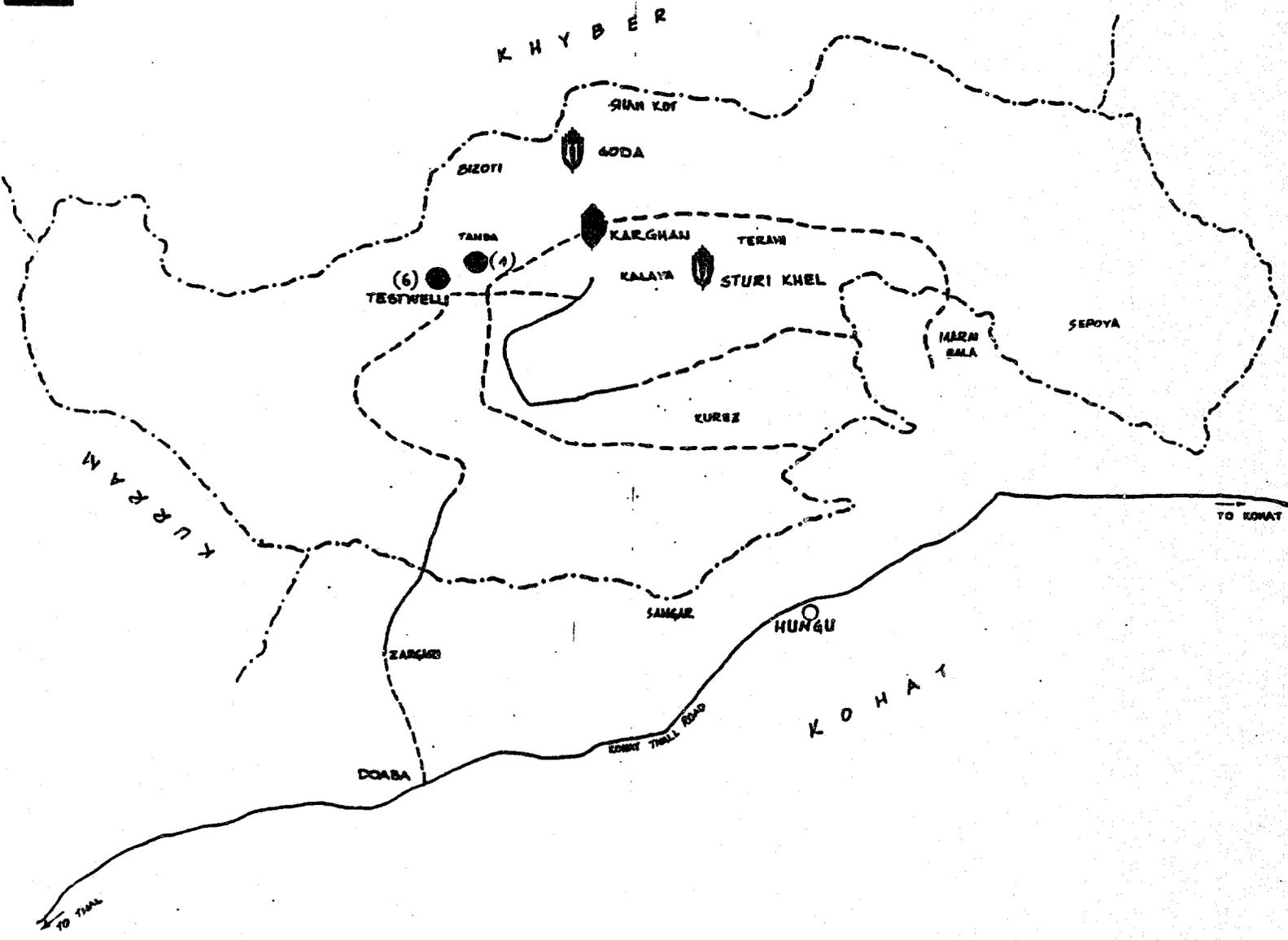
TRIBAL AREAS DEVELOPMENT PROJECT		
391-0471		
PROJECT ACTIVITIES IN KURRAM AGENCY		
DATE PREPARED AND REVISED		
Shahwan	5 Feb 87	
	30 Nov 88	

NOTE: Project status should be obtained from the

ORAKZAI AGENCY



- Under Construction.
- Completed Sub-Projects.
- Selected For TADP Funding/
Final Review Underway.
- Considered For FADP Funding/
Design And Review Underway.
- Considered For TADP Funding/
Rejected.
- TADP Funding Under Discussion.



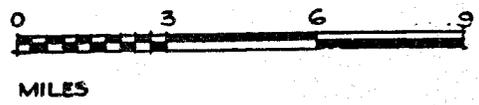
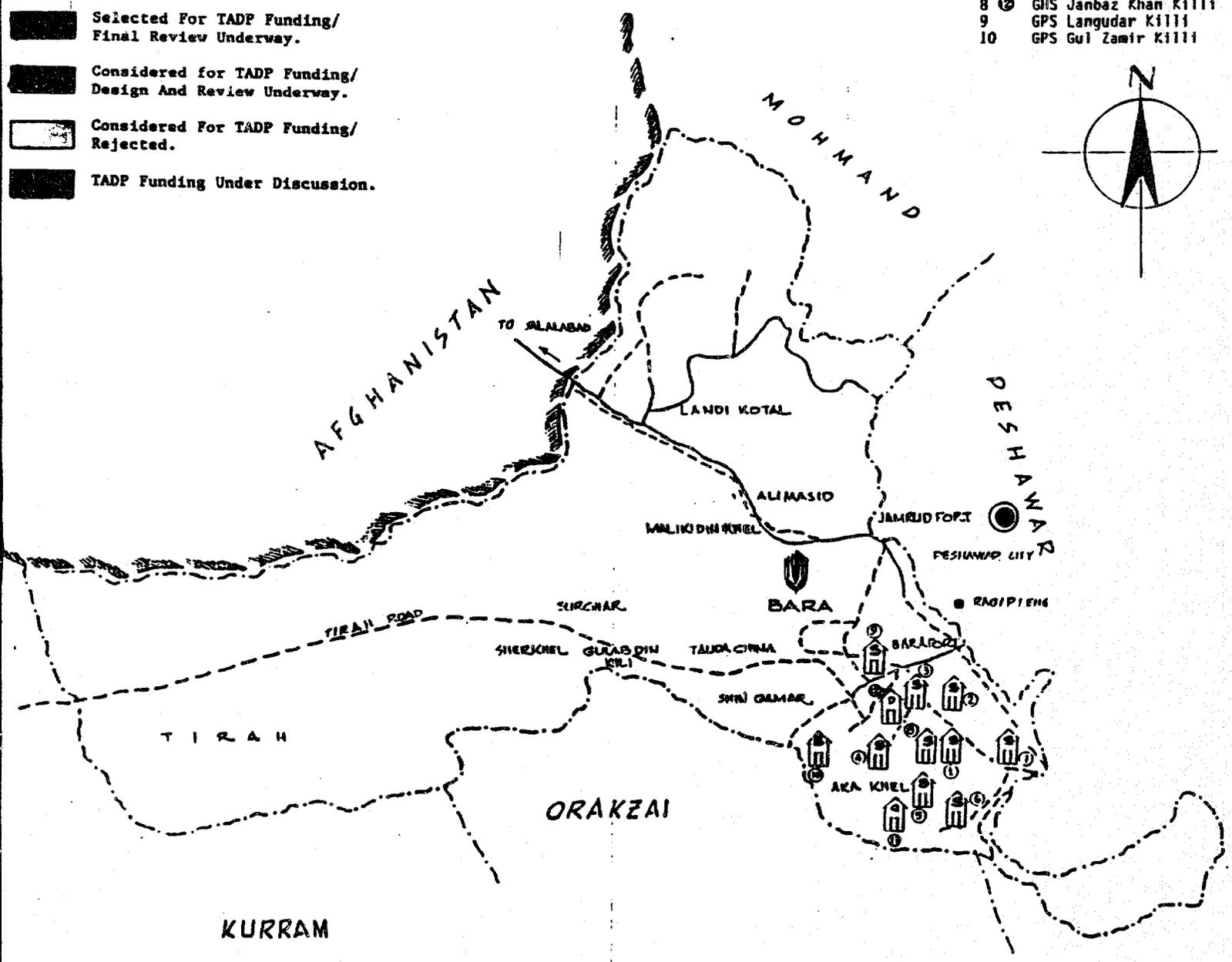
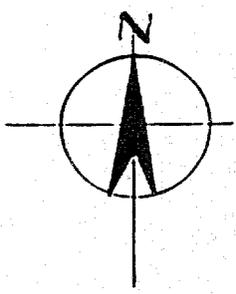
- KEY/TADP SUB-PROJECT LOCATION**
- IRRIGATION /LIFT IRRIGATION SUB-PROJECT
 - ROAD
 - TUBEWELLS (4) /TEST WELLS/DUG WELLS
 - SCHOOLS
 - TEACHER'S OR DOCTOR'S COMPOUND
 - DISPENSARY

NOTE: Project status should be obtained from the

TRIBAL AREAS DEVELOPMENT PROJECT			
391 - 0471			
PROJECT ACTIVITIES			
IN			
ORAKZAI AGENCY			
DATE PREPARED AND REVISED			
Shahzad	5 Feb 87		
-	30 Nov 89		

- 5 GPS Sarkass No.1
- 6 GPS Hullah Malikdin Khel
- 7 GPS Hissara Qambar Khel
- 8 GPS Janbaz Khan Killa
- 9 GPS Langudar Killa
- 10 GPS Gul Zamir Killa

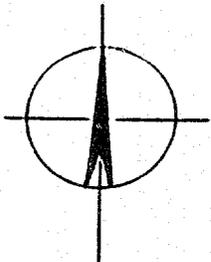
- Completed Sub-Projects.
- Selected For TADP Funding/
Final Review Underway.
- Considered for TADP Funding/
Design And Review Underway.
- Considered For TADP Funding/
Rejected.
- TADP Funding Under Discussion.



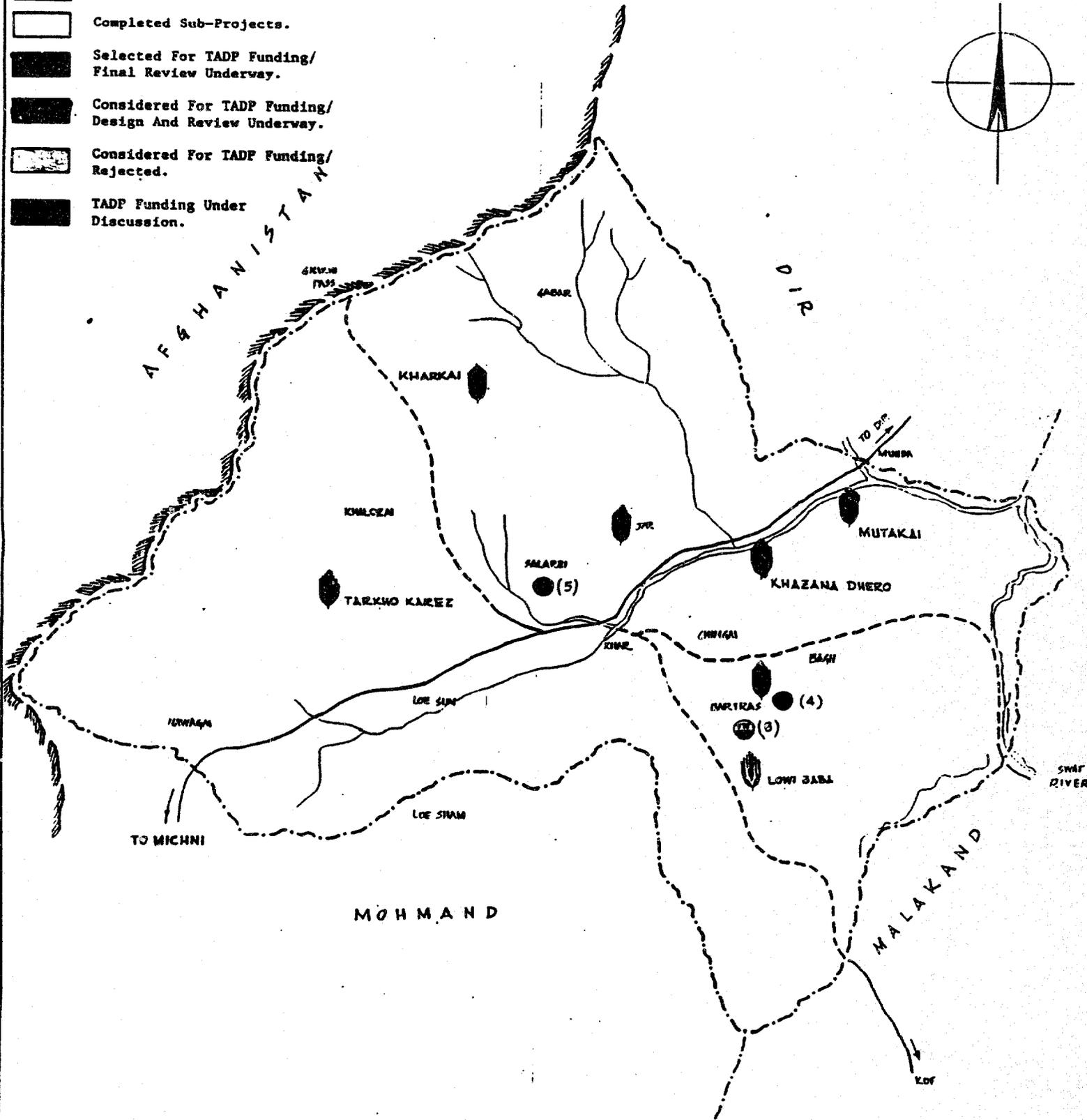
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- IRRIGATION/LIFT IRRIGATION SUB-PROJECT
 - ROAD
 - TUBEWELLS/TEST WELLS/DUG WELLS
 - SCHOOLS
 - TEACHER'S OR DOCTOR'S COMPOUND
 - DISPENSARY

TRIBAL AREAS DEVELOPMENT PROJECT		
391 - 0471		
PROJECT ACTIVITIES IN KHYBER AGENCY		
DATE PREPARED AND REVISED		
Shabran	5 Feb. 87	
"	30 Nov 88	

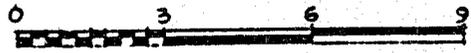
NOTE: Project status should be obtained from the



- Completed Sub-Projects.
- Selected For TADP Funding/
Final Review Underway.
- Considered For TADP Funding/
Design And Review Underway.
- Considered For TADP Funding/
Rejected.
- TADP Funding Under
Discussion.



- KEY/TADP SUB-PROJECT LOCATION.
- IRRIGATION/LIFT IRRIGATION SUB-PROJECT
 - ROAD
 - TUBEWELLS (13)/TEST WELLS/DUG WELLS
 - SCHOOLS
 - TEACHER'S OR DOCTOR'S COMPOUND
 - DISPENSARY



MILES		
TRIBAL AREAS DEVELOPMENT PROJECT		
391 - 0471		
PROJECT ACTIVITIES		
IN		
BAJAUR AGENCY		
DATE PREPARED AND REVISED		
Shahen	5 Feb. 87	

ANNEX I-A

SURFACE WATER IRRIGATION

Findings

Sub Project Selection:

The fifteen surface water irrigation sub-projects (Table 5) selected by TADP are spread over five tribal agencies and one frontier region. The agency where surface water has been given the greatest emphasis has been South Waziristan (SWA). In this agency there are seven sub-projects that are either completed, or under construction. The reasons for this concentration in SWA are as follows:

- a seemingly greater receptivity and cooperation exhibited by the local population than in any other agency
- no poppy under cultivation
- the demonstrated capability of the FATA-DC staff in the SWA office in Tank, particularly the Executive Engineer and the Assistant Engineer, to efficiently design and implement surface water irrigation schemes
- undisputed water rights in the targeted villages
- an excellent and productive relationship between the FATA-DC Executive Engineer, the Political Agent and RAO/P/Eng
- low rainfall, which increases the returns to irrigation

Design Criteria and Methodology

FATA-DC initially identifies all sub-project sites usually at the request of the Political Agent or an influential local leader. Village leaders approach FATA-DC with the request for development interventions, or FATA-DC field staff identify feasible sites. These requests are then routed through the Political Agent once the initial reconnaissance has proved a perennial source of stream water is available, and that there are no unusual physical, technical, or political constraints to developing a surface water diversion system. TADP engineers along with FATA-DC engineers then jointly confirm the seasonal reliability of the source. Design criteria are discussed including strength of concrete, size of intake structures, length, location and layout of conveyance channels, location of cross drainage works and location and size of protection spurs required for command area erosion control. FATA-DC then undertakes the required stream bed and command area surveys. Design flow rates used to size structures are calculated by FATA-DC engineers using empirical high flood level data provided by local village elders. Reliable rainfall and stream flow data are hard to find, and FATA-DC lack experience in using statistical approaches to rainfall and runoff flow estimating. Thus far flows have also not been calculated by established methods which use rainfall intensity and time of concentration as

TADP FUNDED IRRIGATION SUB PROJECTS THROUGH FATA-DC AS OF NOVEMBER 15, 1988

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
IRIG. PROJECT NAME (AGENCY)	COMMAND AREA				TOTAL COST	COST PER	NO. OF	MILESTONES						
	NEW LAND	IRRIG.	TOTAL		ACTUAL(a)	ACRE	BENEFICIA	DESIGN	FATA-DC	PC-1	RA DRAFT	RA/PIL	CONSTRUCTION	CONSTRUCTI
	IRRIGAT.	IMPROVED	BENEFIT-	CROPS	OR RA [3]	\$(RS.)	RIES	BEGINS	BOARD	SUBMITTED	SENT TO	EXECUTED	BEGINS	ENDS
	ACRES	ACRES	TED		ESTIMATE (e)		(FAMILIES)	(EST.)	APPROVED	BY FATA-DC	ISLAMABAD			
[4]	[4]	ACRES[4]		\$ (Rs)				PC-1	TO RAO/P/E					
								DATE						
SURFACE WATER SCHEMES COMPLETE & ONGOING														
Go Go Wam (F.R. D.I.Khan)	66	109	175	Fodder,vegeta- ble,Wheat, Maize	172,322 (a) (2,917,007)	985 (16,669)	200	10 AUG 1983	6 NOV 1984	20 FEB 1984	27 MAR 1984	28 NOV 1984	28 NOV 1984	31 DEC 1987
Murghan (Kurram)	225	75	300	Fodder, Rice Wheat, Maize	147,740 (a) (2,335,003)	493 (7,783)	200	20 JUNE 1983	31 AUG 1983	19 SEP 1983	16 JUL 1984	12 AUG 1984	SEPT 1984	09 JUL 1987
Spine Tangi (F.R. D.I.Khan)	150	75	225	Wheat, Maize, Vegetable	92,628(a) (1,621,993)	412 (7209)	70	08 SEP 1985	11 OCT 1986	04 APR 1986	10 AUG 1986	01 SEP 1986	15 SEP 1986	14 MAI 1987
Lower Tatai (S. Waziristan)	250	77	327	Orchards,Wheat Maize,cereals	301,617(a) (5,222,319)	923 (15,970)	500	15 MAR 1986	19 NOV 1986	10 OCT 1986	03 NOV 1986	08 DEC 1986	Dec, 86	Oct, 86
Bara Water Courses (Khyber)[1]	-	2122	2122	Wheat,cereals Orchards,Apple	198,998(a) (3,164,068)	94 (1,491)	1200	10 AUG 1983	02 MAR 1984	15 MAR 1984	14 APR 1984	03 MAY 1984	Dec, 84	March 1
Sarmogh Kach & Tiran Charnel (S.Waziristan) [2]	130	40	170	Wheat, Corn, Vegetables (Tiran Channel only)	163,462(e) (2,697,128)	958 (15,806)	50	20 AUG 1985	11 OCT 1986	03 MAR 1986	10 AUG 1986	01 SEP 1986	Sept, 86	Work in progress
DabKot karez (S. Waziristan)	166	56	222	Wheat, Corn, Vegetables	106,968(e) (1,764,965)	482 (7,950)	160	05 SEP 1985	20 APR 1986	11 FEB 1986	10 AUG 1986	01 SEP 1986	Sept, 86	Work in progress
Lowi Baba (Bajaur)	160	30	190	Wheat, Maize, Rice, Vegetable	172,058(e) (2,838,949)	904 (14,920)	100	15 JAN 1986	19 NOV 1986	16 MAR 1986	10 AUG 1986	01 SEP 1986	Sept, 86	Work in progress
Kot Kai (Kurram)	116	10	126	Wheat, Rice, Vegetables	53,212 (e)	422	35	08 MAR	27 JAN	09 SEP	06 OCT	14 APR	June, 88	Work in
Ali Sheri (Kurram)	219	-	219	Rice, Wheat, Maize	121,818(e) (2,268,252)	556 (10,357)	40	10 MAY 1986	01 AUG 1987	14 MAY 1987	14 DEC 1987	14 APR 1988	June, 88	Work in progress

ES: [1] Five Bara water courses completed. The project abandoned due to non-cooperation of locals.

[2] Sarmogh Kach Channel deleted due to local dispute.

[3] RA cost (estimate only) includes 15% contingency amount.

[4] Command Area: Data is based on design estimates only.

TABLE 5a
RAO/P/ENG. SUMMARY DATA
TADP FUNDED IRRIGATION SUB PROJECTS THROUGH FATA-DC AS OF NOVEMBER 15, 1988

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
IRRIG. PROJECT NAME (AGENCY)	COMMAND AREA				TOTAL COST	COST PER	NO. OF	MILESTONES						
	NEW LAND	IRRIG.	TOTAL	CROPS	ACTUAL(a)	ACRE	BENEFICIA	DESIGN	FATA-DC	PC-1	RA DRAFT	RA/PIL	CONSTRUCTION	CONSTRUCTI
	IRRIGAT.	IMPROVED	BENEFIT-		OR RA [3]	RIES	BEGINS	BOARD	SUBMITTED	SENT TO	EXECUTED	BEGINS	ENDS	
ACRES	ACRES	TED	ESTIMATE (e)		(FAMILIES)	(EST.)	APPROVED	BY FATA-DC	ISLAMABAD					
	[2]	[2]	ACRES [2]		\$ (Rs)				PC-1	TO RAO/P/E				
									DATE					
SURFACE WATER SCHEMES UNDER FINAL REVIEW														
Khashai Irrigation Project (North Waziristan)	-	288	288	Wheat, corn, cereals, fodder	231,965(e) (4,319,193)	805 (14,997)	600	06 JUN 1987	08 DEC 88 EXPECTED	18 FEB 1988	NOV 88 EXPECTED	DEC 1988 EXPECTED	FEB 1989 EXPECTED	DEC 1990
Splay Pond 2 (South Waziristan)	156	160	316	Wheat, rice, fodder.	118,832(e) (2,020,149)	343 (6,392)	150	15 JAN 1988	08 DEC 88 EXPECTED	01 AUG 1988	DEC 88 EXPECTED	JAN 1989 EXPECTED	MAR 1989 EXPECTED	DEC 1990 EXPECTED
Gangi Khel (South Waziristan)	390	-	390	Apple, orchards wheat, vegeta- ble	181,489(e) (3,085,311)	425 (7,911)	250	12 JAN 1988	08 DEC 88 EXPECTED	01 AUG 1988	DEC 88 EXPECTED	JAN 1989 EXPECTED	APRIL 1989 EXPECTED	APRIL 1990 EXPECTED
Mana (South Waziristan)	326	31	417	Orchard, wheat maize	110,634(e) (2,060,000)	265 (4,940)	70	05 MAR 1988	MAR 89 EXPECTED	10 SEP 1988	MARCH 89 EXPECTED	JULY 1989 EXPECTED	SEP 1989 EXPECTED	DEC 1990 EXPECTED
Piala (Kurram)	155	36	191	Wheat, rice maize	161,117(e) (3,000,000)	843 (15,707)	300	15 JAN 1987	19 JUN 1988	20 SEP 1987	DEC 88 EXPECTED	FEB 1989 EXPECTED	APRIL 1989 EXPECTED	APRIL 1990 EXPECTED

ES:

RA Cost (estimate only) includes 15% contingency amount.

Command Area: Data is based on design estimates.

TABLE 5b
RAO/P/ENG. SUMMARY DATA
TADP FUNDED IRRIGATION SUB PROJECTS THROUGH FATA-DC AS OF NOVEMBER 15, 1988

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
IRRIG. PROJECT NAME (AGENCY)	COMMAND AREA				TOTAL COST	COST PER	NO. OF	MILESTONES						
	NEW LAND	IRRIG.	TOTAL	CROPS	ACTUAL(a)	ACRE	BENEFICIA	DESIGN	FATA-DC	PC-I	RA DRAFT	RA/PIL	CONSTRUCTION	CONSTR
	IRRIGAT.	IMPROVED	BENEFIT-		OR RA [1]	\$(RS.)	RIES	BEGINS	BOARD	SUBMITTED	SENT TO	EXECUTED	BEGINS	ENDS
	ACRES	ACRES	TED	ESTIMATE (e)		(FAMILIES)	(EST.)	APPROVED	BY FATA-DC	ISLAMABAD				
[2]	[2]	ACRES [2]	\$ (Rs)				DATE	PC-1	TO RAO/P/E					
SURFACE WATER SCHEMES UNDER PRELIMINARY REVIEW														
1. Makeen (South Waziristan)	-	500	500	Wheat, maize, cereals	161,117(e) (3,000,000)	322 (6,000)	200	03 JUL 88	-	-	-	-	-	-
2. Baskai (South Waziristan)	150	300	450	Wheat, maize, vegetables	167,025(e) (3,110,000)	358 (6,670)	300	15 JUN 88	-	-	-	-	-	-
3. Mutakai (Bajaur)	-	205	205	Rice, maize, wheat	182,495(e) (3,398,056)	815 (15,170)	100	10 JUN 87	8 DEC 88 EXPECTED	26 NOV 88	-	-	-	-
4. Khazana Dhero (Bajaur)	140	30	170	Rice, maize wheat	98,281 (e) (1,830,000)	578 (10,764)	50	10 NOV 87	-	20 OCT 88	-	-	-	-
5. Jar Irrigation (PIO/T) (Bajaur) (Feasibility study)	-	-	4000	-	21,482 (e) (400,000)	N.A.	-	-	-	-	-	-	-	-
6. Shera Tala PIO(T) (N. Waziristan) (Feasibility study)	-	-	22000	-	30,612 (e) (570,000)	N.A.	-	-	-	-	-	-	-	-
7. Malana PIO(T) (Kurram)	-	-	Model Testing Headwork 2500	-	16,112(e) (300,000)	N.A.	-	-	-	-	-	-	-	-
8. Zam Zam Cheena (Kurram)	100	10	110	Wheat, rice pulses	53,706 (e) (1,000,000)	488 (9,090)	20	06 MAR 88	-	15 SEP 88	-	-	-	-
9. Spin Plain (S.Waziristan)	900	300	1200	Wheat, rice	912,997(e)	761	-	03 NOV	-	-	-	-	-	-

TABLE 5c
 RAO/P/ENG. SUMMARY DATA
 TADP FUNDED IRRIGATION SUB PROJECTS THROUGH FATA-DC
 AS OF NOVEMBER 15, 1988

SURFACE WATER SCHEMES

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
IRRIG. PROJECT NAME (AGENCY)	COMMAND AREA				TOTAL COST	COST PER	NO. OF	MILESTONES						
	NEW LAND	IRRIG.	TOTAL		ACTUAL(a)	ACRE	BENEFICIA	DESIGN	FATA-DC	PC-1	RA DRAFT	RA/PIL	CONSTRUCTION	CONSTRU
	IRRIGAT.	IMPROVED	BENEFIT-	CROPS	OR RA [3]	\$ (RS.)	RIES	BEGINS	BOARD	SUBMITTED	SENT TO	EXECUTED	BEGINS	ENDS
	ACRES	ACRES	TED		ESTIMATE (e)		(FAMILIES)	(EST.)	APPROVED	BY FATA-DC	ISLAMABAD			
[4]	[4]	ACRES[4]		\$ (Rs)				PC-1	TO RAO/P/E					
								DATE						
SURFACE WATER SCHEMES STUDIED & DROPPED														
5. Matwandi (F.R. D.I.Khan)	Scheme dropped due to the non cooperation of locals.													
6. Kot Raha (Kurram)	FATA-DC is considering construction of storage dam, so the rehabilitation scheme has been dropped.													
7. Japak Lift (Kurram)	Due to low flow in Kurram river at the proposed site, the scheme was dropped.													
8. Sturi Khel (Orakzai)	Scheme dropped due to the non cooperation of locals.													
9. Goda (Orakzai)	Scheme dropped because the major change in the approved PC-1 proposed by USAID was not acceptable to FATA-DC.													
10. Spin Thall Irrigation Scheme (Kurram)	- As above -													
11. Shakai (S.Waziristan)	Dropped as the scheme is designed based on flood flows and not on perennial flows													

design criteria. However, structure type, size, elevations and dimensions are calculated using well accepted engineering formulae. The preliminary design is completed by the FATA-DC field office and copies of this design are forwarded to RAO/P/Eng and the FATA-DC Planning and Design office in Peshawar for review. Changes are made as required, to assure that the design is hydraulically and structurally sound as well as reasonably costed.

Contract Arrangements and Administration

Cost estimates are prepared by FATA-DC using approved agency rates for specific construction items. FATA-DC also performs an economic analysis of the sub-project, making an estimate of the expected returns. This information is included in the PC-1 and submitted to the FATA-DC Board of Directors for approval, after it has passed TADP project staff and the Planning and Design Office review. After approval by the chairman FATA-DC the approved PC-1 is then forwarded to RAO/P/Eng for final approval. An RA is executed, a project implementation letter (PIL) issued and a request made by FATA-DC to the Political Agent to nominate the contractor. FATA-DC then enters into a contract with the contractor and an informal joint FATA-DC and RAO/P/Eng pre-construction conference is held to explain the rigid specifications that the contractor will be required to adhere to.

Construction Procedures and Quality Control

FATA-DC assigns a sub-engineer (construction inspector) to full time duty on the site during all construction activities. This day to day inspection is not done on FATA-DC works funded by the GOP, where one inspector covers 2-5 projects at any one time. The SDO interprets the plans and specifications for the contractor and provides location, line, and grade on all work. On a bi-weekly basis the RAO/P/Eng engineer inspects the site. His visit may include inspection and approval of materials, physical measurements of the completed work, survey checks and non-destructive (Schmidt hammer) tests on concrete. In addition water cement ratios may be checked, the formwork inspected, and concrete cubes randomly prepared for testing at the University of Peshawar. Field design changes are implemented through consultation between FATA-DC and RAO/P/Eng to address unanticipated field conditions. All RAO/P/Eng inspection work is carefully documented in good inspection reports that are supported with photographs of the work in progress.

The contractor is paid by FATA-DC from the Special Development Plan (SDP) revolving fund established for this purpose by SAFRON. USAID reimburses the GOP when RAO/P/Eng certifies that completed elements of the work are in accordance with USAID approved plans and specifications. All USAID payments are made through Fixed Amount Reimbursement Agreements (FAR's).

Two minor structural failures have occurred on TADP sub- projects during flash floods. These occurred in Go-Go Wam (F.R. D.I.Khan), the first TADP-funded surface water irrigation scheme to be built, and in Lowi-Baba (Bajaur). Both damaged structures were plain cement concrete (PCC). It appears that in both cases the failure was attributable to underestimating the design flow. An in-depth investigation of the Lowi Baba failure is being carried out by RAO/P/Eng.

Gabion wire presently being used is sub-standard on most sub-projects. On almost every gabion observed, rusted wire is evident. This wire will most probably fail within two or three years and the gabions will most probably cease to effectively function soon after that.

Functionality of Finished Work

When the work is complete, RAO/P/Eng with FATA-DC engineers, assure that the irrigation water passes into the intake structure and through the conveyance channels in accordance with the original design. All TADP funded sub-projects completed are functioning well, and the failed structures have been dismantled. At Go Go Wam the structure continues to be functional and will probably not be rebuilt, at Lowi Baba repairs will probably be made this coming year. Structures are correctly built to plans and specifications and finished quality appearance is good. On a quarterly basis, following completion, RAO/P/Eng continues to visit the site and assure that the project is performing as designed and that proper maintenance is occurring. This quarterly check is now being formalized using standard check sheets.

Attainment of Targeted Output

The present target for completed surface water irrigation schemes by September 1992 is 27. The targeted output also states that 20,000 acres of rainfed agricultural land will come under irrigation. At present there are 10 surface water diversion sub-projects under construction or completed which have a design irrigation area of 4,076 acres of benefited land.¹ (See Figure I-A1, Surface Water Irrigation Time Line) There are five sub-projects under final review which are proposed to provide irrigation to an additional 1,602 acres of benefited land. Six more sub-project schemes are under preliminary review. These propose to irrigate an additional 2,500-5,000 acres. If the sub-projects under review are funded by TADP the actual design area of benefited acreage will be approximately half the targeted project output. There has not been a systematic effort to date to verify the actual irrigated area after construction has been completed. To deal with this problem FATA-DC has just set up an evaluation cell.

Numerous delays have occurred during the construction of the surface water diversion schemes. These delays were slow to be resolved during the early years of the project. The Go-Go Wam and Marghan (Kurram) schemes took almost three years to build. These were the first two schemes constructed and many unanticipated institutional constraints prevented progress as well as those encountered on site. The constraints that hampered progress on these two sub-project are typical and are listed below to illustrate the difficulties in the early days of TADP of accomplishing USAID funded surface irrigation work:

¹ Benefited acres include both new irrigated acres and the existing irrigated area, which is assumed to be improved irrigation.

FIGURE I-A1

RAO/P/ENG
IRRIGATION TIME LINE
 TADP FUNDED IRRIGATION SUB-PROJECTS
 THROUGH FATA-DC
 NOVEMBER 15, 1988

- LEGENDS**
- [1] FATA-DC DESIGN BEGINS
 - [2] FATA-DC BOARD APPROVES PC-I
 - [3] PC-I SUBMITTED BY FATA-DC TO RAO/P
 - [4] RAO/P REVIEW COMP./DRAFT RA SENT TO ISL
 - [5] RA/PIL EXECUTED
 - [6] CONSTRUCTION BEGINS
 - [7] CONSTRUCTION ENDS
 - >>>ONGOING CONSTRUCTION

NAME OF SUB-PROJECTS
 LOCATION

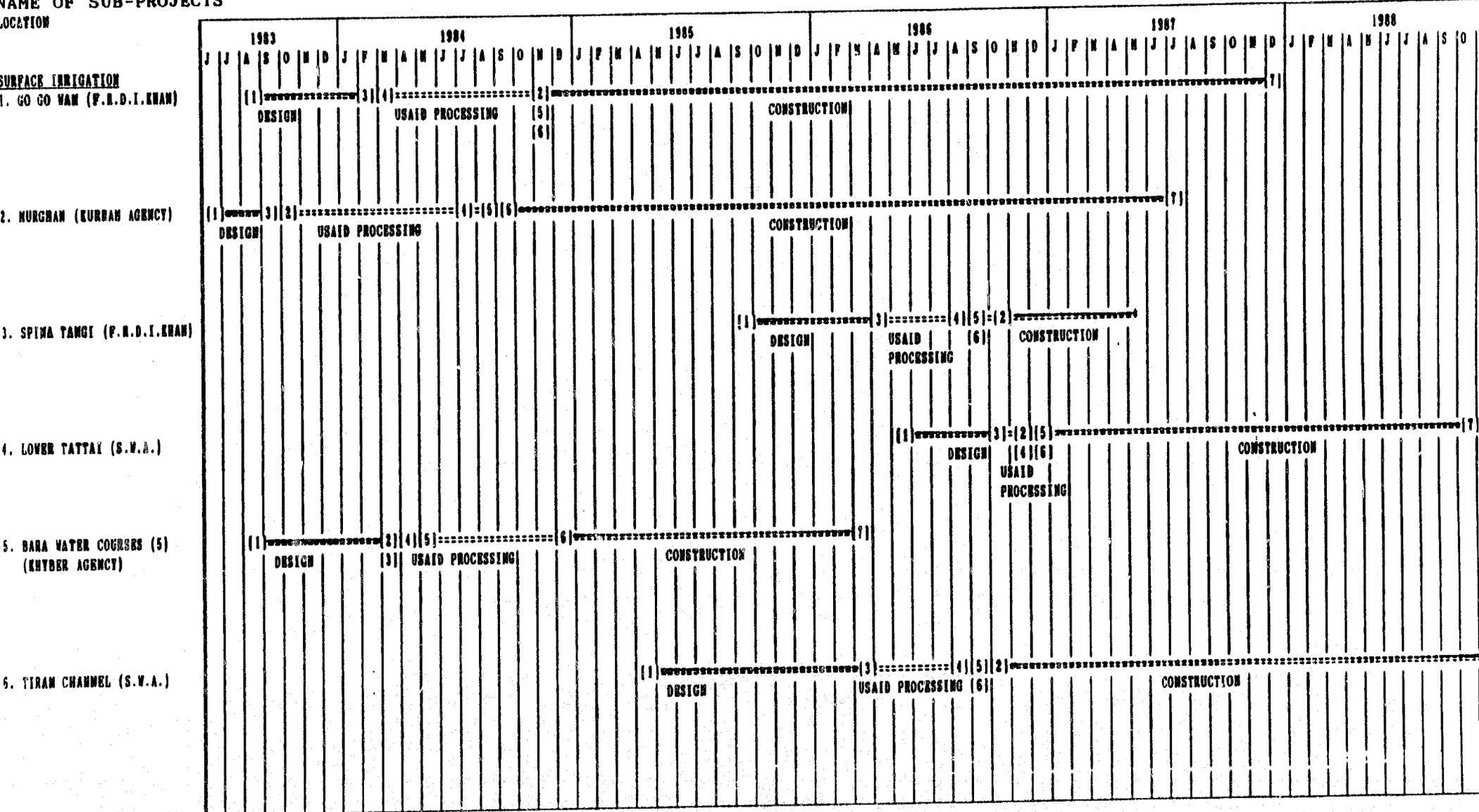
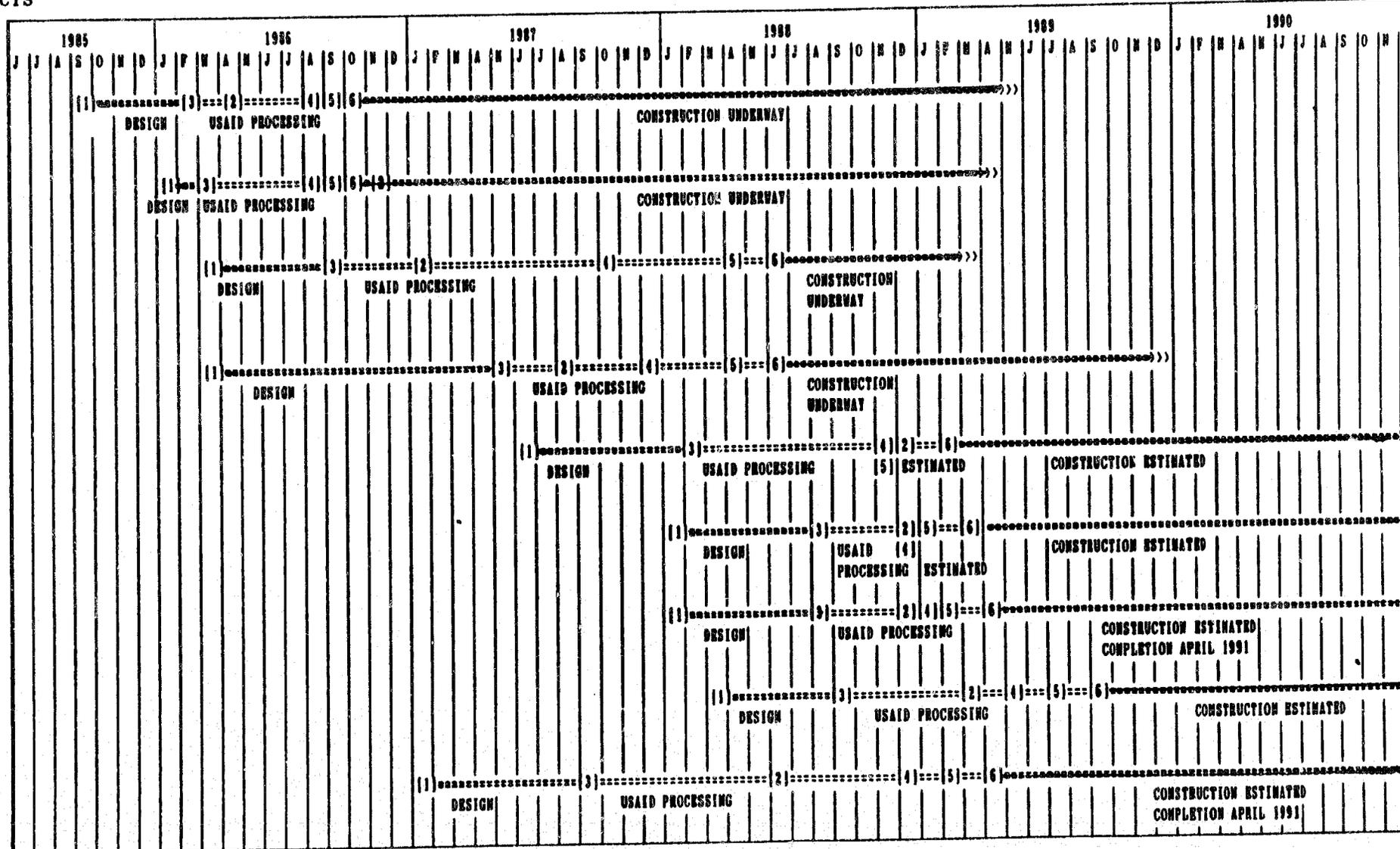


FIGURE I-A2

RAO/P/ENG
IRRIGATION TIME LINE
 TADP FUNDED IRRIGATION SUB-PROJECTS
THROUGH FATA-DC
 NOVEMBER 15, 1988

- LEGENDS
1. FATA-DC DESIGN BEGINS
 2. FATA-DC BOARD APPROVES PC-I
 3. PC-I SUBMITTED BY FATA-DC TO RAO/P
 4. RAO/P REVIEW COMP./DRAFT RA SENT TO ISL
 5. RA/PIL EXECUTED
 6. CONSTRUCTION BEGINS
 7. CONSTRUCTION ENDS
- >>>ONGOING CONSTRUCTION

NAME OF SUB-PROJECTS
 LOCATION



Go-Go Wam

Floods in the usually dry river beds (nullahs) greatly delayed construction of protection spurs. Time could have been saved, duplication of effort minimized, and better relationships between Islamabad (O/ENG) and Peshawar (RAO/P/Eng and FATA-DC) established, if authority for this sub-project had been delegated to Peshawar TADP staff, who were more aware of the field problems.

Work stopped while the intake structure was dismantled and rebuilt due to substandard concrete work detected by RAO/P/Eng. Following this both FATA-DC and RAO/P/Eng improved their inspection of TADP sub-projects.

Work stopped when skilled labor was unavailable at the site. The necessity to import skilled laborers and keep them on site was a constant problem.

Field design changes were required to meet unanticipated site conditions. Work stopped for extended periods while FATA-DC and USAID reviewed, debated and finally approved the changes. As with the original design review, the USAID O/ENG was greatly involved and had final authority over the design changes.

Marghan

Work stopped when water rights disputes occurred between right and left bank users.

Initial design of the right bank channel was not acceptable to all of the users. Work stopped while design changes were made, reviewed, debated and approved. The contractor claimed that dictated rates at the beginning of the sub-project did not allow him to make a profit two and a half years later.

Work stopped on repeated occasions while the contractor, FATA-DC and USAID (RAO/P/Eng and O/Eng) debated rates and modified FAR agreements, a long and drawn out process.

Financial Analysis

The 15 surface water irrigation schemes that are presently complete or ongoing under TADP have been estimated to have an average cost per acre of \$930 (Rs 17,298). This compares with the average cost of \$600 (Rs 11,160) per acre for surface water irrigation improvements that FATA-DC presently uses as a target range, (Rs 8,000 - 12,000). The average cost per beneficiary family for the 15 TADP surface water irrigation schemes is \$594 (Rs 11,064).

Sustainability

The surface water irrigation schemes that have been built thus far (complete and ongoing) will continue to serve the beneficiaries involved for about twenty years. Maintenance required on these systems is simple and usually handled by local users

themselves. However, the intake structures are not designed to avoid disruption of flow by boulders or trash that might become lodged in the intake. Well anchored, steel or iron devices installed at these intakes will tend to alleviate this problem and minimize future maintenance costs.

The gabion spurs that have been built in the river bed are for the most part presently using sub-standard galvanized iron wire that will, within a short time, corrode and present a major maintenance problem in the future. As the gabion baskets fall apart, the ability of the structures to withstand dynamic stream flows dissipates. The problem is caused by the difference in price between ordinary mesh, c. Rs 13,000/ton vs galvanized at 18-20,000/ton, combined with a failure to ensure that the specifications are adhered to.

The main irrigation channels leading from the intake structures are well graded and are presently providing scouring velocities that self clean the channels and eliminate intensive hand removal of sediments.

Conclusions

The present programmed allocation of funds for surface water is \$5,247,319 (Rs 97.6 million) of which \$843,792 (Rs 15.69 million) has been dispersed to date. The funds that have been dispersed have been wisely spent. The interventions thus far have been well planned, adequately dispersed, and properly built. Construction practices need some minor improvements.

Recommendations

Immediate action should be initiated to provide funding to FATA-DC to implement a hydrological data gathering program for rainfall surface and ground water throughout four valley areas within the tribal areas, Kurram, Tochi, Kalaya, and Bajaur (See Maps 8-11 in Section III). This should include automatic and manual rainfall gauges, stream flow measuring devices and analysis of water storing capabilities of the various soils within the drainage basins. The RAO/P/ENG is preparing a SOW for this program. Training will be required in the use of this equipment and the computer design of dams based on the data collected.

Procedures should be immediately implemented to guarantee the utilization of high quality galvanized iron wire on all gabions built with USAID funding. All intake structures should be designed with screening devices. All PC-1 flow calculations must be verified by RAO/P/ENG to assure that high flood discharge will not endanger river bed structures.

A computer/printer should be provided for each FATA-DC field office to assist the XEN with irrigation design and preparing PC-1s, and an engineer familiar with computer aided design posted to Planning and Design to assist FATA-DC. Training should also be given, both in country and at AIT in Bangkok.



BARA WATER COURSES
(KHYBER)



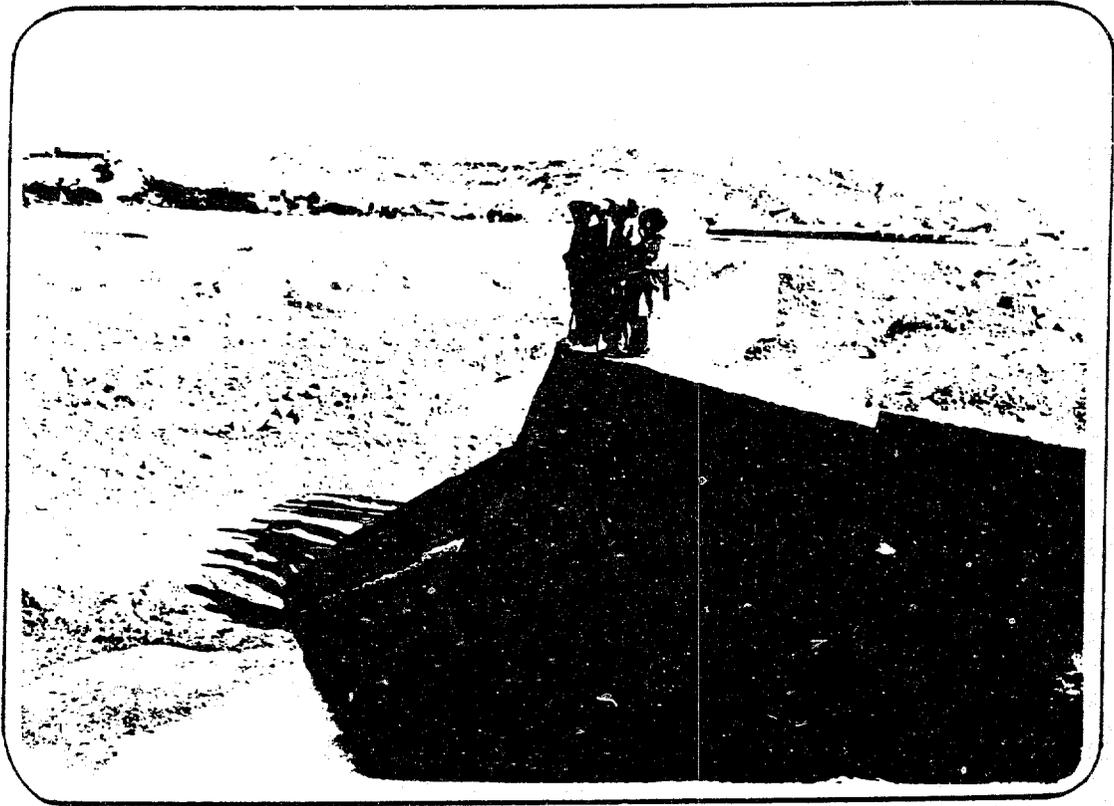
BARA WATER COURSES



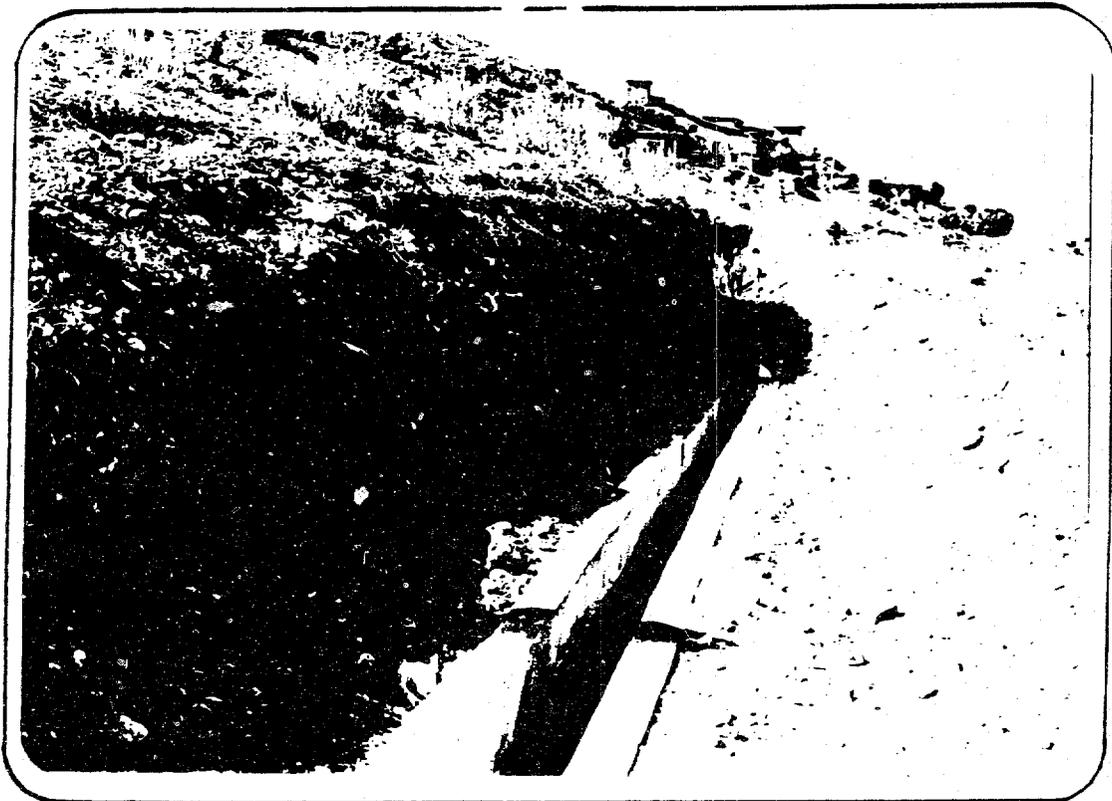
JAPAK PUMPED STORAGE
(WATER SOURCE)
(KURRAM)



JAPAK PUMPED STORAGE
(COMMAND AREA)
(KURRAM)



TIRAN CHANNEL
(INTAKE STRUCTURE)
(SOUTH WAZIRISTAN)



TIRAN CHANNEL
(MAIN CHANNEL)
(SOUTH WAZIRISTAN)



DAB KOT KAREZ
(MAIN CHANNEL)
(SOUTH WAZIRISTAN)



DAB KOT KAREZ
(MAIN CHANNEL)

ANNEX I-B

GROUND WATER IRRIGATION

Findings

Sub-Project selection

The four TADP ground water irrigation sub-projects selected are located in two agencies (Bajaur and Orakzai) (I-B1). Bajaur agency was given the greatest emphasis. The eight wells that have been put into service thus far are located in Bajaur, mainly along the length of the Nawagai-Khar road with a second concentration situated between the villages of Tongais and Khar.

The reasons for selecting sites in Bajaur were as follows:

- The safe ground water potential in Bajaur is much greater than in any of the other six agencies. FATA-DC has, prior to the implementation of TADP, drilled 110 tubewells in the Bajaur valley.
- The political environment in parts of the Bajaur valley is stable as compared to other agencies. The attitude of the population is receptive to ground water development intervention and inter-tribal rivalries are minimal.
- FATA-DC has an on-going monitoring program in the Bajaur Valley which is observing the discharge from the aquifer as well as the seasonal rise and fall of the ground water table.
- Rainfall per annum in the Bajaur valley is above average for the tribal areas. This, together with snowmelt from the mountains (surrounding the valley) provides good aquifer recharge capability.

Design Criteria and Methodology

In 1984, the Bartras Plain of Bajaur Agency was identified for commencement of the first TADP ground water development sub-project. A PC-1 was prepared, reviewed and approved by FATA-DC. Concurrently USAID agreed to fund the purchase of seismic investigation equipment for FATA-DC's Ground Water Section. An RA was executed and the USAID/Peshawar engineering geologist (American PASA) ordered the ground water investigation equipment. This equipment includes one Seismograph (ES-2415F) with 24 channels and one Resistivity Unit Micro-Terrameter-10, together with other miscellaneous supporting elements. Upon arrival of the ground water equipment in late 1985, FATA-DC commenced a hydrogeological investigation of the Bartras Plain in Bajaur. The implementation schedule is included in the PC-1 and includes:

TABLE I-B1

**RAO/P/ENG SUMMARY DATA
TADP FUNDED IRRIGATION SUBPROJECTS THROUGH FATA-DC
AS OF NOVEMBER 15, 1988**

1	2	3	4	5	6	8	9
IRRIGATION PROJECT NAME (AGENCY)	MILESTONES						
	DESIGN BEGINS (EST.)	FATA-DC BOARD APPROVED PC-1	PC-I SUBMITTED BY FATA-DC TO RAO/P/E	RA DRAFT SENT TO ISLAMABAD	RA/PIL EXECUTED	CONSTRUCTION BEGINS	CONSTRUCTION ENDS
	<u>GROUND WATER SCHEMES</u>						
Bartras, 8 Tubewells (Bajaur)	15 JUN 1984	SEP 1985	14 JAN 1985	30 AUG 1985	14 OCT 1985	30 DEC 1985	Nov. 88
Salarzai Five Testwells (Bajaur) [1]	20 JAN 1985	MAR 1986	14 JULY 1985	27 NOV 1985	01 SEP 1986	NOV 86	On going
Bizoti-Tanda 4 Testwell (Orakzai)	18 MAR 1986	AUG 1986	24 OCT 1986	29 OCT 1986	12 JAN 1987	MAR 86	-do-
Bartras (II) 4 Tubewell (Bajaur)	03 NOV 1987	12 NOV 1987	15 AUG 1988	01 OCT 1988	NOV 1988	DEC 1988 EXPECTED	SEP 1991 EXPECTED
Six Tubewells (Orakzai)	-	-	-	-	-	-	-

NOTES:

[1] Suspended due to poppy cultivation by locals.

- Through resistivity and seismic surveys, determination of the productivity of the proposed command areas; determining ground water elevations, ground water strata thickness and depth to bedrock
- Obtaining Political Agent and local resident clearance
- Determining a site specific location and drilling until an adequate ground water flow is assured

Contract Arrangements and Administration

FATA-DC performs all well development activities using in-house staff. Local labor is utilized as needed on a time charge basis.

Construction Procedures and Quality Control

FATA-DC wells are drilled "departmentally", that is, FATA-DC has their own crews and equipment. All eight TADP-funded wells in the Batras Plain were drilled by cable tool rigs. Cuttings are taken at every six ft. and acceptable well logging practices are employed. FATA-DC drilling crews average a 12ft/day drilling rate. This is somewhat slow considering the alluvial clay/sand formation found in the Bartras plain. Development of the well is accomplished by step pumping. Testing follows, and the specific capacity of the well is estimated using the discharge/drawdown ratio at the maximum flow rate of the Developing and Testing (D & T) pump. Pumps are usually multi-stage vertical line turbines. In some cases multi-stage submersible turbines are used. Disinfection is not performed. There is no sanitary seal on the wells. FATA-DC performs log conductivity tests on the well water and uses this to determine if the quality is suitable for drinking water and irrigation purposes.

Drilling materials that are removed (well cuttings) are placed in plastic bags. Each bag is marked with the appropriate drilling depth. These samples are inspected by the FATA-DC hydrogeologist and the TADP ground water engineer. They are then classified into different lithological units. The drilling crew also records the water level daily. After completion of the drilling, soundings are performed by the TADP and FATA-DC engineers. A strata chart is then prepared from the available lithological samples.

A blind housing pipe is installed in the impervious zones. Brass strainers of suitable slot size are installed in the water bearing formations. A bail plug is also installed at the bottom end of the well.

Prior to the lowering and setting of the housing pipes and strainers the well is cleaned using compressed air. Soundings are taken to ensure the design depth is as per specification. All welds on the housing pipes and joints on the strainers are checked in the field prior to lowering into the well. Manufacturer's certificate for the brass strainers are obtained by FATA-DC and verified by TADP engineers. Shrouding material is also checked on the job site by the TADP engineer to assure that it is as per specification. The new wells observed in the field produced clear, sand free, high quality water.

When the well is completed, TADP engineers provide a layout for the foundation of the pump house. The super structure is then built as per specification and plans. The permanent pump and motor selection is agreed upon mutually by the FATA-DC and TADP engineers. Procurement and installation of the mechanical equipment is accomplished by FATA-DC. WAPDA completes the electrification activity. Payment to GOP is made on verification of the completed tube well as per the RA.

Functionality of the Finished Work

FATA-DC is responsible for the operation and maintenance of the completed tube wells. Beneficiaries are responsible for constructing and maintaining the distribution channels for irrigation water. TADP engineers inspect the site quarterly to check the mechanical equipment and recommend maintenance as required. FATA-DC recorded ground water levels are also checked by the TADP engineer to monitor the potential depletion of the ground water resources. Periodic specific capacity tests are performed every six months to insure the functionality of the finished work. All tubewells observed in the field were producing a reliable flow of excellent quality water.

Attainment of Targeted Output

The present targeted output for ground water irrigation for TADP is to have twenty tube wells drilled and 2000 acres of irrigated land commanded (Figure I-B1).

At the present time there are eight tube wells now operating in the Bartras Plain providing water that could irrigate approximately 700 acres of crop land.¹ Four additional tube wells are about to be drilled in the Bartras plain. Documentation for this new sub-project, including a FATA-DC Board approved PC-1, is presently with USAID/Islamabad awaiting approval of the PIL. The RA has been withheld pending completion of the electrification required for the eight tubewells.

Five test wells have been drilled and four have been tested in the Salarzai Plain in Bajaur. Two test wells have been completed out of four test wells in the Bizoti-Tanda plain in the Orakzai Agency. Discharge measurement have not yet been performed on these wells. These nine test wells should be able to be converted into tube wells in the near future.

At the present rate of implementation of ground water schemes the targeted output of wells drilled should be met with little or no difficulty by September 1992. The acres under irrigation are likely to be less easy to achieve.

¹ All acres of crop land under irrigation are estimated according to water flow potential of each well. They are based on one cusec flows. The average flow of all the operating FATA-DC wells is 0.6 cusecs. FATA-DC estimates that four years are required to develop the full capacity of the tubewells. At present, best estimates of acreage under irrigation are significantly less than 700 acres.

Financial Analysis

The eight tubewells in the Bartras plain in Bajaur are expected to cost \$322,058 or \$40,257 per well, (Rs 5.9 million or Rs 748,780). Each well is expected to irrigate approximately 90 acres. Therefore, the capital cost per acre is approximately \$450 (Rs 8,370), if full irrigation capacity can be reached. There are also significant Operations and Maintenance costs to tubewell irrigation not found in surface water irrigation schemes.²

There are technical advantages to providing ground water instead of surface water. Surface water schemes are subject to potential destruction should an unanticipated major flood occur. Ground water schemes are usually developed in areas that are not threatened by flash floods. However, ground water schemes generally appear to be benefitting single property owners who lease out land to tenant farmers (70 percent return to the farmer and 30 percent return to the owner of the net production), while surface water schemes generally provide water to a number of individual land owners. Ground water schemes would only be considered more favorable than surface water schemes if: a) sufficient knowledge of the ground water table was available to insure the sustainability of the resource, and b) recovery could be made of operating costs from land owners, and c) full utilization of the water potential is achieved to irrigate 90 acres, average, per one cusec tubewell .

Technical Sustainability

The pump houses and tubewells that were visited in the field were all built to a high engineering standard. Great care has been used to assure the reliability and sustainability of the source of water. Recharging of the aquifers appears to be well documented. Proper mapping of the involved aquifers and hydrogeological determinations, using the resistivity and seismic instrumentation that has been provided by USAID, is presently underway. One such geophysical investigation was recently completed (September 1988) for the Jani Khel Area in F.R. Bannu. The FATA-DC geophysicists who developed this report did extensive field investigations using TADP-supplied instruments. The area was covered by 87 electrical resistivity soundings. Cross sections were provided and profiles made of the interpreted lithology. Iso-resistivity contour maps were also developed.

This is clear evidence that detailed hydrological mapping is underway by FATA-DC, and that the sustainability of ground water resources is an important consideration in FATA-DC's development plans. At present there are seven highly qualified geo-physicists posted throughout the tribal agencies within the Federally Administered Tribal Areas, who must share the one set of geo-physical testing instruments that were provided by TADP. This curtails their ability to study and evaluate the ground water resources throughout the tribal areas.

The pumping equipment used in the USAID-funded tubewells is of the highest quality. The electric drive motors are manufactured by Siemens and the pumps by

² FATA-DC spends approximately Rs 70,000 (\$3763) per year per tubewell on providing electricity, operators, watchmen, maintenance and repair.

KSB. These manufacturers have a reputation for producing good quality equipment that has long life and requires little maintenance. The quality of the discharge water is superior. It is virtually sediment free and therefore will not cause friction within the impellers of the pumps.

Conclusions

In contrast with the findings of the Interim Evaluation, FATA-DC has now incorporated hydrological investigations into planning for ground water development, using techniques and equipment provided by TADP. Although there will always be pressure on any organization to drill wells before all scientific research has been completed, FATA-DC engineers understand the critical importance of preserving the water table, particularly in those areas in which traditional hand-dug wells and karez systems operate.

The Federal Republic of Germany, through the KfW, is in the final stages of signing an agreement with FATA-DC to support a \$11.5 million program for tubewell development in the Wana Plain, South Waziristan and Jani Khel in F.R. Bannu. A KfW hydrologist has undertaken an analysis of water samples drawn from the aquifers in the Wana Plain, an area where TADP has provided support for karez rehabilitation. The examination to date has shown that the water in each aquifer has different chemical constituents. Supplementing these tests are a number of ongoing resistivity and seismic tests that indicate that there is an impervious clay layer between the aquifers. It is possible that an interface between the lower aquifer (which is feeding the tubewells) and the upper aquifer (which is feeding the karezes) could occur during drilling. As the lower aquifer is under pressure the tendency would be for slight upward leakage to occur that if anything could tend to increase the yield of the upper karez aquifer. In view of the concern over the nature and the interrelations between the aquifer, the project will support the creation of observation wells (the first to be installed by FATA-DC) to monitor all aquifer levels, as well as a comprehensive system of completed tubewell flow and water level monitoring. In addition, the project will provide a German technical specialist in hydrogeology who will remain with the project to ensure that the water table is properly monitored and sustained.

The present method of ground water investigation is highly professional. It assures the proper utilization of financial resources by reducing to about 18 percent the drilling of dry holes. Good quality water is being produced at reliable continuous flow rates that are not presently depleting the ground water resource. High quality equipment is being utilized that has long life and low maintenance.

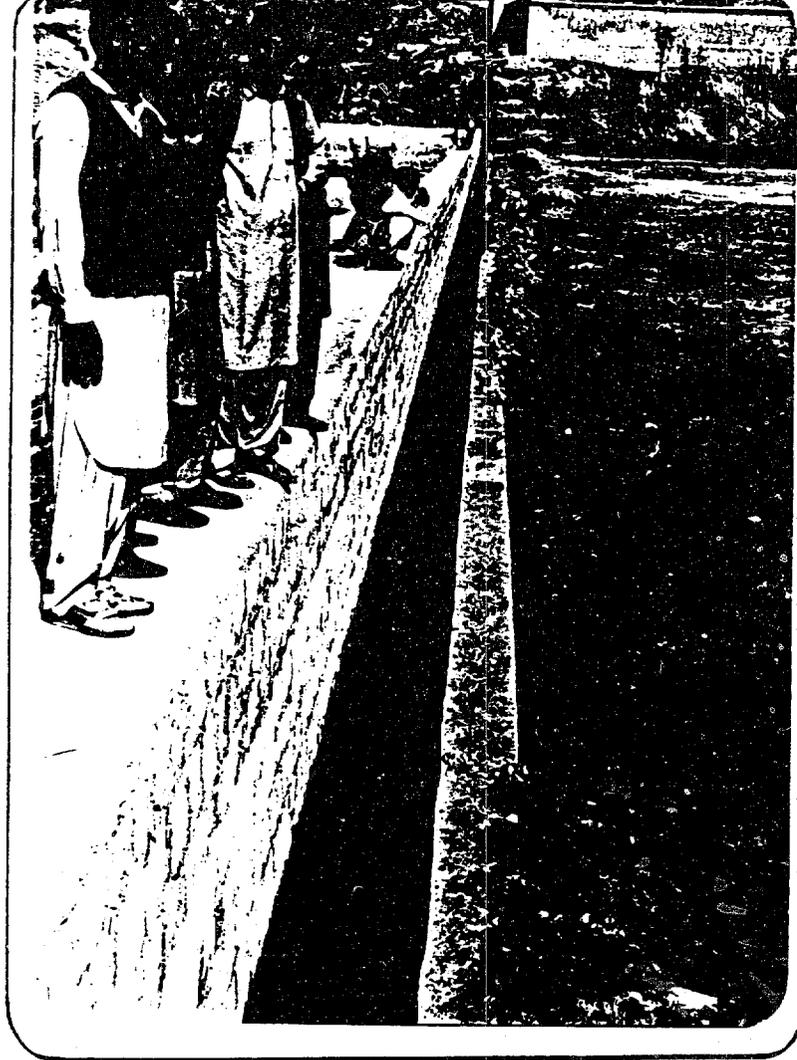
There remain a series of issues to be addressed as USAID considers further support to FATA-DC's ground water development program; including new crops, the economics of tubewells and the management of the irrigation. These issues include not so much technical engineering issues as those of recurrent costs now borne by the GOP, the equity of narrow distribution of expensive benefits to a few landowners, and the continuing concern that far less than the full land potential will actually be irrigated from the average tubewell.

Numerous areas exist with groundwater available in FATA and the opportunities exist for the expansion of ground water development. The recurrent cost issue has

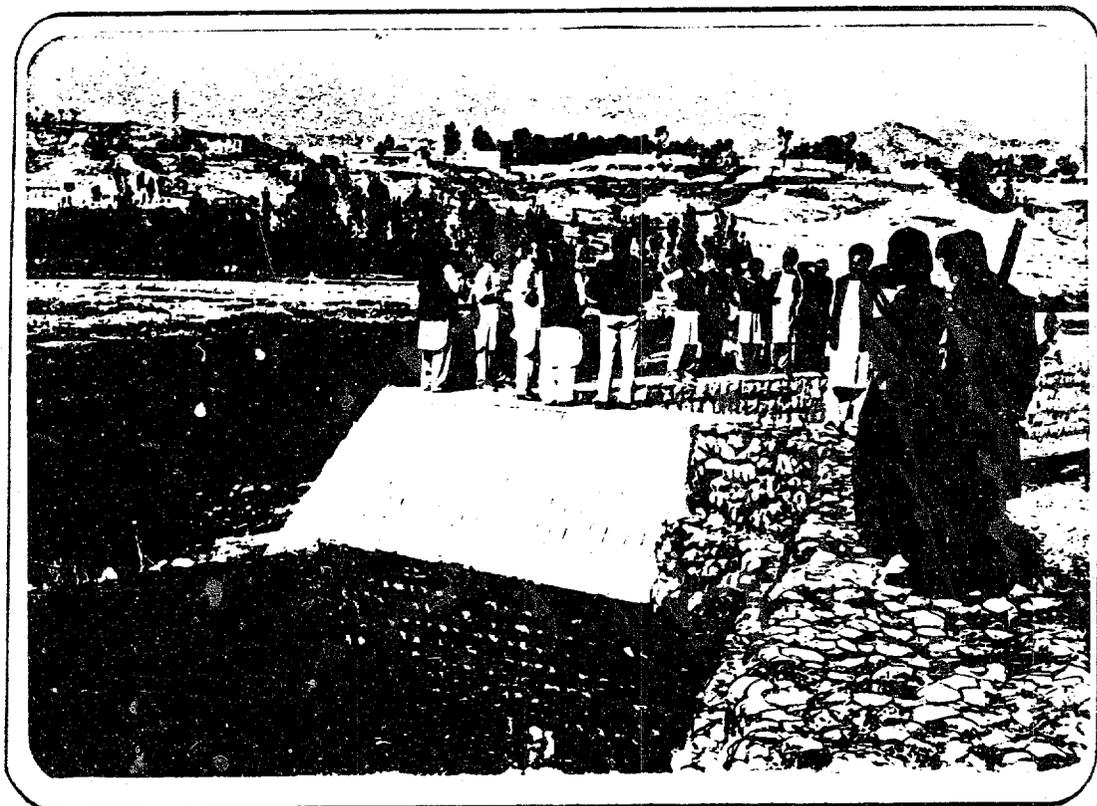
to be addressed and the electrification of the successful tubewells has been a continual problem in the past. Extensive mapping of aquifers is now underway. Within a reasonable time FATA-DC will have a reliable data base from which to judge how much of the ground water resources should be exploited. This will provide the various valleys and larger plains within the tribal areas with a major new agricultural opportunity, albeit an expensive one.

Recommendations

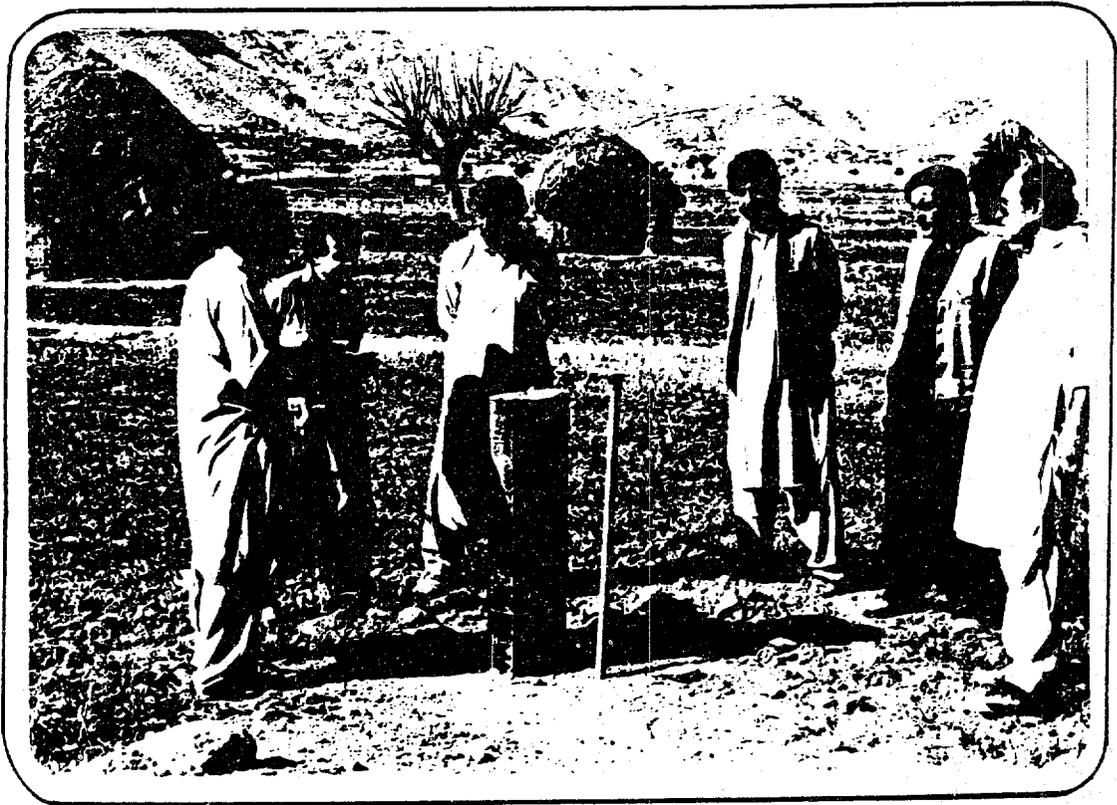
TADP should move forward to convert the present test wells into tube wells at the earliest possible opportunity. Continued financial assistance should be provided to further enhance FATA-DC's capability to improve its ground water mapping and monitoring activities. This should include additional seismographic and resistivity equipment, to augment that already provided by TADP, which is presently being heavily utilized in hydrological investigations. FATA-DC has made major strides in developing a professional ground water division. In spite of the outstanding issues of resource depletion and equity that are raised in all ground water development programs, the hydrology effort is worthy of continued USAID support.



LOWI BABA (BAJAUR)
(MAIN CHANNEL)



LOWI BABA
(INTAKE STRUCTURE)



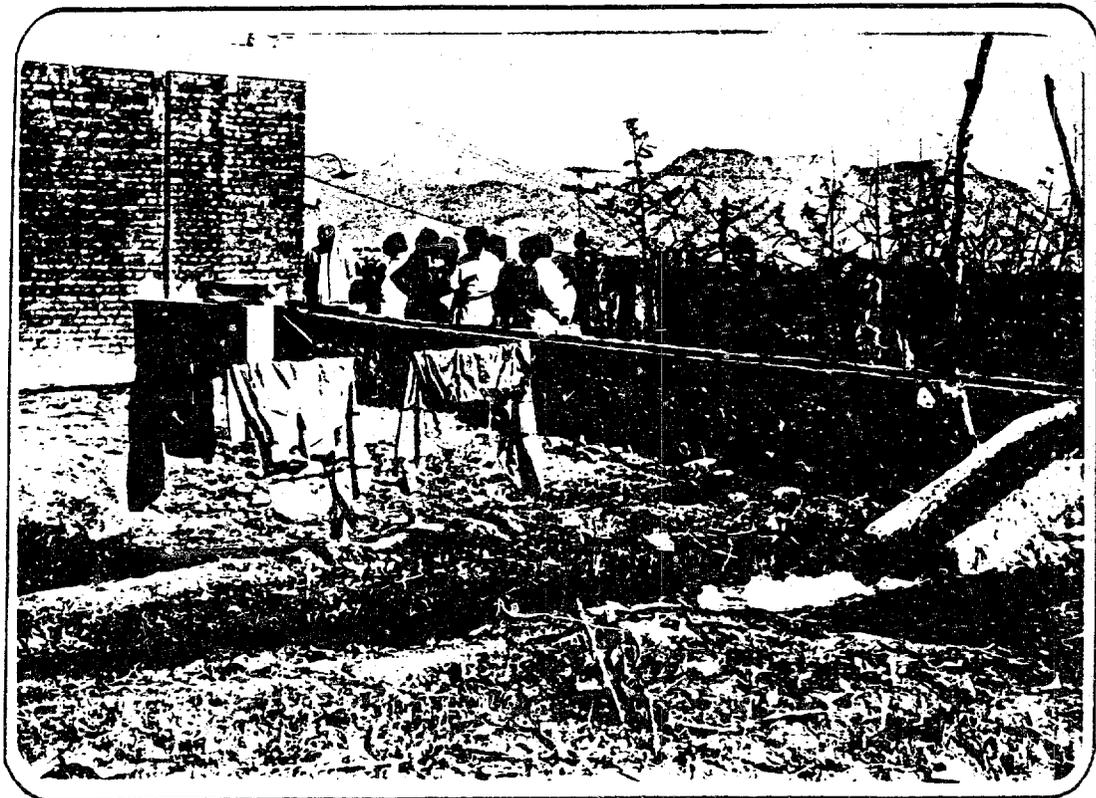
SALARZAI TESTWELL
(CAPPED CASING)
(BAJAUR)



SALARZAI TESTWELL
(DRILL RIG)
(BAJAUR)



BARTRAS TUBEWELL
(PUMP HOUSE)
(BAJAUR)



BARTRAS TUBEWELL
(DISCHARGE TO WATERCOURSE)

ANNEX I-C

ROAD CONSTRUCTION

Findings

Sub-Project Selection

The seven road sub-projects (Table I-C1) selected by TADP (covered under five FAR agreements) are all located in three tribal agencies, South Waziristan, North Waziristan and Kurram. With the exception of the Sadda-Marghan Road, which was identified in the Project Paper, they were all chosen in one of four ways.¹

In the spring of 1984, the first TADP Project Officer visited South Waziristan and selected three roads for TADP funding after consultation with the Political Agent, Assistant Political Agent, the local Sub-Divisional Officer (SDO) of the C&W Department, and local inhabitants of the area. The opportunity to support local agricultural development was one of the principal reasons for the selection of these three roads.

In the early spring of 1985, the second TADP Project Officer visited the NWFP Planning and Development (P&D) Department and met with the Secretary P&D and the Political Agent of North Waziristan. During the preparation of the project paper, the Political Agent became a member of the project design team. He recommended that TADP undertake the Saidgai Road to improve access to the area's agricultural lands and to the Afghan border.

The Boya-Razmak Bridges road, which was included in the provincially-funded ADP, was intended to provide market access to numerous villages on the right bank of the Tochi River. These villages produce fruit, vegetables and grains.

In the later part of 1985, the USAID Mission Director, the Chief O/Eng and the TADP Project Officer visited Parachinar. They discussed the on-going Sadda-Marghan road sub-project with the Political Agent. The Political Agent strongly recommended consideration of the Thall-Parachinar Road reconstruction for TADP funding. This road is the most heavily travelled road in FATA. It links the agricultural villages along the left bank of the Kurram River with market centers of Thali, Sadda and Parachinar. C&W has begun construction of four new bridges under their ADP; one crossing the Kurram River and the other three lying along the present Thal-Parachinar road. These bridges will link the right bank communities to the Thall-Parachinar road. USAID has agreed to fund this sub-project, which includes the construction of 28 bridges, for an estimated cost of \$ 21 million (Rs 390 million).

¹ According to the Project Paper, "This road satisfies the criteria for project selection. It is in the Special Development Plan (SDP) and was identified as one of the major development priorities by the Political Agent in Kurram Agency."
(page 41)

TABLE I-C1
RAO/P/ENG SUMMARY DATA
TADP FUNDED ROAD CONSTRUCTION THROUGH C&W DEPARTMENT
15 NOVEMBER 1988

1	2	3	4	5	6	7	8	9	10	11	12
NAME AND AGENCY	APPROX. SERVICE AREA (SQ.KM)	TOTAL ACTUAL COST (a) OR RA ESTIMATE \$ (RS.)	COST PER KM \$ (RS.)	NO. OF BENEFICIARIES	M I L E - S T O N E						
					DESIGN BEGINS	PC-1 DATE	PC-1 APPROVAL AT PDWP	RA DRAFT SENT TO ISLAMABAD	RA EXECUTED	CONSTRUCTION BEGINS	EXPECTED COMPLETION
SOUTH WAZIRISTAN AGENCY											
Wana Dhana Rd. (9-km)	20	966244	48312.2	11,000	Jun 20,84	Jul 07,87	Nov 21,87	Jun 01,88	Jul 19,88	Nov 88	Sep 90
		16426241	821312.0								
Karabkot-Tattai Rd (13 Km)	40	1124872	28121.8	5,000	Mar 21,84	Sep 86	Oct 86	Dec 22,86	Jan 28,87	Mar 87	Jul 90
		19122823	478070.5								
Wana-Karikot-Shinwarsak and Doag Sirki Khel Link Roads (20.5 Km)	20	1605779	80288.95	65,000	Mar 21,84	Mar 86	Jul 17,86	Sept 86	Oct 13,86	Feb 87	Jul 90
		27298242	1364912.								
NORTH WAZIRISTAN AGENCY											
Boya-Razmak Bridges Rd. (29.4 km)	30	2,276,128	77419.31	40,000	Mar 14,85	Dec 81	May 88	Jun 01,88	Jul 88	Nov 88	Dec 90
		38,694,177	1316128.								
Saidgai Road (11.8 km)	15	803,778	68116.77	8,000	Apr 24,85	May 17,87	Oct 87	Jun 01,88	Sep 88	Nov 88	Dec 89
		13,664,231	1157985.								
KURRAM AGENCY											
Thall-Parachinar Rd (75 km)	200			3,41,000	Aug 84	Jun 88	Nov 88	-	-	-	-
Sadda-Marghan Road (25 km)	25	876,090	35043.6	20,000	Aug 81	1981	1981	-	Jun 06,83	Jun 83	Jul 86
		14,638,056	585522.2								
Soap Stone Road (25 km) (This road sub-project was dropped)	Mining Road			Road to Mine	Oct 01,85	-	-	-	-	-	-

NOTES: 1. Column No.3 and 4 do not include design or supervision costs.
2. PDWP - Provincial Developmental Working Party

Design Criteria and Methodology

The PC-1 for the Sadda-Marghan road was prepared by the C&W Department. Its design did not include detailed field surveys because C&W conducts these surveys only on heavy traffic road construction projects. An approved PC-1 allows the C&W Executive Engineers in the field to construct roadworks and initiate modified "turn key" projects. Executive Engineers (XEN) direct the road contractor on site without using the kind of detailed plans or specifications in use on the TADP roads.

Because of design problems related to the Sadda-Marghan Road, shortly after the selection of the South Waziristan roads, USAID required that all future TADP-constructed roads be designed independently of the C&W Department. USAID O/Eng advertised for consulting engineering services (RFPs). Technical proposals were received and selection was made by the O/Eng in April 1985, and a direct AID contract was issued to local consultants for road designs. This was discussed with and agreed to by C&W, but C&W had no real input into the designs. Using this excuse, C&W field engineers have become disinterested implementing partners. USAID made no attempt to develop the existing C&W design procedures to a minimum acceptable level. Rather, it completely rejected them and substituted a new design process that produced specifications and plans of a sophistication with which the C&W SDOs and contractors were not accustomed. The decision to design roads independently of the C&W Department was one of the root causes of all road implementation problems.

The Karachi based firm "Engineering Consultants" (EC) was awarded the design of the Wana-Dhana and Karabkot-Tatai road in South Waziristan Agency (AID Contract No. 391-0471-C-00-5029); The firm "Engineering Associates" (EA) of Karachi was awarded the design of the Wana-Karikot-Shin Warsak Link Roads in Wana, with a contract option which could be exercised by USAID, to design an additional 160 miles of roads (AID Contract No. 391-0471-C-00-5030). As such, EA was eventually awarded the design of Saidgai, Boya-Razmak Bridges roads, in North Waziristan Agency and the design of the Thall-Parachinar road in Kurram Agency. Both of these USAID direct contracts also contained an option which could be exercised by USAID for supervision of construction by the consultants. These options were also later taken by USAID.

The following standards for road design were set by the USAID O/Eng and included in both consultant contract Scopes of Work:

For Mountainous Section:

Design Speed: 35 kph
Minimum Radius of Curvature: 35 m
Maximum Gradient: 12 percent
Formation width: 8 m

For Flat or Rolling Section:

Design Speed: 50 kph
Minimum Radius of Curvature: 75 m
Maximum Gradient: 7 percent
Formation width: 8 m

The above criteria were modified during the design phase to suit site conditions. In accordance with the above criteria, the consultants carried out detailed field surveys and prepared construction drawings, PC-1s (Cost Estimates), tender documents and specifications. These documents were submitted by the RAO/P/Eng (after USAID approval) to C&W. Following C&W approval, they were submitted to P&D. After P&D's approval, the FAR agreements were executed. The time required by the consultants to complete the designs greatly exceeded the original contract time limits (especially in North Waziristan).

Contract Arrangements and Administration

South Waziristan Roads

The Political Agent SWA nominated 18 contractors in December 1986 to build the Wana-Karikot-Shin Warsak Link roads. Shortly after, however, on the joint recommendation of the RAO/P/Eng and C&W, the PA requested those 18 contractors to make an arrangement between themselves and reduce their number to five. Consultants were hired by USAID to supervise the construction work on these roads. Work on Wana-Karikot-Shin Warsak Link roads was started in January 1987 but by April the five contractors had stopped work claiming that some contract rates were too low to allow them to make a reasonable profit. The Political Agent eventually dismissed the five contractors. A new single contractor was nominated in February 1988 by the PA to build the road.

The consultants, under the direct USAID contract, were terminated in January 1988. The Mission determined that USAID direct contracting for supervision of work to be reimbursed through FAR was not allowed under USAID contracting regulations. This decision stopped work on both the Wana-Karikot-Shin Warsak and Karabkot-Tatai road. C&W was then requested by USAID to hire the consultants under a host country contract to supervise the road construction. The Mission agreed that the cost of these consultants would be borne by TADP with an amendment to the existing FAR agreement. In August 1988, C&W hired the consultants. However, the consultants did not arrive on site until November 1988. Because of the time involved during this change, the contractors have claimed a considerable loss due to obligations incurred on idle machinery and labor. In November 1988, work recommenced. A recent interview with the one of the contractors indicated that these claims for losses incurred have yet to be resolved may result in future work stoppages if not addressed quickly.

The PA nominated 13 contractors to work on the Karabkot-Tatai road. A short time later, it became obvious that this number of contractors had to be reduced to ensure reasonable administrative control. Three contractors were then nominated to do the work. The three contractors commenced work in February 1987 under the direct guidance and supervision of the USAID-contracted consultants and continued on until the end of January 1988. The USAID consultant contract for this road was then terminated. In August 1988, C&W hired their own consultants to supervise this work. The consultants did not arrive on site until September 1988. Construction recommenced in late October 1988.

North Waziristan Roads

Inasmuch as the Saidgi Road had been funded as part of the regular FATA ADP, the Political Agent NWA nominated contractors to build the road prior to the execution of the RA or issuance of the PIL. C&W authorized these contractors to commence work without authorization from RAO/P/Eng. This work, which was not built in accordance with the plans and specifications, will not be reimbursed by USAID. The RA and PIL have now been executed. Construction commenced in November 1988.

Nomination of the contractor for the Boya-Razmak Bridges road by the Political Agent NWA has just occurred (Dec 10th).

Construction Procedures and Quality Control

Procedures currently followed on the construction of the seven TADP road sub-projects are much different than on any other C&W project. They are the result of USAID attempting to get high quality finished construction that can be reimbursed under FAR guidelines. Once the nominated contractor has signed his contract with the C&W Department, he moves to the site and establishes his camp. Contractors provide a site representative (munshi) who receives instructions from the consultants, and C&W staff. The munshi then normally supervises the contractor's employees. Under TADP-funded sub-projects, the consultants must actually direct the work since the munshi can not adequately interpret the plans and specifications that the consultants prepare, and C&W is not directly involved in construction supervision. Local Pakistani A/E consultants are directing construction work anywhere else in Pakistan.

The contractor rents equipment as required. Usually grading equipment such as tractors and bulldozers can be rented at low rates from the machinery pool of the NWFP Agriculture Engineering Department. C&W has a limited reserve of equipment. When available, C&W equipment is often not fully operable, and local contractors must repair it at their own cost. In an attempt to ameliorate this problem, USAID procured 10 pieces of heavy road making machinery and spares from the United States, at a cost of \$750,210 (Rs 1.39 million). The equipment (two D-7 crawler dozers, two graders, four 12-ton static rollers and two water tanker trucks) was not standard C&W equipment and this has presented problems of maintenance and operation. This equipment, which is presently in Wana (South Waziristan), has not yet been officially turned over to the C&W Department, although their operators are now posted for duty to work with the equipment. To overcome some of the problems, USAID, through the RAO/P/Eng has provided a resident mechanic and helper to maintain the equipment.²

² The heavy equipment represents a fundamental procurement error created in years past and is presently unmaintainable, or even operable, by C&W in FATA. But--it represents an important resource that can be used to finish long overdue construction. Turn over of the equipment and its maintenance to C&W at this time, in the absence of continuing TADP support, will eliminate this construction capacity. Given the requirement to complete the roads, it is recommend that USAID continue to support the equipment in the short run and to explore ways to transfer it

There are few experienced heavy equipment operators in FATA. Almost all operators must be hired from the settled areas. These operators are reluctant to work for the low C&W Department wages. Contractors must therefore hire their own equipment operators at higher rates or make additional payments to the C&W operators. Contractors claim that C&W charges more than the standard rate for the rented, USAID-procured, equipment.

The A/E consultants provide all horizontal and vertical control points for the contractors. They lay out all the work and direct the equipment operators. They test all materials to ensure they meet the specifications developed for these sub-projects by the consultants. These tests include: soil density, soil bearing (California Bearing Ratio, CBR), concrete strength and concrete water cement ratio's (slump). In addition, the consultants measure all in-place finished work and prepare all progress payment requests for the contractors.

Thus far, these implementation and quality control arrangements have proved difficult to enforce. The reasons given by RAO/P/Eng are:

- C&W field staff resistance to the inclusion of the A/E consultants
- lack of organization and resources by the tribal contractors
- USAID's inability to quickly resolve problems that affect reimbursement agreements requiring technical reviews
- lack of motivation by the consultant's field staff
- Lack of workshop facilities to repair equipment

The USAID problems are generally caused by delays in reaching a solution to any given problem. Virtually all but the most mundane decisions must be cleared by the O/Eng Islamabad. The consultant's problems are more basic. Most consultant staff are from Karachi and are intimidated by working in South and North Waziristan and are not used to "roughing it" in remote areas. The consultants have not developed good working relationships with the C&W field staff. Their performance has not been consistent.

RAO/P/Eng along with C&W engineers visit all the sub-project sites approximately every two weeks to check the progress of the work and that the consultants are providing the necessary supervision. They also check with the Political Agent to assure that there are no security problems or local disputes that may affect progress of the work.

Completed TADP road work was observed in the field from October 29, 1988 to November 3, 1988. The work completed thus far, mostly on the Karabkot-Tattai Road is of high quality in accordance with plans and specifications.

successfully to C&W.

Functionality of Finished Work

The only road completed under TADP is the 23.7 km (15.1 miles) Sadda-Marghan road in Kurram Agency. It connects the village of Sadda (on the main Thall-Parachinar road) with the mountain village of Marghan in lower Kurram. The road has a well compacted sub-base and shingle gravel base course. It has good grades and both the vertical and horizontal alignment is acceptable. The shoulders have also been properly constructed. Some extensive, yet isolated, erosion is occurring in the mountainous sections of the road. Traffic still moves quickly and efficiently along the entire length of the road.

Culverts have been well built and are functioning effectively. The C&W Department has kept the culverts and side road drainage ditches cleared. In addition, they have constructed retaining walls (not included in the original plans) where necessary to ensure that unstable slopes in the mountainous areas are now stabilized. Some planting of mazari (dwarf palm) has been done on the steeper slopes to prevent erosion.

The embankment and sub-base course for much of the Karabkot-Tattai road in SWA is complete and traffic is moving efficiently on it already. This road, when completed to specifications, will be of a higher quality than any other penetration road observed in any tribal agency.

Attainment of Targeted Output

The TADP target is to have 104 km road constructed by September 1992. At present (Figure I-C1) 25 km have been completed and 63.4 km are presently under construction or expected to start construction before December 31, 1988. Considering the past difficulties and delays in road construction activities it does not appear probable that the present targeted output of 104 km will be met before September 1992, unless many constraints are overcome. The past history of road work stoppages, including those caused by USAID procedural delays, raises a serious doubt as to the project's ability to complete the five roads in SWA and NWA prior to the PACD in 1992.

The major Thall-Parachinar road, which proposes the complete reconstruction and surfacing of the 75 km alignment and the construction of 28 bridges will not commence before June 1989, and is scheduled for completion by December 1992, assuming that construction proceeds with little or no delays or other contract difficulties. Delays similar to the other TADP roads are unlikely as the road is an established major government highway. The construction will go out as four tenders and contractors will be selected based on international competitive bidding.

Financial Analysis

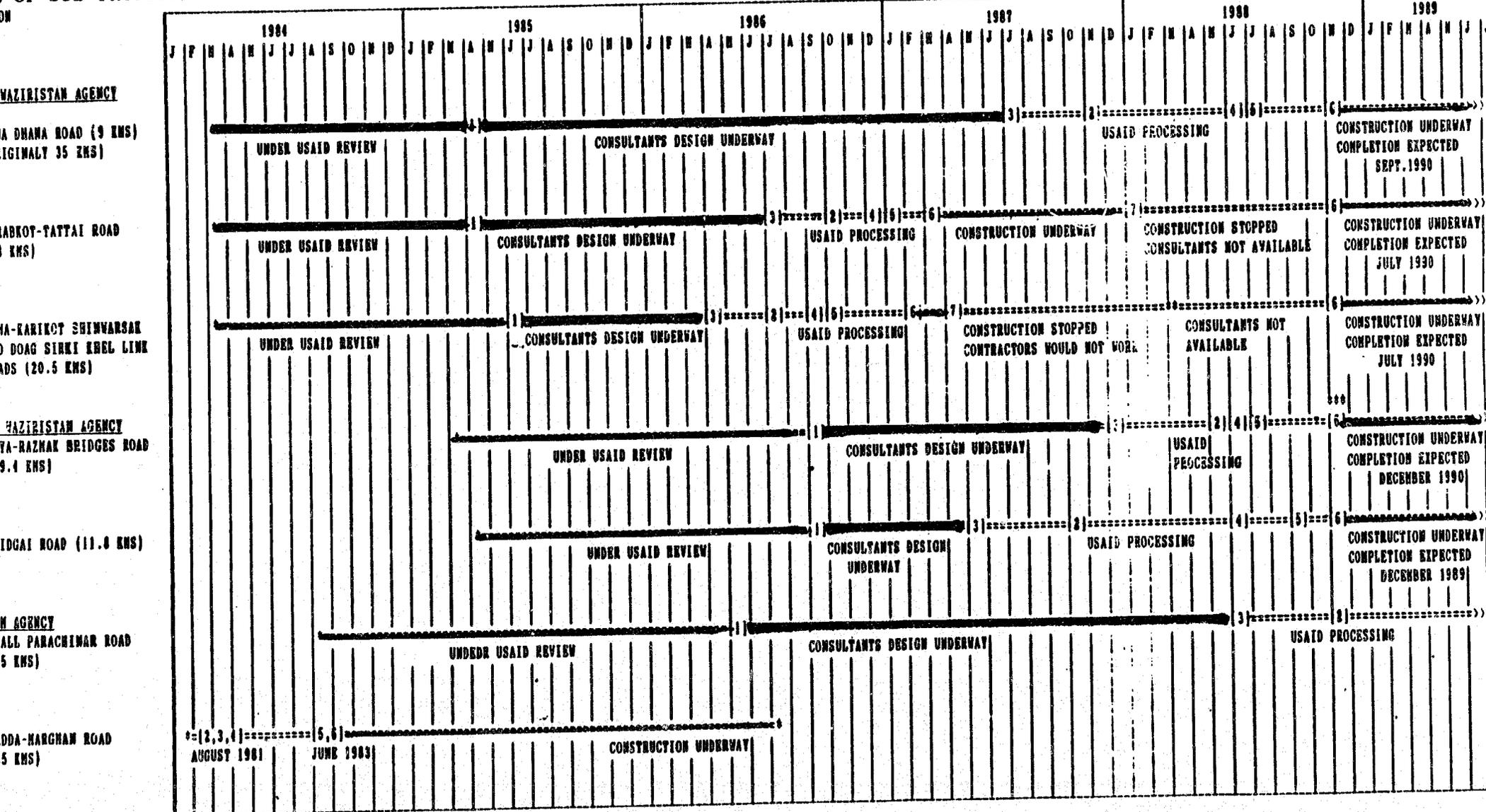
A detailed analysis of design, construction, supervision, and RAO/P/Eng costs for the six minor TADP-funded roads (Table I-C2) have been prepared. The average total cost per km of these roads is expected to be \$86,747 (Rs 1.6 million). These roads were designed by experienced consulting firms from Karachi. In accordance

FIGURE I-C1

RAO/P/ENG
 ROAD CONSTRUCTION TIME LINE
 TADP FUNDED ROAD CONSTRUCTION SUB-PROJECTS
 THROUGH C & W DEPT.
 NOVEMBER 15, 1988 }

- LEGENDS**
- [1] * DESIGN BEGINS
 - [2] PDWP (P&D) APPROVES PC-I
 - [3] PC-I SUBMITTED BY CONSULTANTS TO RAO/P
 - [4] RAO/P REVIEW COMP./DRAFT RA SENT TO ISL
 - [5] RA/PIL EXECUTED
 - [6] CONSTRUCTION BEGINS
 - [7] CONSTRUCTION STOPS
 - >>> ONGOING CONSTRUCTION

OF SUB-PROJECTS



** OLD CONTRACTOR REMOVED AND REPLACED WITH NEW CONTRACTOR.

RAO/P/ENG SUMMARY COST INFORMATION

TADP FUNDED ROAD SUB PROJECTS

THROUGH THE C&W DEPARTMENT

15 NOVEMBER 1988

L	ROAD SUB PROJECT (LOCATION)	[1]			CONSTRUCTION COST			[2]			[3]			PHYSICAL CHARACTERISTICS			
		DESIGN		% OF CONST.	TOTAL	PER KM.	TOTAL	PER KM	% OF CONST.	TOTAL	PER KM.	% OF CONST.	TOTAL	PER KM.	TERRAIN	FORMATION WIDTH	WEARING SURFACE & WIDTH
		\$ RS.	\$ RS.		\$ RS.	\$ RS.	\$ RS.	\$ RS.	\$ RS.	\$ RS.	\$ RS.	\$ RS.	\$ RS.				
	KARABKOT-TATTI 20 KM DESIGN. 13 KM CONST.	38,119 648,027	1,906 32,401	2.3	1,060,986 18,036,766	81,614 1,387,444	172,768 2,937,059	13,290 225,928	16.2	52,941 900,000	2,647 45,000	3.2	99,457 1,690,773	PLAIN	20'	12' SHINGLE	
	WANA-KARIKOT- SHINWARSAK & LINK RD 20 KM	50,631 860,735	2,532 43,036	3.2	1,605,779 27,298,242	80,289 1,364,912	337,844 5,743,354	16,892 287,168	21.0	52,941 900,000	2,647 45,000	3.2	102,360 1,740,116	PLAIN	24'	20' TST	
	WANA DHANA ROAD 35 KM DESIGN 9 KM CONST.	74,811 1,271,786	2,137 36,337	2.3	835,613 14,205,429	92,846 1,578,381	130,636 2,220,812	14,515 246,757	15.6	23,823 405,000	2,647 45,000	2.9	112,145 1,906,475	PLAIN AND HILLY	24'	12' SHINGLE	
	BOYA RAZMAK ROAD 29.4 KM	91,821 1,560,959	3,123 53,094	4.3	2,105,033 35,785,561	71,600 1,217,196	170,977 2,906,616	5,816 98,864	8.1	77,824 1,323,000	2,647 45,000	3.7	83,186 1,414,154	PLAIN AND HILLY	20'	12' TST [4]	
	SAIDGAI ROAD 12 KM	25,687 436,677	2,141 36,390	3.8	719,508 12,231,629	59,959 1,019,302	84,271 1,432,602	7,023 119,383	11.7	31,765 540,000	2,647 45,000	4.4	71,770 1,220,075	PLAIN	20'	12' TST [4]	
	SADDA MURGHAN ROAD 25 KM	BORNE BY C & W			876,090 14,638,056	35,044 585,522		BORNE BY C & W		66,176 1,125,000	2,647 45,000	7.5	37,691 630,522	PLAIN AND HILLY	24'	12' SHINGLE	
	AVERAGE KM COSTS PER KM.	2,368 40,252		3.4	70,225 1,192,126		11,507 195,620		16.3	2,647 45,000		3.8					

[1] DESIGN BY CONSULTANTS (AID DIRECT CONTRACT)

[2] SUPERVISION BY CONSULTANTS (AID DIRECT CONTRACT/C&W CONTRACT)

NWFADP FUNDED ROAD SUB PROJECTS

THROUGH THE C&W DEPARTMENT

15 NOVEMBER 1988

SERIAL NOS.	ROAD SUB PROJECT (LOCATION)	[1] DESIGN COST			CONSTRUCTION COST		[2] SUPERVISION COST	[3] RAO/P/ENG COST (APPROX.)			TOTAL COST	PHYSICAL CHARACTERISTICS		
		TOTAL	PER KM.	% OF CONST.	TOTAL	PER KM.	TOTAL - PER KM.	TOTAL	PER KM.	% OF CONST.	PER KM.	TERRAIN	FORMATION	WEARING SURFACE & WIDTH
		\$	\$		\$	\$	\$	\$	\$		\$			
1.	KABGANI - UTLA 9.6 KM	4,148 72,600	432 7,562	0.7	543,653 9,513,940	56,630 991,035	BORNE BY C&W	10,512 183,960	1,095 19,162	1.9	58,157 1,017,759	MOUNT.	24'	12' TST [4]
2.	BATTAI- ASHRAF KANDAO 4.9 KM	1,851 32,400	378 6,612	0.8	217,477 3,805,848	44,293 775,122	BORNE BY C&W	8,009 140,160	1,634 28,604	3.7	46,305 810,338	MOUNT.	24'	12' SHINGLE
3.	SATKETAR-GALI 4.8 KM	1,720 30,100	358 6,270	0.6	270,159 4,727,784	60,036 1,050,619	BORNE BY C&W	NOT YET STARTED	NOT YET STARTED		60,394 1,056,889	MOUNT.	20'	12' SHINGLE
4.	GANI CHATRA PUJAWAL-LERAN 5.1 KM	2,303 40,300	451 7,902	0.8	272,466 4,768,157	53,425 934,933	BORNE BY C&W	NOT YET TENDERED	NOT YET TENDERED		53,876 942,835	MOUNT.	20'	12' SHINGLE
5.	BADA MANGAL-CHAI TRAIT ROAD 31 KM	BORNE BY C&W	BORNE BY C&W		1,155,975 20,229,554	37,290 652,566	BORNE BY C&W	13,015 227,760	420 7,347	0.1	37,710 659,913	MOUNT.	24'	12' SHINGLE
6.	DHAND- PARBA 7.2 KM	BORNE BY C&W	BORNE BY C&W		343,341 6,008,463	47,686 834,509	BORNE BY C&W	8,510 148,920	1,182 20,683	0.2	48,868 855,192	MOUNT.	24'	12' SHINGLE
	AVERAGE COST PER KM.		405 7,086	0.8		49,893 873,130	BORNE BY C&W		1,083 18,949	2.1				

- NOTES: [1] DESIGN COSTS ARE RAO/P/ENG COSTS, AS SURVEYING DRAFTING DONE BY RAO/P/ENG, TOPI, ASSISTING THE C&W DEPARTMENT.
 [2] SUPERVISION COSTS ARE BORNE BY THE C&W DEPARTMENT.
 [3] RAO/P/ENG COSTS ARE FOR NORMAL AID INSPECTION (SECOND LINE).
 [4] PHYSICAL CHARACTERISTICS: MOUNT.-MOUNTAINOUS; TST-TRIPLE ASPHALT SURFACE TREATMENT.

with standards and instructions contained in their SOW, the consultants performed accurate fields surveys, prepared high quality detailed plans and specifications, and then calculated relatively exact quantities to define the extent of each type of work involved to complete the construction of the roads. The supervision of these roads is accomplished by the C&W Department assisted first by consultants hired under a direct AID contract then later under a C&W contract, with second line inspection provided by RAO/P/Eng.

A second analysis of the six minor NWFAP-funded road sub-projects (Table I-C3) yields an average expected cost of \$51,381 (Rs 0.95 million) per km. These roads were designed and implementation documentation (Plans) prepared by RAO/P/Eng surveyors and C&W Department staff. RAO/P/Eng performed accurate field surveys, prepared relatively simple plan sheets that could be used by local contractors and C&W staff, and then calculated reasonable accurate quantities of all work items to be done. All this information is then assembled by the C&W Department and incorporated in a PC-1.

The NWFADP funded road construction costs are comparable with the provincially ADP funded roadwork. Considering this, it appears that one average kilometer of TADP funded road costs approximately 70 percent more than an average kilometer of road funded under NWFADP or the ADP (Table I-C4).

Sustainability

Sadda-Marghan is the only TADP road that has been completed. This road has had traffic on it for over two years. Observations in the field indicate that during the time the road has been in use it has stood up to traffic well. The base course is still very much intact. There has been minimum overall erosion to the fill slopes. The cut slopes have also stood up well. This newly built road has already had improvements made to it by C&W. The ditches have been kept clear and the road grade maintained properly. Based on these observations, it is reasonable to predict that this road will most probably be maintained and will provide the service area with greatly improved access over the next ten years.

Work completed thus far on the Karabkot-Tattai Road clearly demonstrates high construction quality and impressive vertical and horizontal planning and control. (This is the result of advanced design techniques). Despite complex implementation arrangements, the other TADP funded roads in North and South Waziristan, if completed, can be expected to have long service lives. The quality level of engineering and management control required on these roads will represent a sophisticated intervention into the design/construction/supervision arrangements for roads built in FATA. USAID requirements for quality construction before reimbursement are wise and prudent. These arrangements however, in the existing institutional as well as physical environment, are non-sustainable, when USAID removes its support, unless much more institutional strengthening and change occurs.

TABLE I-C4
 RAO/P/ENG
 SUMMARY
 COST INFORMATION
 ROAD SUB-PROJECTS
 THROUGH THE C&W DEPT.
 TADP VS NWFADP

NOVEMBER 15, 1988

IMPLEMENTATION COSTS	AVERAGE COST/KM \$ (RS.)			
	TADP	%	NWFADP	%
DESIGN	<u>2,368</u> (40,252)	(3.4%)	<u>405</u> (7,068)	(.8%)
CONSTRUCTION	<u>70,225</u> (1,192,126)	(80.9)	<u>49,893</u> (873,130)	(97%)
SUPERVISION	<u>11,501</u> (195,620)	(16.3%)	C & W	
RAO/P/ENG (APPROXIMATE)	<u>2,647</u> (45,000)	(3.8%)	<u>1,083</u> (18,949)	(2.1%)
AVERAGE TOTAL COST/KM	<u>86,747</u> (1,472,993)		<u>51,381</u> (899,147)	

- NOTES: 1. Percentages shown in this table indicate % of total cost.
2. TADP roads are located for the most part in plain or mildly hilly areas. NWFADP roads are all located in severe mountainous terrain.
3. Construction costs in all three tables do not include a 15% RA contingency.
4. 2% C&W workcharge item in each FAR element is not broken out of construction costs. No change in average total cost/km would result as both TADP and NWFADP include this under all FAR agreements.

Conclusions

Road building in FATA in accord with USAID present selection criteria and processes, appears almost an exercise in futility. The constraints to successful execution are considerable while the control that the government or USAID can exercise over contractors is minimal.

There will always be work stoppages in FATA as a consequence of political instability. Big roads, such as Thali-Parachinar, and small roads may escape the problems that attend TADP's present portfolio. C&W has a system of road building in the tribal areas that provides enormous flexibility. C&W executes simultaneously various projects in a particular area, if problems arise at one particular location, they can suspend the work at that location and move quickly to another. By suspending work at one location, C&W staff do not become idle since C&W does not employ staff on a project-to-project basis but the same staff has several other ADP projects on going at all times. Thus the limited C&W staff is always overcommitted. Work stoppages only affect the contractor who in many instances is not bothered about delays.

This situation is entirely different in the case of a USAID-funded project. If work stops or delays are encountered, not only does the contractor become idle but a reasonably large group of other people become idle as well. This group consists of the supervising consultants and USAID monitoring engineers resulting in financial losses in the form of salaries and fees. Material price escalations and idle time for the contractors' machinery and labor must also be considered.

USAID, as the funding organization, has no say in the selection of the contractor or in the terms of the contract. Little can be done to guarantee the successful completion of a road other than to mobilize the authority of the GOP to ensure that completion might occur. There are no technical obstacles to building roads in accordance with USAID standards. The obstacles are the following;

- The nominated contractors may be illiterate, are generally unaware of their contractual obligations, and may not be qualified to fulfill those obligations. Most do not own any equipment. They may have no prior construction experience, and few have large financial resources;
- The Nominated Contractors can stop work at their own discretion and only the Political Agent can bargain with them to restart the work;
- The Malik nominated by the Political Agent for the project may sell the contract to someone else, further reducing the financial incentive to the actual constructor of the road;
- A C&W contract with these contractors is reviewed merely as a formality and no obligations on the contractors' part are expected.

USAID should see that the existing TADP roads are completed, and not undertake new road activities of the scale involved in the first six roads until there is convincing evidence that the work will be finished at acceptable quality and cost.

Recommendations

USAID must complete the existing road network. This program has now been underway for almost five years. USAID's reputation in FATA is dependent on a successful conclusion to this effort. At this point it appears that major changes may be necessary to achieve this goal. These will include, but not be limited, to the following:

- **Make the Roads a GOP Priority Concern**

In conjunction with a movement of project management into the GOP (discussed elsewhere) immediately approach the Additional Chief Secretary (ACS) and present to him the historical events that have led up to the present dilemma including the attached time line and indicate that his assistance to keep this program on schedule will be vital to its success. He should be told that unless his efforts and those of the subordinate hierarchy cannot put the roads into a mode of completion, then USAID would be prepared to de-obligate the entire ten million plus dollars that are in the road construction budget. These funds could be used for construction of other sub-projects where implementation can be achieved with relative success in a reasonable time period.

- **Increase TADP Presence in the Field**

The Chief Engineer (USAID/P) must immediately assign an engineer to be resident in Wana on a full time basis until the five roads in SWA and NWA are complete. This engineer must have daily contact with the PA and the C&W field staff. Any delay whatsoever must be immediately followed up and reported to the Secretary of C&W and the ACS. In this way the GOP will know that USAID is serious about building tribal roads.

- **Increase C&W Presence in the Field**

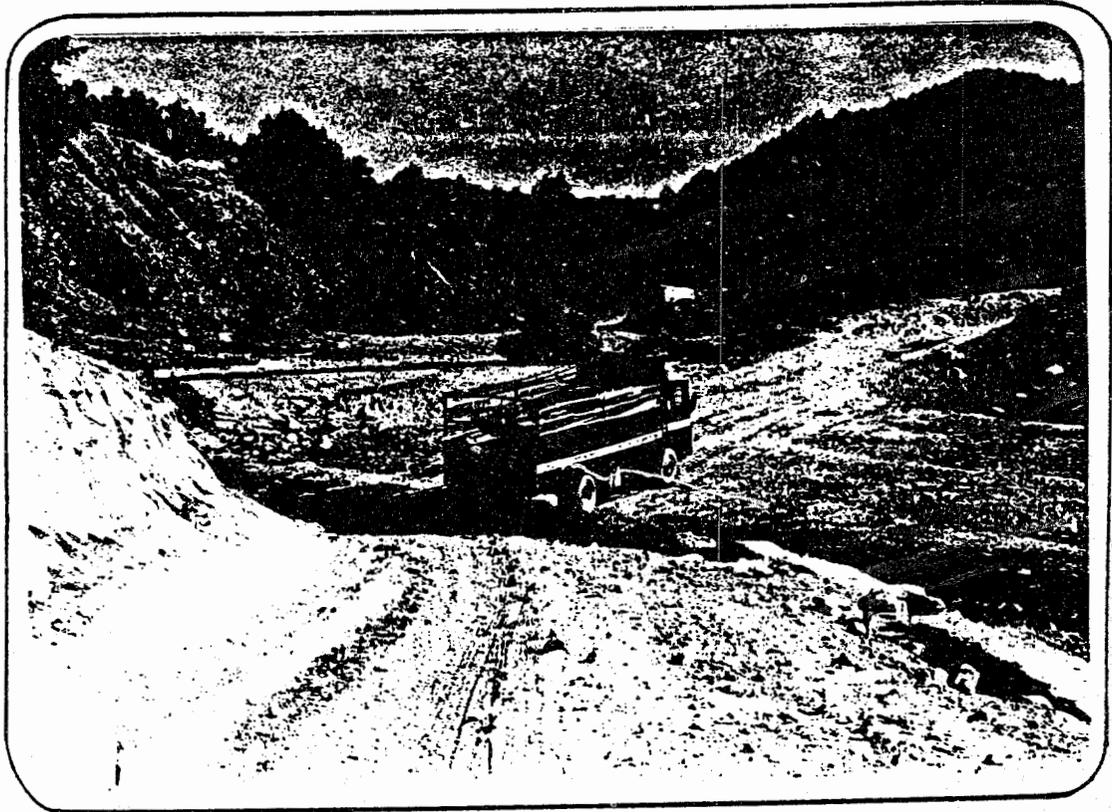
The C&W Department should be requested to depute exclusive staff for USAID-funded roads. C&W field staff working on ADP works can not spare adequate time to coordinate and manage TADP-funded road sub-projects.

- **Determine the Legitimacy of Contractor Grievances**

Meetings must be immediately arranged between the Secretary of C&W, the USAID Regional Legal Advisor, the various contractors and the Chief Engineer USAID/Peshawar to discuss and finally resolve any and all grievances that legitimately exist, due to delays in construction caused by USAID procedural decisions.

• **Agree on the Steps Required to Maintain and Utilize the USAID Purchased Road Equipment**

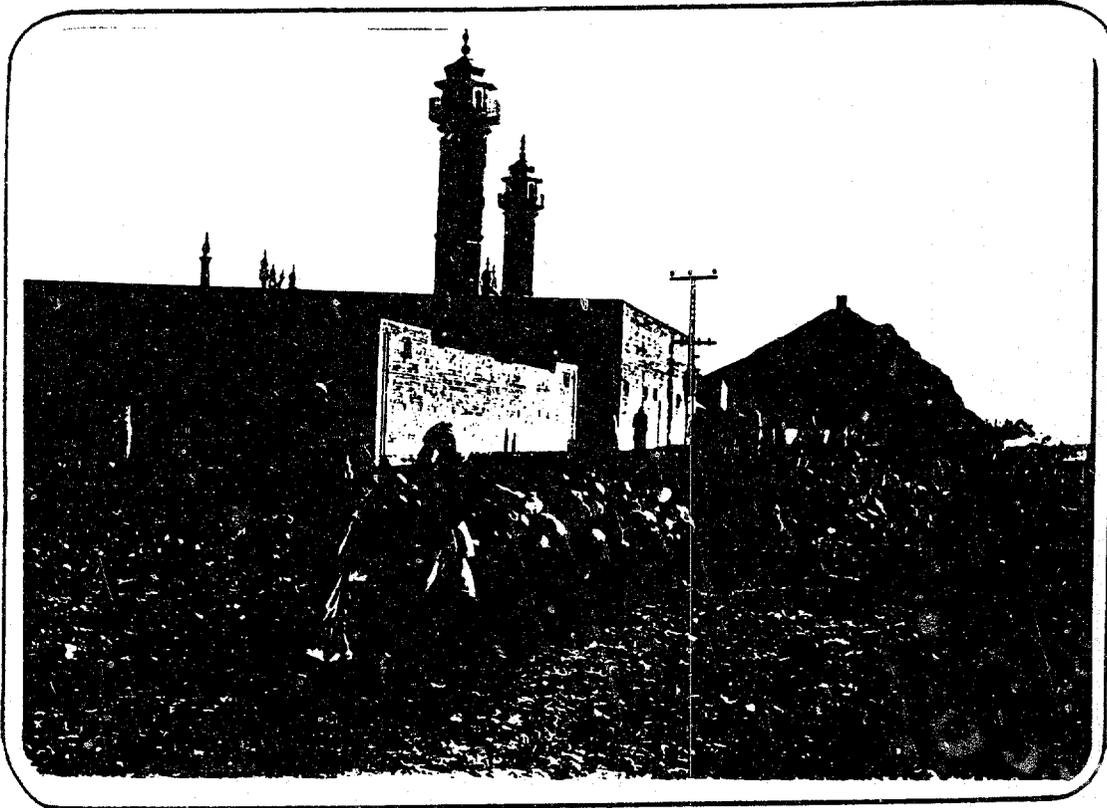
The machinery purchased by USAID was meant to expedite the completion of the roads. In the short run TADP should maintain its involvement in its repair and operation. To ensure that the machinery remains available in Wana, USAID should hire a master operator to oversee the use of all the equipment and do on-the-job training of C&W operators, plus a supply of spares should be purchased to keep the machinery operational. Discussions should be continued between USAID and the C&W department on ways to transfer this machinery thoughtfully and to help overcome the shortages of trained operators. The withdrawal of this equipment from use on the TADP-funded roads will send a signal that USAID is not serious about completion.



ANGOORA-ADA AZAM WARSAK ROAD
(SOUTH WAZIRISTAN)



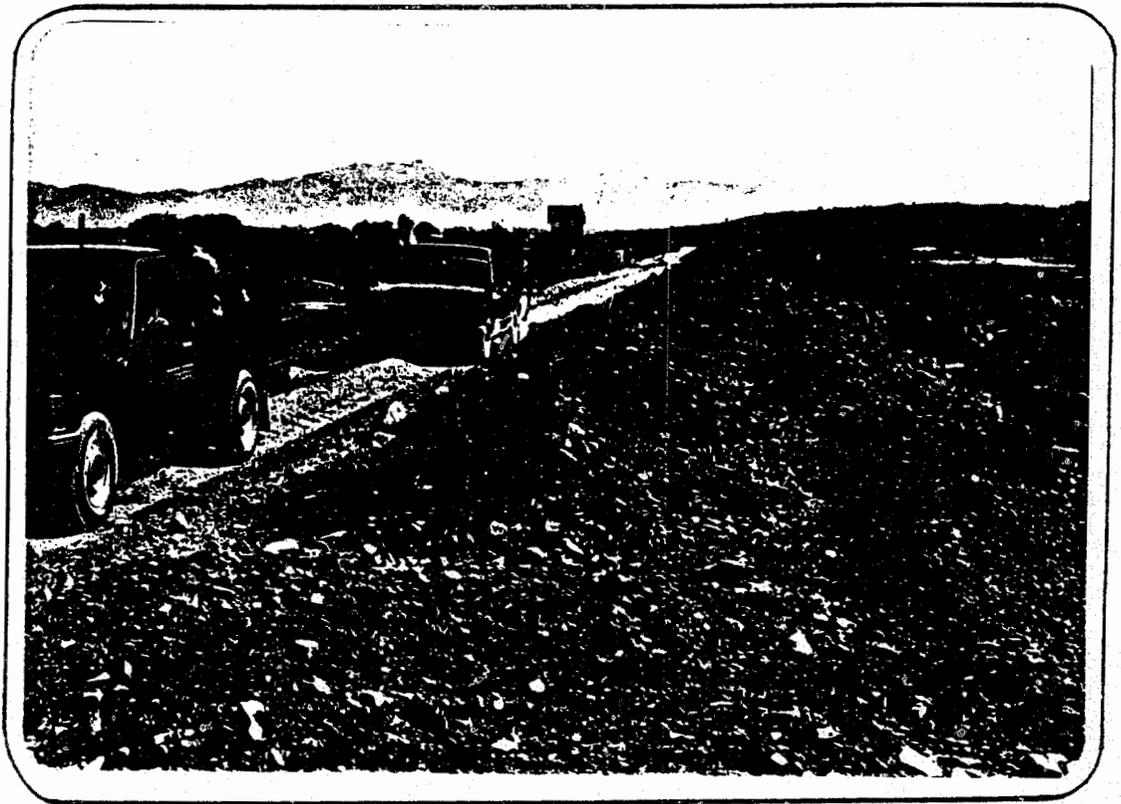
ANGOORA-ADA AZAM WARSAK ROAD
(SOUTH WAZIRISTAN)



WANA-KARIKOT SHINWARSAK ROAD
(FINISHED GRADE)
(SOUTH WAZIRISTAN)



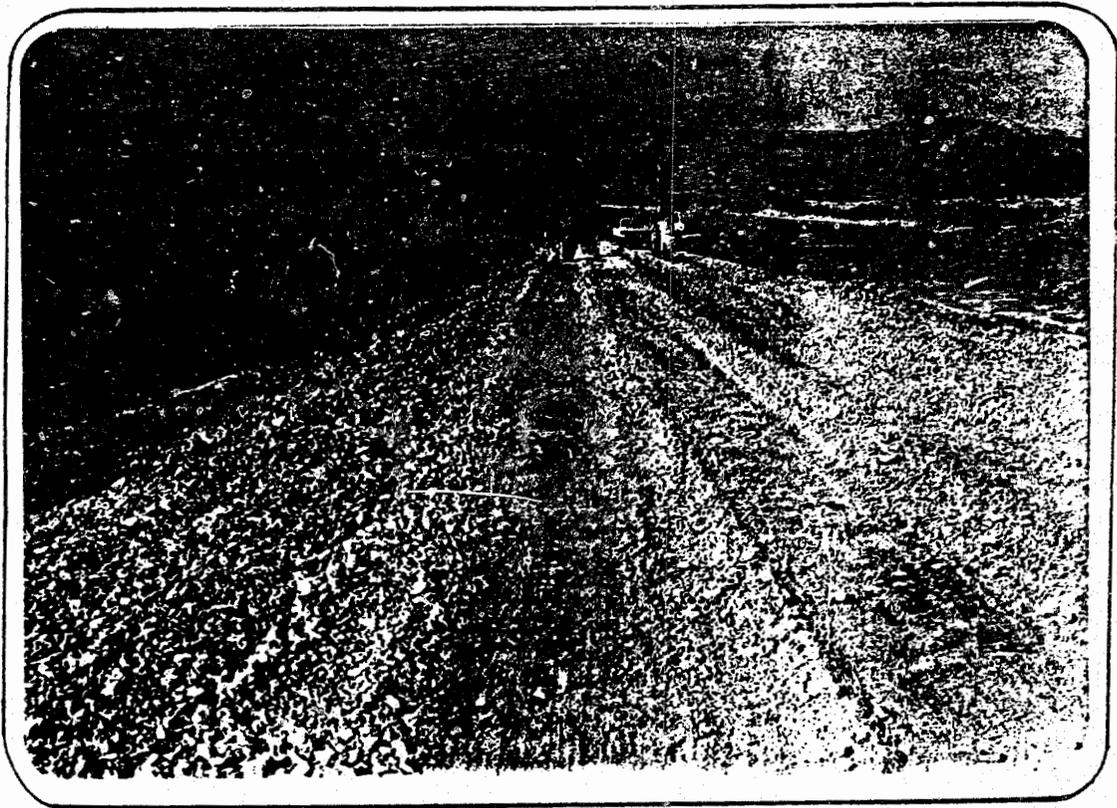
WANA-KARIKOT-SHINWARSAK ROAD
(UNDER CONSTRUCTION)
(SOUTH WAZIRSITAN)



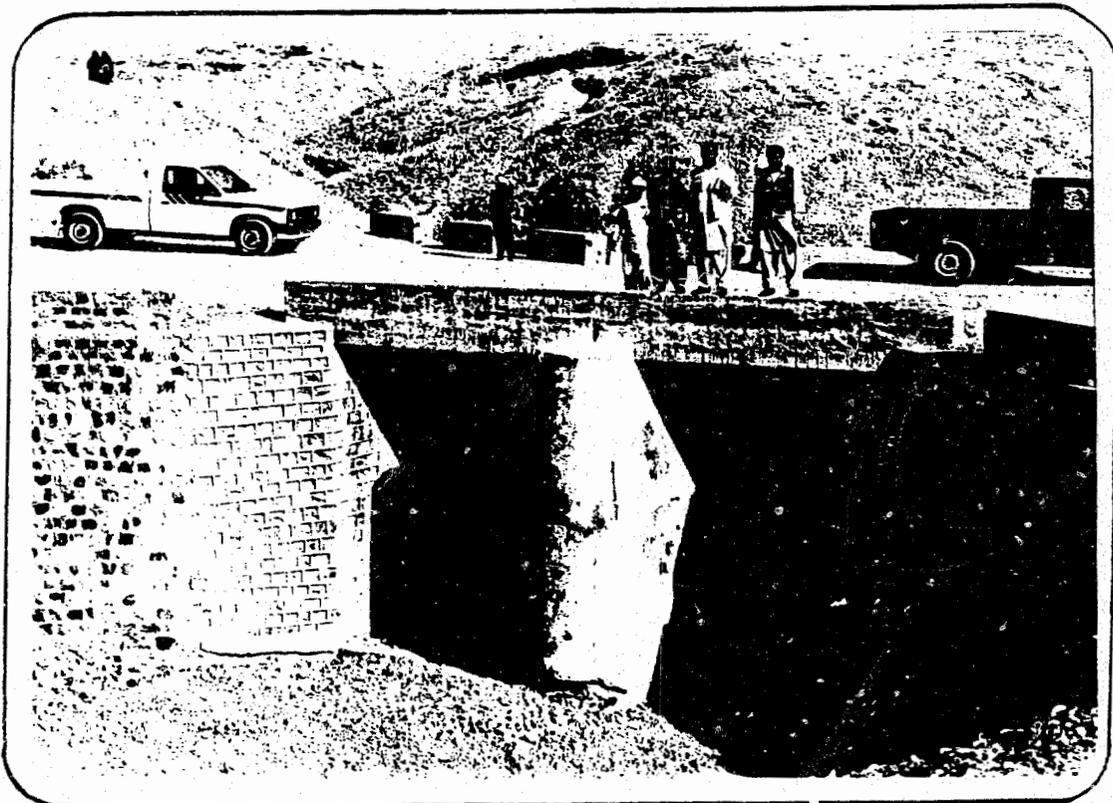
SAIDGAI ROAD
(UNDER CONSTRUCTION)
(NORTH WAZIRISTAN)



SAIDGAI ROAD
(UNDER CONSTRUCTION)
(NORTH WAZIRISTAN)



SADDA-MARGHAN ROAD
(FINISHED GRADE)
(KURRAM)



SADDA-MARGHAN ROAD
(SMALL BRIDGE)
(KURRAM)

ANNEX I-D

**BUILDING CONSTRUCTION
(Supportive Rural Development)**

Findings**Sub Project Selection**

Presently 24 TADP-funded buildings have been completed or are under construction in 19 different locations in South Waziristan, Kurram and Khyber Agencies. These buildings are located in the vicinity of other TADP-funded roads or surface water irrigation schemes. It was intended that the schools and health clinics constructed would complement major TADP irrigation and road projects.

Table I-D1 indicates the distribution of the buildings throughout the project area:

**TABLE I-D1
LOCATION OF TADP BUILDINGS IN TRIBAL AREAS**

Agency	Schools	Staff Residences	Dispensaries	Total
SWA	4	5	1	10
Kurram	2	2	0	4
Khyber	10	0	0	10
Total	16	7	1	24

A second phase of this small building construction program is in the feasibility stage. This second phase is intended to provide similar facilities to other tribal agencies and frontier regions that were not covered under Phase I. The Supportive Rural Development Program will include approximately 40 small buildings and/or potable water supplies. Potential sub-projects proposed by LGRD staff and the Political Agent are presently being investigated by RAO/P/Eng.

Four girls schools have been chosen for TADP funding through the Women in Development program, selected by the Political Agent, Deputy Director, Directorate of Education, and the TADP/WID Officer. These schools will be located in Bajaur, Kurram and South Waziristan.

Design Criteria and Methodology

The government department implementing all the Supportive Rural Development construction except the four girls schools, is the Local Government and Rural Development Department (LGRD). Because of their large workload of small projects and low staff levels, this department is somewhat weaker than C&W and FATA-DC. Designs of buildings are standard C&W designs that are still used in the settled areas. Except for roofing, virtually all buildings follow the same designs. The primary schools funded by TADP have two rooms and a veranda. The staff residences all have a standard three room layout with a boundary wall. The dispensary is also a standard design of three rooms. All floors are concrete. The walls are either stone or brick with masonry. All doors, windows and their frames are made from wood. The design of roofs differ depending upon location. Where snowfall occurs, as in South Waziristan and Kurram, pitched roofs with wood roof trusses and metal roof sheeting are used. In the lower elevations where snow does not occur (as in Khyber) flat, reinforced concrete roofs (RCC) are used.

Schools are usually built on the edge of a village and have an adjacent flat area for use as a playground. At the moment, water supply, sanitation facilities and electricity are not normally provided to schools.

Beams, slabs, walls and foundations are standard design features. Their design conforms to standard American Concrete Institute (ACI) ultimate strength design codes. Bricks are obtained from local kilns and used for construction of walls. All interior walls are covered with PCC plastering. They are painted on the exterior.

As a protective measure against earthquakes, vertical steel bars are included in all columns, corners, and adjacent to both sides of any door or window opening. This vertical steel is anchored in the foundation and tied to horizontal steel bars cast in a ring beam around the entire perimeter of the buildings and over the window and door openings.

Contract Arrangements and Administration

The four girls schools will be built through the C&W Department. Construction procedures and quality control will be similar to the LGRD/TADP small building sub-projects.

Once the site has been selected and the design is completed, LGRD employs a nominated contractor. The Political Agent is responsible for nominating these contractors who then sign the standard C&W/LGRD contract for the work. A pre-construction meeting is held so that LGRD and RAO/P/Eng can review the plans and specifications with the contractor. Material procurement, labor requirements, security and testing procedures are discussed.

TADP-funded work through LGRD has been problematic. Contractors do not seem to follow directions of LGRD staff as well as they follow FATA-DC and C&W Department staff directions. LGRD sub-engineers have a difficult time in many cases "tracking down" contractors who leave the work site at will. There are still two staff quarters in Kurram Agency that are incomplete after being under construction for three years.

LGRD contract administration is poor and there is a lack of construction management ability. The small LGRD staff in each agency has responsibility for a large number of very small projects spread over a large and difficult area. They simply do not have the manpower or resources to efficiently handle their work load.

The RAO/P/Eng visits building sites normally on a monthly basis. All 24 buildings are covered under one FAR agreement.

Construction Procedures and Quality Control

One LGRD Sub-Engineer in each Agency is assigned supervision duties for TADP funded building construction. Periodic inspection of these sub-projects is performed by LGRD. Skilled carpenters and some materials are brought to the sites from the settled areas to ensure quality construction. LGRD Sub Engineers are not usually able to provide sufficient inspection overview for on-going TADP work. Thus, the finished quality of LGRD funded small buildings is often below USAID standards. Therefore, the RAO/P/Eng is very closely involved with the contractor on all LGRD building programs. RAO/P/Eng provides quality control checks on all materials that are delivered to the site, including lumber, cement, sand, gravel, and metal roofing. Non-destructive concrete tests of concrete work is performed by RAO/P/Eng using a Schmidt hammer. All construction is inspected by RAO/P/Eng for workmanship; substandard work is removed or altered as required.

Concrete formwork is usually wood. Some contractors have used bricks for formwork until told not to do so. RAO/P/Eng check concrete materials, mix slump and elevations during construction.

Functionality of the Finished Works

All the completed buildings observed exhibited excellent masonry work, and doors and windows which operated properly and closed tightly. Walls, floors and roofs were well constructed and will provide a long service life. The finished buildings observed were aesthetically pleasing and are in use. School buildings in Bara (Khyber Agency) were overflowing with students.

Attainment of Targeted Output

The 24 buildings covered under the first phase of this program will all soon be completed (with minor exceptions) but very far behind schedule.

Phase II targets are not yet decided. The construction of four girls schools should present no problem more unusual than those normally encountered and solved.

Financial Analysis

The 24 small buildings in TADP were built at a cost of \$10.45 (Rs 183) per square foot (sf). The average cost per building is \$11,608 (Rs 203,140). This is only

slightly higher than the NWFADP cost of \$10.00 (Rs 175) per sf. LGRD normally builds small buildings in the settled areas for \$9.82 (Rs 172) per sf. The labor costs in FATA are higher since skilled workmen are frequently imported from the settled areas.

Sustainability

TADP small buildings are built with superior materials and workmanship than regular LGRD construction. With minimum minor maintenance (painting the exterior wood every five years and periodically replacing metal roof sheeting) these buildings should last 100 years.

Conclusions

The slightly higher cost (6 percent) of TADP buildings over LGRD/GOP buildings is worth the investment. The TADP specifications have produced durable buildings that are structurally sound.

Over the long term increasing the educational resource base in FATA will help with the goal of national integration. The phase II of the school buildings should move ahead quickly.

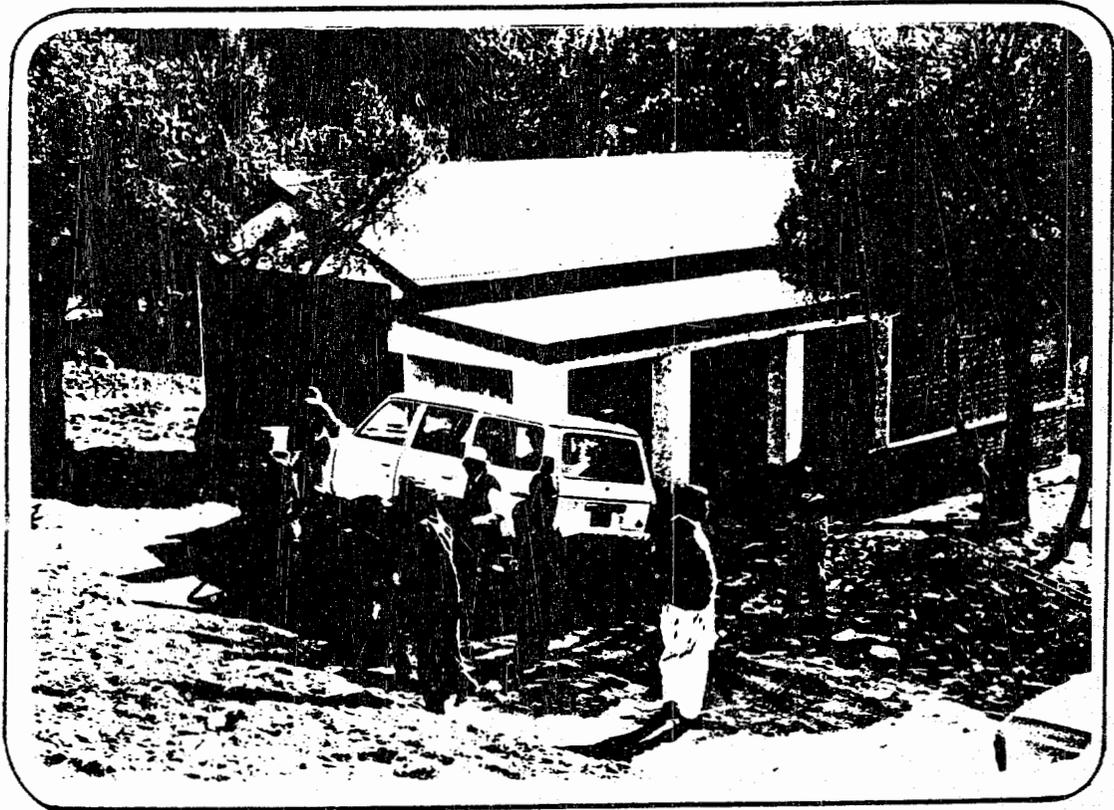
Recommendations

Electrification, water supply, sanitation and basic furnishing should be considered for both the existing buildings and future buildings.

Buildings should be located to complement other TADP sub-projects, and where possible water supply schemes should be implemented in the same village as the schools and clinics to provide drinking water and sanitation.

Greater concern could have been utilized to design each building to suit its specific site, by positioning windows and doors to take account of the prevailing weather and light conditions.

A greater effort should be put forward to strengthen the capability of LGRD to design and build small buildings and village water supplies. The creation of a sub-project cell of TADP engineers, through which field staff would rotate every three to six months, would be a suitable means for transferring on the job training in small structure design and inspection. The Director General of LGRD has expressed his enthusiastic support for the introduction of such cells at the D.I. Khan and Kohat division level (i.e., covering activities in North Waziristan, South Waziristan and Kurram agencies). Depending upon their success, this cell concept could serve as a model for additional LGRD training activities at the other divisions.



GULA KHANKOT SCHOOL BUILDING
(SOUTH WAZIRISTAN)



SALMAI MASKAI SCHOOL BUILDING
(SOUTH WAZIRISTAN)



KHOI SHER HAIDER SCHOOL BUILDING
(KHYBER)



ALAM GUDAR SCHOOL BUILDING
(KHYBER)

INSTITUTIONAL STRENGTHENING

Findings

Using Technical Assistance to Strengthen Institutions

The Interim Evaluation Report found that during the first three years of the project, only a minimal transfer of technology occurred from TADP to the implementing line departments, and that contributions from Technical Assistance, primarily three Soil Conservation Service (SCS) technicians, were marginal.¹¹ With the exception of the engineering geologist from SCS whose services were continued until April 1987, there has been no expatriate technician working within TADP since October 1985, who was not directly connected with the generation of Fixed Amount Reimbursement Agreements and the monitoring of construction. This is not technical assistance in the usual sense of transferring technology, but engineering capacity that oversees design and construction to USAID standards.

Technical Assistance in TADP has only strengthened implementing departments to the extent that the construction design and execution standards which USAID requires for its sub-projects are incorporated into the processes and procedures of the implementing line departments. However good the theory, there are few examples to document technology transfer through USAID standards application to non-TADP sub-projects. Within FATA-DC, some changes have taken place in the way that designs for surface irrigation structures come forward for review. But the USAID requirements are not those of FATA-DC, and do not apply to sub-projects funded by the GOP. While within FATA-DC there is a case for technology transfer, there are no indications that Communications and Works or LGRD have made any changes in their construction procedures on GOP-funded sub-projects that are attributable to TADP design or execution standards.

Using Infrastructure Construction Training to Strengthen Institutions

FATA-DC is the only line department that received construction-related training under TADP. Table 6 displays all the non-computer training provided under the project.

¹¹ "Interim Evaluation", pages 75-77, 81-85. The SCS technicians were found to have been either completely ineffectual (the agricultural advisor for the Bara scheme), absorbed in controversial FAR design and inspection procedures (the civil engineer), or unsuccessfully attempting to instill U.S. hydrology technology and procedures into the FATA-DC ground water activities. Three years later judgments on the first two remain unchanged, but there have been significant improvements in ground water research and monitoring within FATA-DC that call for a revised assessment of the utility of the SCS geo-physicist.

TABLE 6
TRAINING COURSES PROVIDED BY TADP TO FATA-DC

Training Type	#	Mons	Location	Cost	Utility
On Farm Water Mgmt.	3	3.0	Lahore	\$2,960	Not Used
Soil Conservation	3	C	Peshawar	7,292	Unknown
Sprinkler Irrigation	3	0.2	Quetta	1,816	Not Used
Project Management	3	1.3	Bangkok	13,500	Used
Ground Water Dev	1	1.4	Bangkok	5,200	Used
Irr. Rehabilitation	2	2.6	Bangkok	14,000	Used
Project Management	1	1.2	Bangkok	5,200	Used
Ground Water Dev	2	3.0	SCS, USA	23,570	Used
Soil/Water Conservation	1	1.2	SCS, USA	24,000	Used
Flood Plain Hydrology	1	0.3	Purdue	6,000	Used
Irrigation O&M	1	1.3	Utah SU	25,200	Used
Irrigation Management	1	0.6	CSU	11,400	Used

Notes: C = correspondence course from SCS.
 On Farm Water Management training for Bara Irrigation Scheme cancelled in 1985. The training was not used in any other FATA-DC activity.
 Sprinkler irrigation equipment totalling \$80,000 purchased for use with FATA-Agriculture, now to be sold to the World Bank.

Total training costs slightly exceeded \$140,000 (Rs 2,604,000), representing 5.9 percent of the funds earmarked for FATA-DC construction, and .5 percent of the \$24,000,000 TADP project through November 1988. The number of individuals trained from FATA-DC was sixteen for a total of 30.7 months. Over the six years of project activity, formal infrastructure training has not been an important component of TADP.

Using Computerization to Strengthen Institutions

The initial Research and Evaluation Unit of TADP, directly answerable to the original TADP Project Officer, produced information judged wanting by all parties. The concept was not found acceptable by the Planning and Development Department, and the unit's personnel were terminated early in the project.¹² In its place, TADP proposed to help P&D establish a Computer Cell, with computer systems staff and supporting microcomputer equipment. The concept was accepted, TADP hired a well-

¹² "Interim Evaluation", pages 73-74.

qualified systems analyst and provided hardware and software for the Computer Cell which was initiated in April 1986.

A regular series of meetings between TADP staff and P&D management helped set priorities for the computer center and gain user confidence. In March 1987, TADP provided two IBM PC/ATs and one additional XT and related printers, peripheral equipment and software.

Following a well-defined plan for the introduction of this potentially high-tech capacity (see the Chapter Annex, "Introducing Computer Technology to Strengthen Development Institutions", page 75), the TADP technical staff sought clients for the output of the computers. One of the first and most significant data bases was the Annual Development Programme of NWFP, a complex document that must be regularly updated and printed in hundreds of copies. NWFP was the first province to computerize its ADP, followed shortly thereafter with the ADP for FATA. Having realized the potential benefits of this new capacity, officers of P&D have been demanding increasing computer services. In November 1988, the P&D computer center was running two shifts and had received approval for an additional five permanent staff funded by the GOP. In addition, P&D has processed a PC-1 for GOP funding that would extend the computer cell into a computer network linked to senior leadership (Additional Chief Secretary, Secretary, Chief Economist, and supporting staff) and to all seven operating divisions.

Outputs of the Center include:

Data Bases for P&D and the Bureau of Statistics

- NWFP Annual Development Programme
- FATA Annual Development Programme
- District Data Base
- Agency Data Base
- Village Survey Records
- NWFP Development Statistics
- Government Employees Data Base
- Development Budget of the Finance Department

Monitoring Information Systems

- Quarterly Reporting System on ADP Progress
- Monthly Reporting on Un-approved ADP Sub-projects
- Monitoring of the Immediate Requirements of the Chief Minister, Chief Secretary or ACS
- Monitoring System for the Directives of the President

Eleven applications are in the process of computerization, including a study of the section assigned to ensure coordination among P&D divisions, to reduce their work load and make internal systems more efficient. On any terms the initiative to provide computerization to Planning and Development, which was soon followed by similar assistance to FATA-DC, C&W, and LGRD, must be judged successful. The Computer Cell is integrated into the operations of P&D, with staff, operating funds and equipment now being provided by the GOP. There is increasing understanding of the use of computerization to support existing P&D operations, and the beginnings of a shift in old processes to new ones made possible by the increased capacity.

The work is not completed. USAID's assistance will be required during the remainder of TADP. The most important contribution is the greater understanding provided by TADP computer staff of the possibilities and prospects for the use of this new technology. Without the TADP staff working for two years to support P&D, with the flexibility to fund needed purchases and make the system deliver important output, there would be no established client base, and no potential for significant expansion.¹³

The next important stages are to link the computer systems directly with the requirements of FATA development in P&D, and in the implementing line agencies where the Computer Cells will be as valuable, and have not been operating the same length of time. P&D sets development priorities, but the Computer Network does not yet provide information to test proposed sub-projects against a development strategy created from information captured in a computer data base. FATA-DC does not yet design irrigation structures, nor C&W road structures, using automated and specialized computer software. But that time will come with continued TADP support.

Under a heading of Research and Evaluation, TADP has expended \$500,000 (Rs 9,300,000) in commodity aid to six computer facilities, one in each major implementing agency, a smaller unit in the Commissioner's Office in Peshawar Division that is responsible for non-developmental activities in FATA¹⁴ and the Special Development Plan office of P&D that monitors all foreign donor-funded aid programs in NWFP and FATA. The Centers as yet provide neither research nor evaluation on FATA development, but have contributed greatly to improving the efficiency of operations within the agencies that support TADP, and will continue to do so. Five local technical staff, costing approximately \$200,000 (Rs 3,720,000) to

¹³ Even the most successful institutional strengthening activities are rarely perfect. There is a continual need to cajole P&D to find the flexibility in their own procurement system to solve problems that halt computer operations. The concept that something has to be done now, perhaps at increased cost, because the time lost is infinitely more expensive than the item to be purchased, has proven to be difficult to instill in financial controllers everywhere. In addition, P&D should budget for the expense of a maintenance contract on the operations of the computers, to prevent budgetary rigidities from impinging on the progress that has been made to date.

¹⁴ This Commissioner's Office maintains a Tribal Areas data base that stores tribe and family details up to five generations with a record of the current important tribal leadership. This system was established by the TADP Systems Analyst assigned to P&D.

date, with skills, qualifications and attendant salary levels paid by USAID beyond those that the provincial government can justify, make the system successful.

Technology Transfer in Groundwater Research

For the first years of TADP, the efforts of an SCS geologist to impart knowledge of and concern for groundwater research procedures were apparently unsuccessful. The demands of the tribal people for tubewells, and the lack of equipment and understanding of groundwater hydrology made tubewell drilling a hit and miss activity. The Interim Evaluation recommended no further assistance to this component of FATA-DC.

Three years later there have been major changes. Each of the six field offices of FATA-DC has a groundwater geologist, the equipment provided by TADP has arrived and is in heavy demand--so much so that this report recommends the purchase of a second set of this sophisticated seismographic recording instrumentation (See the Chapter Annex on Groundwater Irrigation, page 39). Discussions with FATA-DC show that the water table and the aquifer have become critical variables in siting test wells. Records show that the last drillings, when geologic studies had been completed, reduced dry holes to 12 percent of the total completed. A portion of the acknowledgement for the success of this component of FATA-DC's program must go to TADP, for its technical and commodity support.

Building upon this new capacity, KfW, the German Development Bank, has just signed an agreement to provide support for 180 tubewells in South Waziristan. This program will include a long-term technical assistance from a German groundwater hydrologist, an large increase in the draw-down monitoring program, and FATA-DC's first observation wells--to be used to monitor levels in a three-tiered aquifer that includes karez irrigation.

The results are impressive. In spite of what appeared to be a slow start, technology has been transferred, and is being used by FATA-DC in their groundwater development program. The opportunity to contribute to their new initiative in surface water development suggests high potential for success in this endeavor. Section III proposes increased support for technology transfer, training and high-tech commodities for FATA-DC.

Strengthening Institutions through USAID Funding Leverage

Old ways change slowly in established bureaucracies. Sometimes it is possible to negotiate change by offering special assistance tied to new methods of operation. For this tactic to be successful in FATA, TADP must provide either proportionately large resources to the affiliated agencies and departments, or provide special resources not available through other channels.

Table 7 provides percentage of development resources provided by TADP to the FATA-DC's development expenditures.

By comparison, as the Computer Centers began, there were no other funds available, and TADP provided 100 percent of the commodities and senior computer

staff, training clerks provided by the agencies to become computer operators. The \$700,000 (Rs 13,020,000) provided to date has had a major impact on the operations of P&D, important contributions in FATA-DC, with C&W and LGRD in the early stages of development. The introduction of high-tech capacity fully-funded by TADP has had a far greater impact on cooperating organizations than the far larger budget expended for infrastructure construction. The real benefits lie in the future, as continuing computer capacity begins to generate new processes to complete planning, financial, administrative, and technical engineering tasks.

TABLE 7
COMPARISONS OF TADP AND TOTAL DEVELOPMENT FUNDING IN FATA
PROVIDED TO FATA-DC
(Rs 000,000)

Year	FATA-DC ADP	TADP to FATA-DC	TADP as % ADP
84-85	108.465	6.101	5.6
85-86	119.695	3.720	3.1
86-87	140.820	12.083	8.6
87-88	132.952	8.201	6.2

Source: Computer center records provided by FATA-DC

Conclusions

Technical Assistance connected with ensuring USAID reimbursement requirements, minimal provision of conventional water resources training, and negotiated leverage based upon construction funding has had little impact on the processes and agencies that create infrastructure in tribal areas. Direct technical assistance in ground water development and new computer-aided technology has made an impact, and promises to deliver far greater institutional strengthening in the future. Long after the roads and schools are completed and the irrigation systems are in use, the introduction of computer technology into TADP agencies will be generating new uses, processes and efficiencies. USAID, through TADP, has spearheaded the computer revolution in NWFP.

The lessons seem clear. Direct USAID-provided technical assistance, when it is wanted and needed, combined with a technology that improves performance and output, strengthens institutions. Ground water hydrogeology research and aquifer monitoring has become an implanted concept within FATA-DC. The computer centers were an opportunity seized thoughtfully but with vision by TADP. Together they represent the measurable contributions to the project's purpose to build institutions that contribute to development in the Federally Administered Tribal Areas.

Recommendations

TADP should fulfill its charter to strengthen the institutions involved in FATA development. The remaining years of the project, and the remaining funds, should be re-examined to seek methods of building greater capacity through direct training and technical assistance attached to new technology. The Interim Evaluation recommended training and technical assistance for P&D, FATA-DC and C&W, each with its own plan and rationale. This Second Evaluation hones those general concepts with the specifics of a plan of action. Details are provided in Section III.

The introduction of computer technology to as yet unexposed institutions promoting FATA development should be continued, and computer use should be broadened and deepened within presently-assisted departments. General computer understanding requires two years in any organization. Thereafter, computer technology can be directed at specific targets, such as FATA development planning, research, monitoring and evaluation.

ANNEX I-E

INTRODUCING COMPUTER TECHNOLOGY TO STRENGTHEN DEVELOPMENT INSTITUTIONS

The Process of Institutional Change

Introducing a new technology that demands new skills and procedures is not an easy task in any society. One proven method is to start by providing services that complete old tasks, such as the preparation of the Annual Development Programme, faster and more economically than if prepared manually. Once the old ways are made efficient, the computer specialists and managers can turn their attention to new ways of doing business. While this two step process may seem to consume extra resources, prior experience in introducing computer technology in the U.S. documents the need for gradual change.

But over time that is measured in years, not months, once the computer no longer is an alien form, the technology can support new ways of doing business. This is the opportunity for the technology to serve as an institution-building tool. New methods of holding and retrieving data, new ways to analyze and display results, to create new strategies, all help improve institutional performance.

In technical engineering fields, automated drawings, prepared formulas for required calculations, computerized rates applied to construction requirements, all allow speed, precision and detail previously impossible without heavy staff demands. It is in doing old tasks new ways that the micro-computer demonstrates its greatest capacity to improve and build organizational capacity.

TADP's Computer Introduction Strategy

TADP has created central computer offices in P&D, FATA-DC, C&W, and LGRD, with single computers in the P&D Special Development Plan Office, and the Office of the Commissioner, Peshawar Division. In all but LGRD, initial tactics were to identify needs in the client organization, and demonstrate the ability of the technology to deliver a useful output.

LGRD (the last of the centers to be established) differs in that the initial request for assistance was to create a massive data base of all small development schemes. LGRD sees the advantage of a system that will allow the recall of data on schemes by locality, type, date, funding source, use, etc. with aggregation by many different variables. The test case for this large data base is Khyber Agency, within FATA.

Once officers of the line departments saw the potential of the technology, aided by TADP's regular meetings on priorities and projects, they called for new kinds of output. The TADP Systems Analysts assigned in each organization, with support and direction from Zia Ud Din working from USAID, provided services to impart competence and propose new uses of the technology. In the Computer Center with the longest history, P&D, this strategy has worked well, and computer technology is

now an important element in the design of many P&D and Bureau of Statistics publications.

For example, rather than merely punching FATA statistics into the computer, the P&D Computer Center has requested the Bureau to standardize its tables, changing the traditional system of assembling data. This will allow faster and more accurate aggregation and presentation of information from the computerized data base.

When a client base has been established, the next step is to move out from the Computer Center to the operating divisions and organization leadership. P&D, with TADP advisory support, has begun this process with their own funds. FATA-DC believes this is the next logical step in their computer development. C&W and LGRD have yet to complete the first phase introduction, but that is well underway.

TADP has sought a commitment for computerization from each organization based upon an understanding of the potential of computer technology. As that understanding permeates an organization, support, staffing, operating funds and expansion follow. P&D is the proof of the validity of the TADP concept: staffing, working funds, hardware and software for the second generation improvements are now funded from P&D's budget.¹

Institutionalizing Computer Use

If movement from the Computer Center to operating offices is the first expansion of computer capacity, the second will come from individuals seeking improvements in their own work. Planners, analysts, engineers, managers, and administrators can reach new levels of performance using microcomputers. When computers are introduced in a country in which keyboard operation is a clerical skill, as in Pakistan, it will take far longer for professionals to make use of computers.

But this can be hastened by demonstrations from other professionals of the benefits and opportunities from computerized design within the engineering field. Line Department visits to companies and offices in which computers are standard equipment and used to solve engineering problems, will aid their introduction. Technical assistance staff working within the line department offices, who demonstrate computer skills and applications will be important promoters of the new technology.

A later phase is to send computer capacity down the organizational chain to field units. Much of FATA-DC's present design for irrigation systems is completed in the field. There are heavy reporting requirements, many repetitive, from each subordinate unit. Computerization, particularly from laptops that can survive power fluctuations and outages, and travel back and forth between field and headquarters, can make a major difference in the efficiency of lower-level organizations.

¹ The PC-1 is for the "Creation of Data Processing Cell in the Planning and Development Department, NWFP", with a total of Rs 4,993,000 (\$268,441) and recurring costs annually of Rs 488,000 (\$26,237).

TADP in the Next Four Years

To get started, computer technology completed tasks deemed important by the host agencies. At this time, the computers build data bases for retrieval and undertake monitoring applications--match actions against requirements. The greatest benefits come when the computers can be used for planning of development strategies, based upon an inventory of natural and human resources as well as existing and desired government services.

TADP may, in the future, move into more focused development within FATA. Computer technology can play a key role in assembling a mass of data not presently available concerning one agency or locality. For example, FATA-DC is working on a data base for river flow, seeking appropriate locations for small dams. C&W would like to create a data base of existing roads. LGRD is compiling all small schemes funded by location and scheme type.

Together with demographic data and the local knowledge from those living in a tribal agency, information can be generated that will allow a development strategy that is fitted to the needs and opportunities of each Tribal Agency and Frontier Region within FATA.

This opportunity is only possible because TADP supported the introduction of computer technology into four planning and implementing organizations working in FATA. TADP needs to build upon its success and continue its support to computer operations, assisting the four implementing agencies and others as the program broadens, to use this new technology in the service of development.

PROJECT MANAGEMENT

Overview

For the last three years, until the end of September, 1988, TADP has been managed out of the Regional Affairs Office, Peshawar (Engineering), abbreviated "RAO/P/ENG", under the supervision of the Regional Affairs Officer, Peshawar. Since February 1986, the Project Officer was the Personal Services Contractor (PSC), Chief Engineer of RAO/P/ENG. Following the recent Mission reorganization of TADP management, the project will now be overseen by the Mission's Agriculture and Rural Development (ARD) Office/Islamabad. The new Project Officer, will continue to be based in Peshawar, but will report directly to the Chief of ARD or his designee. The engineering unit in the Regional Affairs Office Peshawar (RAO/P/ENG) will now serve as a branch of the USAID Office of Engineering, Islamabad, for all construction implementation activities.¹⁵ This chapter considers the management of TADP during its first six years.

Introduction

Administrative Arrangements in the Project Paper: USAID and GOP Responsibilities

As originally conceived, USAID/ARD was responsible for the overall management of the TADP project. The Project Officer was to be a full time direct hire RDO assisted by four USDA Participating Agency Service Agreements (PASA) staff, a local-hire agronomist and a program assistant in ARD; plus the USAID Liaison Officer for the NWFP in Peshawar.

The Mission's Office of Energy and Engineering (E&E) was responsible for all AID financed construction activities including the monitoring and inspection of all works financed by Fixed Amount Reimbursement (FAR) agreements. The original project design called for E&E to approve all designs in advance and to inspect all civil works and to certify these works for payment. The Office of Project Development and Monitoring (PDM) was to assist ARD in all contracting and procurement procedures.

The four main government entities originally identified for involvement in project implementation were: the Irrigation and Tubewell Divisions of FATA-DC; the Provincial C&W Department; the Provincial Local Government and Rural Development Department, and the FATA section of the Provincial Agriculture Department.

The Project Paper enumerated^d the responsibilities of the line departments as follows: providing counterparts; selecting participants for training; arranging travel clearances; ensuring construction was completed in a timely manner and within the

¹⁵ USAID/Pakistan. "Mission Organization", Memorandum from the Mission Director (September 22, 1988).

cost estimate; coordinating with WAPDA to ensure tubewells received an electrical connection; and maintaining construction and obtaining approval for PC-1s.

A number of changes have been made in the project since the Project Paper was written. These are outlined in the sections that follow.

Recommendations Made in the Interim Evaluation

USAID Changes

The Interim Evaluation determined that "mission management and procedures for TADP have constrained its ability to pursue the project goal and purposes rapidly". It recommended that USAID should "decentralize authority (to match responsibility) from Islamabad to Peshawar (and the office of the Regional Affairs Officer (RAO)/Peshawar)" to avoid delays in sub-project implementation.

The Interim Evaluation highlighted the confusion surrounded the two different offices (RAO/Peshawar/Engineering and Office of Engineering Islamabad) involved in design approval and inspections for RA approval. The RA had to be drafted, cleared by a number of people, revised and then submitted for approval by the Director before submission to the Economic Affairs Division (EAD). The Interim Evaluation recommended that the responsibility for TADP engineering approval be handled by the Engineering Section in Peshawar under the direction of the RAO. This was also a recommendation of Office of Engineering/Islamabad to the Director, prior to the Interim Evaluation.

Following the Interim Evaluation, the Engineering Section, Peshawar took over all the responsibilities for the field implementation of TADP. The early departure of the PASA staff made technical assistance money available. These funds were used by the Project Office/Chief Engineer/Peshawar to hire local technical staff to help the line departments satisfy the special requirements of the USAID reimbursement procedures.

GOP Changes

The Interim Evaluation recommended a number of changes in the management of the project by the GOP. These included; integrating the project into P&D, through the Special Development Unit (SDU) to handle daily execution of project activities and through a Project Review Board, (PRB) to handle implementation bottlenecks, to generate commitment and to make policy decisions; and establishing and supporting a Research and Evaluation Unit in SDU to provide planning and analysis for TADP. The report also recommended that either a PC-1 document should be revised to provide umbrella funding for all project activities or that the project, in conjunction with the line departments' should design multiple sub-component schemes limited to Rs. 30 million.¹⁶

¹⁶ This was the PDWP limit of approval at that time, it has subsequently increased to Rs 60 million.

Following the Interim Evaluation; the Special Development Plan Office within P&D became the contact between TADP and the Planning and Development Department. Although there was regular communication between the Project Officer and the SDP, this office has no role in project implementation, and is a passive recipient of financial reports and the recording secretariat for quarterly project review meetings.

The proposed Research and Evaluation Unit in P&D underwent a metamorphosis and became the Computer Center, which directed its attention towards computerizing the ongoing activities of P&D.

Findings

USAID

Project Management

A PSC engineer was hired in March 1985. Following his appointment to Chief Engineer, RAO/P/Eng and TADP Project Officer, a range of Pakistani professional and support staff were hired to manage TADP sub-projects. At the present time there are 41 people involved with TADP. Two are hired on Mission OE funds, including the Project Officer, ten people from Project Development and Implementation Funds (PDIF) and twenty-nine hired directly from TADP funds.

For much of the last three years, (from February 1986) the Project Officer TADP has not only served as Chief Engineer for TADP but for NWFADP as well. His mandate from the Mission in 1986 was threefold: to revive the moribund sub-projects; get new infrastructure construction under way; and, ensure high quality construction standards. There was strong pressure from both USAID and the GOP to get sub-project implementation moving in the NWFADP, particularly during the 1986 enforcement period. As a result by September, 1988, the Peshawar Chief Engineer was supervising the construction of 435 small projects and 17 road projects in NWFADP, in addition to the TADP portfolio that included 13 water, 6 road, and 26 small building construction sub-projects. The total value of the combined TADP and NWFADP infrastructure portfolio is over \$20,000,000, (Rs 372 million), much more if the planned but not earmarked construction projects, such as the Thall-Parachinar road, are added to the portfolio.¹⁷

To deal with this work load, the RAO/P/ENG has divided itself into two wings under the Chief Engineer and his Deputy Chief Engineer. The NWFADP wing is based in Topi, consisting of 5 engineers and 12 support staff. The TADP wing has 7 engineers based in the Peshawar office along with their support staff. An additional engineer is hired under TADP but he has roles in both projects, with responsibilities for the Gadoon Industrial Estate as well as the TADP groundwater

¹⁷ The recent evaluation of the NWFADP project found that "the construction had been well done", and that "the high infrastructure quality was a solid project achievement."

monitoring program. Prior to the Mission's reorganization of TADP management in September 1988, the Project Officer was also responsible for the management and administration of the non-engineering components of TADP, including the computer staff, (5 people), the WID component, (1 person), the program staff, (4 people), support services, (4 people), Supportive Rural Development schemes (buildings), (1 person) and ten drivers.¹⁸

Sub-project Funding Process: Irrigation and Small Buildings

Proposals for funding, for the most part, are submitted to the RAO/P/ENG from the line departments. Their development may range anywhere from the concept stage to a draft PC-1. The proposals are accepted from the relevant line departments, and submitted to the RAO/P/Eng staff engineer responsible. He field checks the proposal and evaluates the design work and quantities. Following any necessary redesign work and a favorable recommendation from the staff engineer, the Chief Engineer then ensures that the proposal is technically correct, has a reasonable cost estimate, and conforms to the USAID FAR regulations. When the PC-1 satisfies both TADP and the line agency, it goes forward for approval to appropriate body within the GOP.¹⁹ At the same time the Chief Engineer/Peshawar forwards the cleared proposed PC-1 to O/ENG Islamabad for Mission approval and clearances and for subsequent execution of the reimbursement agreement.

Sub-project Design and Construction Oversight

In all of the Project's construction activities, staff has been hired under TADP to oversee sub-project construction and to supplement line department staff. The engineers perform sub-project selection, planning, design review, processing, contracting and construction observation. They spend much of their time redesigning and improving plans for roads and irrigation structures submitted by the line departments, in order to produce accurate designs and quantity estimates that can be reimbursed through standard AID procedures. In the irrigation section, the project engineers test structures and monitor construction to make sure the completed product meets an acceptable standard of finished construction quality and is thus reimbursable.²⁰

¹⁸ The staff of the TADP office has changed in number and composition over time, these numbers represent the present strengths.

¹⁹ Because the very large irrigation sub-project in Bara was terminated in 1985, 27 irrigation projects were approved as replacements, the actual sub-projects changing as designs are reviewed, approved or rejected. FATA-DC's approval channel is through the CDWD (the federal approval chain), while LGRD sends its PC-1s to P&D (the provincial approval chain).

²⁰ In 1985, a 400 foot section of a concrete retaining wall at the Go Go Wam irrigation scheme failed to meet USAID standards, the cost of replacing this wall was met from FATA-DC funds. Much of the USAID supervision and monitoring that has been put in place since 1985 is in an attempt to prevent substandard work.

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In the roads section, local A/E engineers have been hired as consultants to work with C&W and TADP engineers to prepare plans and supervise contractors. In the recently initiated Phase II of the Supportive Rural Development Component, a Senior Program Specialist and a Project Engineer visit and evaluate projects recommended by LGRD for support, in preparation for completing a reimbursement agreement. There is also a Woman In Development (WID) officer who is writing PC-1s for submission to the Government and attempting to get a WID program underway. All of these people are housed in the RAO Peshawar. TADP, as it is presently constituted, is a largely self sufficient office, that designs and monitors construction and produces PC-1s acceptable for funding by AID and approval by the GOP.

GOP

Federal: SAFRON

At the federal level, States and Frontier Regions, SAFRON, is the Ministry responsible for overall program planning, coordination, and approval of tribal areas projects. The Finance Division of the Ministry of Finance and Economic Affairs provides funds to SAFRON for both federally administered and provincially administered development projects in tribal areas. The former projects have funds funnelled directly to FATA-DC and the latter are administered by the government of NWFP and funded via the NWFP Finance department.

SAFRON plays an important role in making cash available for construction costs of the roads. Payment for these contracts from USAID is dependent on completion of an agreed portion and then a final inspection by USAID that the project has been completed satisfactorily and to specifications. Until the project is approved, i.e., the final inspection is performed and the reimbursement request sent to O/ENG and O/FM Islamabad, all expenses on the project have to be met through revolving funds received from SAFRON.

Provincial

P&D

The Planning and Development Department of NWFP (FATA Section) is responsible for approving all planning documents and funding for project activities carried out by the FATA Divisions of the line departments. P&D reviews and approves individual TADP projects as PC-1s are prepared and brought forward. The Annual Development Plan and budget for FATA is produced by the FATA Section of the Planning and Development Department.

The section of P&D that manages bi-laterally funded projects, the Special Development Plan (SDP) Section, has responsibility for coordinating and monitoring donor inputs to the tribal areas. Originally, no particular role was envisaged in the Project Paper for the Planning and Development Department. SDP as it is presently constituted and operated has only a light monitoring role for TADP sub-projects.

TADP's input to the P&D department has been mainly through the establishment of a computer center at the Secretariat and some commodity support to the SDP Section. In April 1987, a GOP-approved PC-1 to strengthen the SDP was submitted for partial TADP funding. TADP provided furniture, a computer and one vehicle to the project, earmarking \$41,294, (Rs 768,068), while the GOP provided the recurrent costs of staff, newer, larger office space, and other services to the SDP.

FATA-DC

FATA-DC, in conjunction with RAO/P/Eng, submits irrigation schemes for TADP approval and subsequently reworks them to produce a PC-1 which is acceptable to both TADP and FATA-DC. The success of this arrangement is due in a large part to the excellent working relationships between TADP staff and FATA-DC. The major activities of TADP with FATA-DC have been irrigation infrastructure construction, some training and the establishment of a computer center.²¹

C&W

FATA-C&W is funded by the federal government, but shares personnel and equipment with the provincial department. There is an Executive Engineer (XEN), C&W in each Tribal Agency, plus Sub-Divisional Officers (SDO). C&W receives the lions share of the ADP in the FATA areas with Rs 238 million (\$12.8 million) in 1987-88, out of a total ADP of Rs 700 million, (\$37.6 million).²²

One of the principal line departments operating in the Tribal Areas, C&W is the least integrated with TADP activities. In Wana, South Waziristan, TADP, through its A&E consultants, established a material testing laboratory to check the quality of the materials used by the contractors on TADP roads and to supervise the entire construction inspection program.

LGRD

The Local Government and Rural Development Department is responsible for small schemes throughout the tribal areas, predominately schools, clinics and drinking water schemes. Up to 1988 they were also responsible for the

²¹ In the original project design, FATA-Agriculture was to work with the SCS Technical Assistance Team and FATA-DC to provide extension services and on farm water management in conjunction with watercourse improvements. After TADP abandoned its Bara sub-project, there was no active cooperation or joint activities with FATA-AG until the sprinkle/drip pilot program was planned, and initial discussions held on a potential TADP II follow on.

²² Education is the other large player with an allocation of Rs 153 million (\$8.2 million) in the 1987-88 ADP.

administration of the Prime Minister's program of local development schemes nominated by the Members of the National Assembly (MNAs). All of TADP Supportive Rural Development schemes are implemented through LGRD. However, the choice of construction design is overseen by RAO/P/Eng, evaluation of sites is done jointly with LGRD and TADP, and the monitoring and construction supervision is done to a large extent by TADP staff.

Tribal Agency

One important difference between the operation of the line departments in settled districts and tribal agencies is that in the latter, the Political Agent's approval is required for all proposed development projects. The tribal Maliks may also be involved in the project selection and approval process. As a result projects are often chosen for reasons only distantly related to development criteria. Political Agents change frequently, (every 20 months) and this contributes significantly to the complexity of sub-project design and implementation.

Conclusions

After a disastrous first three years, USAID added some flexibility to its FAR procedures, and assigned responsibility for infrastructure construction within the tribal areas to the engineering office in Peshawar. After appointing the Chief Engineer/Peshawar as TADP Project Officer, non-engineering components also became the responsibility of RAO/P/Eng. Over the next three years, this office grew to a sufficient size and competence that USAID engineering design and field construction inspection requirements could be met, in one of three ways:

- with FATA-DC, in a collaborative design process in which FATA-DC accepted early recommendations and completed irrigation designs, and regular TADP monitoring of construction underway;
- with C&W, through the introduction of A&E contractors from Karachi, to design and provide construction supervision; and
- with LGRD, through TADP providing the engineers to select sites, design, and oversee construction of small buildings.

With the notable exception of the roads, TADP project management worked well within the context of the complexities of the tribal areas, the dictates of AID, and the requirement to "get infrastructure moving". The quality of completed construction attests to TADP's ability to maintain a high level of engineering standards. This success is due to a combination of factors:

- A PSC serving simultaneously as Project Officer and Engineer for all USAID/Peshawar undertakings, who had the competence, energy, drive and willingness to take the risks necessary to build infrastructure in the midst of conflicting cultures (USAID and the tribal areas population) amid a formidable array of constraints;

- A Regional Affairs Officer who supported TADP, reviewed the work of the project, and provided the interface on TADP issues with USAID/Islamabad;
- A supporting engineering staff in Peshawar with a high degree of motivation and competence who shared the vision and goals of the Project Officer/Chief Engineer.
- Some increased flexibility in Reimbursement Agreements, and authority to match the responsibility provided by USAID/Islamabad to the Peshawar Office.

Aside from introducing computer technology into four cooperating institutions, and an improvement of ground water hydrological research and monitoring capacity, TADP has, to date, devoted most of its resources to completing infrastructure construction. As a result,

- TADP has provided almost no institutional strengthening related to infrastructure development within the cooperating line departments;
- There has been little project involvement in the planning or the new strategies being advanced by the implementing agencies and the Planning and Development Department;
- There has been limited GOP participation in the overall project scope, or its daily management, which has resulted in a lack of GOP concern for the direction and pace of the total project; and
- There exists a real possibility that, as presently constituted and conducted, five TADP-funded roads in SWA and NWA will not be completed prior to TADP's PACD, because of USAID's inability to overcome the obstacles to forward progress in the complex tribal environment, and the lack of a sufficiently powerful GOP leader who will assume responsibility for the project and ensure its completion.

Recommendations

1. The October 1988 USAID restructuring repositioned TADP project responsibility in Islamabad, within the ARD Office, with engineering oversight from and implementation of construction components by the Office of Engineering/Islamabad. This is the system under which TADP began, and one major reason why TADP was not successful in its first three years. The institutional principle at work is: "the further the controlling office from where the development takes place, the less the concern for the special requirements for project success. TADP will best operate in an environment that allows flexibility, freedom to negotiate, and field involvement in resolving seemingly interminable problems. The project will not function without clear delegation of authority and responsibility to the field office and officers in Peshawar.

2. One major project management revision should incorporate the Government of Pakistan, through the Planning and Development Department of NWFP, more directly into project strategy and execution. The benefit of this incorporation,

discussed in Section II, would be a movement of project management time and energy from USAID to P&D, with an attendant increase in the efficacy and timeliness of actions to overcome obstacles to completion, both for infrastructure and any new activities proposed for TADP in its final four years. This incorporation would also improve the prospects for long term sustainability of the tribal area project initiatives.

ANNEX I-F

TADP COMMODITY PROCUREMENT

The Procurement Budget

The project had an original budget of \$2,303,000, (Rs 428 million) for the purchase of commodities. Its allocation is shown in Table I-F1.

TABLE I-F1
COMMODITY BUDGET BY COMPONENT
(Dollars)

Component	PP Budget	Earmarked
Irrigation	149,000	191,039
Demo. plots	11,000	10,506
Tubewells	169,000	59,003
Groundwater	444,000	269,888
Roads	998,000	795,852
Sprinkler	0	79,900
R&E Unit	532,000	520,608
Small Rural Dev.	0	16,012
TOTALS	2,303,000	1,942,808

Source: October 31, 1988 TADP monthly financial report and Project Paper.

The Commodities Purchased

The major commodity purchases have been; 10 pieces of road making equipment; 20 vehicles, 25 computers, development and testing equipment for the tubewells, geological testing equipment for the groundwater surveys, and a set of sprinkler and drip irrigation equipment.

The largest commodity item expenditure was \$750,210, (Rs 13.95 million) for road making machinery and spare parts intended for the C&W Department. The PC-1 was approved in June 1984. The road making machinery (four road rollers, two D7H dozers and two graders) which has not yet been formally handed over to C&W is being maintained and repaired by TADP-employed mechanics. Procurement of

additional spare parts will be handled by USAID.¹ The machinery is hired out by C&W to contractors for constructing TADP-funded roads in South Waziristan. C&W does not appear to have operation or maintenance capacity for this machinery. Thus, in the absence of TADP support, it is unlikely to make a lasting contribution to the performance of the department.

TADP has designed and procured two Development and Testing (D&T) high capacity, high head turbine pumps, for tubewell testing. One of these pumps has been held by a local resident in Khyber Agency, to whom it was mistakenly delivered, for the last four months. The price of its return is apparently one energized drilled tubewell. The other pump is being used at the testwell site at Bizoti Tanda in Orakzai.

The Special Development and Monitoring Division (SDMD) of FATA-DC, established in 1986, and subsequently absorbed into the Design Section, has received \$24,641 (Rs 458,322) for various commodities. The geo-hydrological survey and investigation team in FATA-DC has received \$144,000, (Rs 2.67 million) of ground water equipment, such as a refraction seismograph, digital seismic recorders, electronic water level monitors and a computerized hydrologic analysis system. One additional Toyota pick-up will be transferred to FATA-DC once it has been converted to carry this ground water investigation equipment. FATA-DC has exhibited a great interest in developing its ground water monitoring and investigation abilities.

An amount of \$79,342, (Rs 1.47 million) has been earmarked for the payment of drip and sprinkler irrigation equipment already delivered. This equipment has subsequently been judged to be inappropriate for the Tribal Areas. Some portion of this equipment may be sold to the World Bank.²

Under the Research and Evaluation Unit, \$520,608, (Rs 9.68 million) has been used to set up and operate the computer sections in the various line departments. A vehicle and some office equipment have also been purchased.

Twenty vehicles have been purchased under TADP, their present location is as follows:

¹ The ordering of the heavy equipment, and its subsequent maintenance by TADP is a long and complicated story. The upshot is an issue of resource allocation. Either TADP will help keep the equipment working on TADP-funded roads, already seriously threatened with non-completion during the life of the project, or the construction schedule will fall further behind. The transfer of the heavy equipment to C&W, which does not have maintenance and repair capability for this U.S.-manufactured equipment, will not help TADP or C&W get the roads finished. USAID created this problem in the distant past, by filling an equipment order for which there was no C&W maintenance capacity. See the Chapter Annex on Road Construction.

² FATA-Agriculture was involved in discussions with the previous TADP Project Officer on the use of the sprinkler and drip irrigation equipment. There are legitimate differences of opinion within TADP over the capability of FATA-Agriculture to manage and oversee this equipment in the absence of TADP direct support.

TABLE I-F2
TADP VEHICLE DISTRIBUTION: NOVEMBER 1988

Vehicles	Numbers	Location
Toyota Land Cruisers	8/10	USAID/P
Toyota Pickup	1	USAID/P
AMC Jeeps	3	FATA-DC
Toyota Pickups	5	FATA-DC
Toyota Land Cruiser	1	SDP, P&D
TOTAL	18/20	

Note: Two Land Cruisers are under procurement.

Conclusion

Commodity procurement in the project's early years demonstrates the long delays in the USID procurement chain, a lack of close working relations with the operating line departments, as well as the overall management of TADP by USAID. U.S. road construction equipment ordered after a long entanglement over supplying what C&W wanted--Chinese earthmoving and compaction machinery--has no apparent maintenance capacity within the GOP, and without significant TADP effort, will not be useful after the project ends its O&M support. Sprinkler and drip irrigation equipment for a pilot test was ordered without a well-planned line department program to support it or expatriate or local consultant to assist with the installation. Technicians could be hired by the project for such a pilot effort. Years after the initial agreement to procure, FATA-Agriculture can barely recall the meeting at which its use was discussed. FATA-DC's ground research equipment was long in arriving, but is now in heavy demand in the six field offices. Computer equipment, ordered initially by a contractor in a package that included training for TADP systems analysis, was appropriate and is in use as planned.³

³ There may be useful lessons in this experience for the procurement of small technical items, such as the rain monitoring gauges proposed for FATA-DC in the future. Computer equipment was procured by Development Alternatives, Inc. under USAID regulation. It arrived in Pakistan within six months of the initial order. DAI provided a computer applications trainer, who had supervised the equipment order. This began the training that has spawned the introduction of computer technology into GOP offices concerned with FATA development. In other projects, there have been significant savings in time and money, and ensured appropriateness of specialized equipment when the organization providing the technical assistance also procures the commodities.

IMPACT ASSESSMENT

Overview

The evaluation team was limited in its ability to assess the beneficiary impact of TADP activities for lack of suitable socio-economic data relating to any of the sub-projects. The Project Paper provided for a "Data Collection Unit" that would serve both a planning and evaluation need as well as a monitoring need for TADP activities inasmuch as "the collection of basic social, economic, demographic and administrative data at the beginning, during, and at the end of the project is critical to be able to measure program progress and project impact."²³ Towards this end, a Research and Evaluation Unit was established within TADP but it failed to meet Project Paper goals and was subsequently abandoned.²⁴ The decision not to replace this unit with a more worthy one left the project without the capacity to determine any measurable impact of its component sub-projects. As a result, the team can only assess the relative effectiveness and impact of each of the project activities in view of TADP's overall goals.

Findings

Sub-project Selection

TADP has followed no discernible planning strategy in the selection of sub-projects. Projects have either been selected at the recommendation of the Political Agents serving in the project area, as was the case of a number of the road sub-projects, or, more typically, they have been chosen from among proposals put forth by line-departments. In the attempt to get TADP project activities completed, USAID has made no formal attempt to determine how projects are identified and nominated by the line departments.²⁵ As a result, the project has no ability to determine that any sub-project selected for implementation has a greater or lesser priority than one not selected. Cost and benefit were not examined.

The logic of this method of project selection appears to have been based more on political expediency than on an attempt to target actual resource opportunities and maximize project impact. As a result, sub-project selection fulfills no particular strategy for tribal area development. In other words, there is no apparent reason why TADP has committed itself to its present portfolio of water resource

²³ AID/Washington, "Pakistan Tribal Areas Development: Project Paper" (Washington, D.C., 1982), p. 53.

²⁴ For a full discussion of the TADP/Research and Evaluation Unit, see "Interim Evaluation", pp. 73 & 74.

²⁵ All road and building construction sub-projects were selected for TADP support prior to the transfer of project management responsibilities to RAO/P in February 1986.

development, roads and building construction. While sub-projects have, in some cases, been grouped by location (e.g., school construction along road alignments, etc.), TADP has failed to develop any effective integration of these projects. In the case of Khyber Agency, for example, school construction was conceived as part of an irrigation and on farm water management package that collapsed and was discontinued. Similarly, irrigation and building construction activities undertaken in South Waziristan were tied to road building activities that have been stalled since the project's inception.

Project Success by Agency

The distribution of sub-projects over the project area illustrates some of the limitations of the selection process. Eighty-four percent of all TADP earmarked sub-projects have been concentrated in three agencies: Khyber, Kurram and South Waziristan while one agency and three of the Frontier Regions have received no project support whatsoever.

TABLE 8
TADP EARMARKED SUB-PROJECTS BY AGENCY & FRONTIER REGION

Agency	Tubewells	-- Sub-project Inputs --			Total
		Irrigation	Roads	Buildings	
Bajaur	1	1			2
Khyber		1		12	13
Kurram		3	2	4	9
Orakzai	1				1
NWA			2		2
SWA		3	3	10	16
FR/D.I.K		2			2
Totals	2	10	7	26	45

There is among USAID/TADP staff, as well as among many of their line department counterparts and a number of the relevant government officials, a deep-seated perception that the constraints to undertaking development activities in some parts of the tribal areas are far more pronounced than in others. Certainly the prevalence of inter-tribal violence, the traditional resistance of tribesmen to government intervention, and the resultant problems of access to project areas, the system of nominated contractors and the inability of contracting agencies to hold a contractor liable for poor or uncompleted work, partially justify this perception. For example, all but one of the 16 sub-projects earmarked for South Waziristan Agency is located in the area occupied by the Wazirs, who account for only one-quarter of the Agency's population. The area of the Mahsuds, who represent three-quarters of the Agency's population, has been avoided largely because of the perceived difficulties of undertaking sub-projects there. Interventions in Mohmand and

Orakzai Agencies, as well as in the Kohat and Peshawar Frontier Regions, have been limited for similar reasons.

Project Success by Sector

A more revealing analysis of the project success lies in evaluating the progress of TADP activities by sector. Although the differences in the receptivity of localities to development interventions is marked, such differences have proven less relevant to the success or lack of success of TADP initiatives than such factors as the scale of the initiatives, the length of time required to complete a scheme, the number and social homogeneity of beneficiaries targeted.

For example, water resource projects implemented by FATA-DC have, of all TADP sub-project components, enjoyed notable success when measured on the basis of rate of completion (50 percent of all earmarked sub-projects complete as opposed to 14 percent of all road projects complete). The selection of sub-projects that rehabilitate and improve existing water channels contributes to this success inasmuch as these sub-projects do not contravene established systems of water distribution within the target community. The schemes are generally modest in scale and can be carried out within a short period of time, thus enjoying the commitment of a single political officer.²⁶ The schemes generally have a single contractor. Similarly, the small building construction component of TADP has been successful (77 percent of earmarked sub-projects complete) because sub-projects are confined to a single location and undertaken by a single contractor.

By comparison, road projects have proven extremely problematic and difficult to complete because alignments traverse lands owned by tribal sub-sections and involve a number of contractors. Lengthy disputes over access, compensation for right-of-way acquisition and payment rates for nominated contractors tend to outlast the average tenure of a political agent. The problems of adhering to USAID's design and implementation procedures in FATA combined with TADP's inability to muster the most appropriate and timely GOP support to break implementation bottlenecks are additional factors in road sub-project delays. Inasmuch as road construction has been the single most important component of TADP's infrastructure development activities, it has also been the component that has encountered the most politically complex obstacles to implementation.

Women in Development

The Women in Development (WID) component of TADP has been slow to develop. In response to Mission concerns to expand the scope of WID activities in

²⁶ Political Agents and Assistant Political Agents are the government officials responsible for nominating and supporting development projects within the tribal agencies. Their decision to support a project is generally based on how well the project conforms with their overall strategy of "national integration", i.e., of opening up inaccessible areas within their agencies or encouraging particularly intransigent tribal groups to cooperate with the government. Typically, this strategy changes with the incumbent. The average tenure for a political agent is 20 months.

country programs, the TADP WID officer was hired in January 1987, four years into the project, with a mandate to identify potential Income Generation (IG) projects. Early TADP initiatives to have the WID officer undertake preliminary needs assessment surveys among women in the project area were discouraged by the Mission in favor of constructing "WID related" infrastructure and identifying specific IG/small-business projects that could be undertaken quickly. In response to Mission directives, TADP management earmarked the bulk of the WID funds for the construction of girls primary schools and teachers quarters through C&W. The balance of funds allocated to the WID component of TADP were earmarked for IG activities.

TADP subsequently contracted with a Lahore-based marketing research firm to study the feasibility of establishing a variety of "micro-business" activities in the project area that would utilize local resources and management, and provide employment and training for tribal women. Of the four enterprises examined by the consultancy firm, the WID officer selected the design for a cottage match packaging industry as a pilot sub-project to be set up in Bajaur. TADP has identified FATA-DC as the implementing agency for the project and a PC-1 is under preparation.

To date, the project has had no specifically identifiable impact on women in the tribal areas. Furthermore, as the WID annex to this chapter (page 101) indicates, there is no indication that the WID component, as managed during the last two years, will have any significant impact on its targeted beneficiaries.

Following USAID's restructuring of TADP management and the appointment of a new Project Officer in October 1988, there have been efforts to widen the focus of WID activities to include initiatives in areas such as non-formal education for women and mother/child health programs. However, no related project activities have yet been undertaken in these areas.

Conclusions

As originally conceived, TADP was concerned with the improvement of agricultural activities in the project area as well as the development of infrastructure. As such, the beneficiaries of TADP were clearly identifiable, i.e., "members of the target households [who] will benefit as a result of increased household incomes and an improvement in the overall quality of life."²⁷ With the failure of Bara and the subsequent shift in project orientation to one of exclusively infrastructure development, the identification of sub-project beneficiaries becomes much more problematic. While the original criteria for evaluating project impact could have been applied to the irrigation sub-projects, a very different set of criteria must be applied to each of the other categories of sub-projects.

Roads

Road construction and improvement has the potential for the widest possible impact on the tribal population to the extent that roads open up new areas, link

²⁷ "Pakistan Tribal Areas Development: Project Paper", p.82.

remote villages with commercial and political centers, and facilitate the delivery of additional and related development inputs. The completed Sadda-Marghan Road fits this model, as does the Lower Tattai Road and the proposed Boya-Raznak bridges. Other TADP road sub-projects, particularly the Wana-Karikot-Shin Warsak Road in South Waziristan, the Saidgi Road in North Waziristan, and the Thall-Parachinar Road in Kurram appear to be less appropriate interventions when viewed from this perspective. With the exception of the Thall-Parachinar Road, these sub-projects are little more than improvements of existing roads. The Thall-Parachinar Road is undoubtedly a major engineering undertaking but its importance to the overall TADP objectives of opening new areas and integrating remote populations into the social and economic mainstream of the nation is likely to be marginal. The apparent contradiction in the priorities of sub-project selection again underlines the lack of overall project planning.

Building Construction

The construction of schools, clinics and staff quarters in the tribal areas promises significant community impact only if there is a strong government commitment to education and rural health care. The construction of school classrooms by TADP in Bara was an extremely appropriate intervention inasmuch as the additional classrooms alleviated severe overcrowding in these schools. The construction of staff quarters is a particularly suitable component of these interventions in remote areas because they enable school or clinic staff to live independent on the local community and avoid situations where they may become obligated to local leadership. The construction of staff quarters, however, is not one of the GOP's own infrastructure development priorities. While TADP must remain concerned with the appropriateness and replicability of its initiatives, the project has taken the opportunity to provide important support to the GOP's educational structure in the tribal areas and should continue to do so.

Surface Water Resources

The rehabilitation and improvement of irrigation systems undertaken by TADP has provided selected communities with the potential to enhance their agricultural capacity and diversify production. According to estimates derived from FATA-DC PC-1s, the nine irrigation schemes earmarked (four completed, five underway) by TADP will enable up to 1300 families to improve production on at least 400 acres of existing land and to bring over 1400 acres of new land under production.²⁸ The Dab Kot karez scheme in South Waziristan is one example of a successful intervention targeting an existing water distribution system that accounts for established water use rights. Proposed schemes that call for development of new surface water resources, such as small dam schemes, may be more problematic because they create a new set of issues relating to water use rights and down-stream user resources.

²⁸ All figures relating to beneficiary impact are derived from the sub-project PC-1s prepared by the line departments. At no point in the implementation or inspection process have any of these figures been verified by TADP staff.

Agricultural Support

In a number of the project areas, the evaluation team observed remarkable initiative among the target population for improving agricultural production. However, the impact of all TADP surface water schemes was limited by the collapse of the agricultural support component of TADP after the failure of Bara. In the absence of any water management training, agricultural extension service or crop marketing assistance to the beneficiaries of the surface water schemes, TADP lost the opportunity to maximize water utilization in target areas and to integrate sub-project areas into an overall agricultural development process.

Tubewells

Of all TADP sub-projects, tubewell drilling promises to have the most limited beneficiary impact. The problem of a tubewell site owner's monopolizing the resource is common throughout Pakistan. There is no reason to believe that TADP sub-projects in Bajaur and Orakzai will be spared this problem. To date, no verifiable statistics exist regarding the actual number of acres irrigated by TADP-installed tubewells.²⁹ Nor can an accurate sub-project cost-per-irrigated-acre be determined without making estimates of the value of free electricity, maintenance and other operational costs provided by FATA-DC as well as the overhead costs of the groundwater component of TADP. Support of tubewell recurring costs is an important consideration when evaluating the sustainability of such capital intensive interventions.

FATA-DC has an ongoing tubewell development program--514 wells have been drilled, of which 423 were successful in finding water. Of these 423 wells, 48 will not be energized due to low flows, 47 are waiting for WAPDA to energize them and 290 have been energized. Of the 290 wells energized in FATA, 203 are presently in operation and have a total measured discharge of 123.3 cusecs/hour, i.e. an average discharge of 0.60 cusecs/hour. At maximum utilization this amount of water if well distributed could irrigate about 60 acres of land per well.

For the 118 FATA-DC tubewells in Bajaur, of which approximately 100 are operating at any one time, FATA-DC has an annual operating budget of Rs 8,000,000 (\$873,103). This makes an average O&M cost of Rs 80,000 (\$4,301) per year per tubewell. If the command area is at the maximum based on the discharge, then the O&M cost per acre per year is Rs 1,333 (\$71).

The capital cost of an average tubewell is between Rs 600,000-700,000. If this is amortized over ten years and the operating costs added in, then the cost per potential irrigated acre per year is Rs 2,416 (\$129).³⁰ This is a large charge if the crop is subsistence wheat, a trivial expense if the crop has high value and a ready

²⁹ Field observations and enquiries in Bajaur suggest that the location of wells and the distribution of water from these wells is not equally distributed throughout the population.

³⁰ Figures on tubewell costs are derived from FATA-DC files.

market. It is for these reasons that an agricultural extension program should be made a part of all irrigation systems construction in FATA.

There are multiple reasons for installing tubewells in FATA, the rate of economic return being only one. But decision makers should know the real costs of providing a tubewell to one, or a very few members of a tribal society. Free water, maintained by FATA-DC, is a great economic benefit in rain-scarce FATA. The tubewell program as presently conducted is a huge subsidy to those with sufficient influence to acquire this benefit. This provision of resources should be used sparingly and with discretion, or recurrent costs will soon eat away the actual development budget for the tribal areas.³¹

Recommendations

Planning

The impact of TADP has been muted for lack of an overall development strategy, i.e., a strategy which accounts for both the GOP's broader goals for tribal area development and the requirements of the targeted beneficiaries. TADP must work with the GOP to formulate a framework for project selection and implementation that involves the government at every level of intervention. At the same time, USAID together with the GOP, must establish specific parameters for sub-project selection that allow local authorities the political flexibility they require but that maintain the cohesiveness of the overall development strategy.

Implementation

Greater efforts to coordinate GOP and USAID priorities at the level of project selection will insure greater commitment on the part of the GOP to see that obstacles to project completion are overcome. Certainly a sub-project that has been successfully completed compares favorably to one that remains partially complete and stalled. The unkept promise of a road or the shell of a teacher's quarters without its roof is more a testament to TADP's, and ultimately, the GOP's, inability to deliver the goods, and must be seen as a disincentive for the local population to cooperate with local development interventions.

³¹ FATA-DC is well aware of the recurrent costs of tubewell operation, and is following a national directive to begin to extract some operating expenses from tubewell users in one pilot area in Kurram. Although this program is underway, all involved believe it will be a slow process, requiring a very long period before the tribal areas will pay the actual costs of tubewell operations and maintenance. For this reason, the GOP, with the assistance of major donors, has ended public tubewell operations in the settled areas of Pakistan, and is attempting to convert existing wells to private ownership.

Planning, Research and Evaluation Unit

Having been limited in its capacity of even identifying project beneficiaries, the team can only reiterate the recommendation of the Interim Evaluation, namely that TADP establish a Planning, Research and Evaluation Unit attached to, and supportive of, the research and planning responsibilities of P&D for tribal area development. Reliable and adequate baseline information is essential to the identification, design and implementation of TADP sub-projects. Without this kind of information, there can be no adequate and useful measuring of project impact.

Focused Development

TADP has made significant progress in establishing itself in a number of locations within the project area, such as Wana, South Waziristan and the inaccessible areas of Kurram (Sadda-Marghan schemes), where the population has proven itself receptive to government development initiatives. TADP now has the opportunity to capitalize on its initial success, and maximizing project impact, by focusing its resources on these locations. A number of project directions are recommended in Section III of this evaluation.

Reformulation of WID Activities

The team recognizes the amount of commitment and effort that the WID officer has put into getting some activity in this sector off the ground. Nevertheless, the Mission's directives to develop income generation activities among tribal women, and the WID office's subsequent proposals, are inappropriate and unworkable interventions. Rather than isolate women as a distinct and separate beneficiary, TADP should incorporate WID concerns into a more integrated level of planning whereby efforts are made to address women's requirements within the context of all TADP activities. The proposed phase II activities of the Supportive Rural Development component (i.e., the identification of 29 village water supply schemes) is a step in the right direction. In Section II, the team outlines an option set for expanding TADP activities into more integrated rural development including the strengthening and expansion of the government's primary health care delivery system, community water supply, non-formal education, and rangelands and woodlot management. All these are activities that affect the quantity of women's work and the quality of family life.

ANNEX I-G

PROFILE OF THE WOMEN IN DEVELOPMENT INCOME GENERATING COMPONENT OF TADP

Introduction

The TADP Project Paper was justifiably cautious in defining the role of women in tribal area development. The cultural norms that circumscribe the prerogatives and activities of women in the tribal areas of northwestern Pakistan are particularly inimical to development initiatives. In Pushtun society, family honor and female privacy are linked inextricably in a cultural matrix that withstands even the moderating influence of Islam. Because of these constraints, the original design of TADP did not identify any specific project activities for women. The Project Paper, instead, reasoned that women would accrue the same benefits as other members of target households who, by virtue of increased incomes brought on by project activities, would experience an improvement in the overall quality of their lives.

The impetus for developing a WID component under TADP came from a memorandum dated 25 March 1986 from the Mission Director urging country program project managers to marshal more of their resources to examine and pursue opportunities for improving the situation and prospects for women in Pakistan. A subsequent report, solicited by the TADP Project Officer, by a team of consultants from the International Center for Research on Women (ICRW) made the following recommendations for the TADP and NWFADP projects:

- Develop small-scale projects focused on women's training and education, improved agricultural productivity and livestock activities, and training and marketing for home-based income generation; and,
- Utilize any base-line surveys or evaluations that may occur under the projects to obtain accurate information regarding rural women's activities in the project area.¹

Further directives from the Mission to act on the ICRW report's recommendations prompted the TADP Project Officer to assign the project administrative assistant, a woman, to investigate appropriate opportunities for WID activities in the tribal areas. By November 1986, TADP had prepared a "Proposed Plan of Action" that identified fruit drying and leatherworking as potential WID income generating activities in Kurram Agency and FR Peshawar respectively. A second team of ICRW consultants visited Peshawar in the same month to review these proposed activities. The team prepared a general report, based on their positive evaluation of the fruit drying scheme for Kurram Agency (Parachinar), recommending detailed implementation steps for TADP to follow in order to promote training of women for the production and commercial marketing of goods. The ICRW team specifically recommended that TADP undertake a feasibility analysis in order to

¹ International Center for Research on Women, "Focusing on Women: A Review of the USAID/Pakistan Portfolio." (ICRW, Washington, D.C., March 1986.

generate "adequate background information on existing levels of skills, resources and women's own inclinations regarding... income-generating activities" before project implementation proceeds.²

Income Generating Proposals to Benefit Women

As a result of the ICRW report, in January 1987 the TADP recruited a WID officer charged with carrying out a feasibility study of "community level microbusiness enterprises", implementing a pilot sub-project, and expanding the program to other project sites if the pilot phase proved successful. In September 1987, the WID officer submitted along with a PIO/T for a WID component of TADP, a Statement of Work which proposed a detailed study of the feasibility of WID projects in the tribal areas modelled on the ICRW draft memo guidelines. The Statement of Work called for household and market surveys to be conducted in Bajaur, Kurram and South Waziristan Agencies, and included data analysis and design of pilot schemes. However, the Mission rejected the Statement of Work proposals on the basis that they did not meet the requirements of scientific sampling. An adequate quantitative study, the Mission argued, would require expertise, time and money. Instead, the Mission directed the RAO/P to undertake the construction of "WID related structures, e.g., girls schools" and to provide a description of, and budget for, several small income generating pilot activities. The Mission further directed RAO/P to request funds from PDIF to hire a social scientist as a consultant to assist in the design for a WID component in TADP II.³ To date, no action has been taken in this regard.

TADP management subsequently sought the assistance of a marketing research firm to assist in the design of pilot enterprises that would employ tribal women. Within six months, a suitable firm was identified and contracted to undertake a feasibility study of four specific enterprises: fruit and vegetable drying, match packaging, and sericulture the manufacture of woolen mats and rugs.⁴

TADP chose to inaugurate the Income Generation component by developing a PC-1 for the establishment of a match packaging enterprise in Bajaur with FATA-DC. Briefly, the proposal calls for the construction and equipping of a match factory to be staffed by a number of skilled and semi-skilled male employees. The match factory staff will produce the matches and assemble the match boxes. These, in turn, will be distributed to women in their homes for packaging. The project is designed to employ forty women on a part-time basis.

² M. Lycette and E. Hooper, "Draft Memorandum on Developing a WID Income Generation Component under the Tribal Areas Development Project." (ICRW, Washington, D.C., November 1986), p. 5.

³ Memo: September 21, 1987 "WID Component for TADP", L. Mailloux, O/PDM.

⁴ Aftab Associates, "A Feasibility Analysis of Proposed Income Generating Micro Businesses for Tribal Women" (Lahore, August 1988).

The match packaging project design prepared by the consultants is flawed for a number of reasons. Primarily, there is an absence of sound market research. Consumption patterns are deduced solely from government statistics and not from retail and consumer surveys. For example, the consultants calculate the annual per-capita rate of match box consumption by simply dividing national annual match production statistics by the total population of the country. Consequently, projected demand for matches is based on the projected average annual increase in match production over a five-year period. Applying similar methods of analysis at the provincial level, the consultants argue that the demand for matches in NWFP far exceeds the existing level of production within the province and, thus, a market exists for project output. However, they fail to account for any import of supply, including Russian matches via Afghanistan, that have entered the local markets to such an extent that they have already undermined the existing provincial match making industry.

The match packaging proposal also suffers from a lack of discernible project management design both at the level of project implementation and day to day operation. There is nothing to suggest that FATA-DC will be a suitable implementing agency for this project inasmuch as all eleven FATA-DC industrial enterprises undertaken in the tribal areas since 1971, including a match factory at Miranshah, have been failures.⁵ The failure of FATA-DC industries is just one more example of government inability to manage public enterprise in the private sector. The Additional Chief Secretary of P&D himself, in the quarterly review of SDP projects in November 1988, expressed his concern about the viability of this WID sub-project considering the failure of similar undertakings in the tribal areas. It is apparent that without direct USAID involvement, i.e., direct supervision by the WID officer, the Income Generation projects for tribal women put forth to date are not sustainable. Even if a pilot project were to succeed under these circumstances, the costs of replicating additional projects would far outweigh their actual return to beneficiaries. There is no wisdom in launching the TADP WID initiative with projects that are very likely to fail.

Conclusion

The majority of tribal women bear a disproportionate share of the household production duties in the tribal areas. In addition to the daily preparation of food and the more time consuming activities of fetching water, fuelwood and fodder for animals, they are involved in agricultural activities during the sowing and harvesting seasons. Without the appropriate socio-economic data, the WID component has proposed activities on the assumption that tribal women will have the time to engage in wage earning labor. The WID pilot project designs are based on the essentially sound assumption that new incomes for women translate directly into improved family consumption with particular benefits for children. However, each of the activities proposed by the TADP WID component create additional tasks for women without

⁵ Federally Administered Tribal Areas Development Corporation, "Brief for the NWFP Governor" (FATA-DC Computer Centre, no date). As the Evaluation Team was leaving country, FATA-DC negatively reviewed, and declined to become involved in, the TADP WID match factory scheme.

reducing their existing ones, in an environment where women are generally overworked.

LESSONS FROM THE FIRST SIX YEARS OF TADP

The Locus of TADP Planning, Direction and Management

Since its inception, TADP has been a USAID-directed project. In the future, the project must resolve the problems on the five roads that are not responding to existing USAID solutions, seek deeper applications of institutional strengthening, and consider the transition to new programs in focused development discussed in Section II. To meet these requirements a new locus of project planning, direction, and management is needed. TADP should be integrated into the operations of the Government of Pakistan, through the development oversight charter of the Planning and Development Department.

There seem to be few reasons why, under the next phase of TADP, 41 staff are required within the USAID/Peshawar offices, supported by 11 vehicles. USAID is presently bombarded by requests for supplies and equipment support from the executing agencies. These inputs should be available through a system of planned and approved activities and institutional support. Other USAID projects in NWFP are, or will be, integrated into government activities, with regular approvals of funding by a Project Review Board, management by a Project Director, and overview and support by USAID. TADP will be more effective in its final years as it gradually, without losing the forward momentum established since the Interim Evaluation, moves its locus from USAID to the Government of Pakistan.

The Cost and Benefits of Concentration on Infrastructure Development

TADP now completes infrastructure sub-projects in the Federally Administered Tribal Areas, and supports the application of computer technology to four government institutions. That accomplishment is not to be gainsaid. No other donor has attempted to operate off the main roads, in truly remote portions of the tribal areas, nor approached the introduction of computer technology in NWFP with the thoroughness or thoughtfulness of TADP.

However, because of the nearly exclusive dedication to completing infrastructure sub-projects, TADP has overlooked new developments within line departments and several important opportunities have been missed. One is the revised strategy of FATA-DC, moving from the rehabilitation of individual surface-water irrigation schemes, to planning for the control of water resources within all of FATA. Rather than responding to local demands, FATA-DC is moving to a watershed and basin planning model for future water resource development.

FATA-DC has engaged in a series of deliberations and consultancies leading to this new initiative. TADP has not been a participant or a contributor. Although the project is chartered to develop implementing institutions, TADP has not been at the table when major strategy changes were under discussion. Instead, TADP's energies have been fully applied to sub-project construction.

FATA-DC welcomes USAID's contributions to this new undertaking, but seizing such an opportunity will call for a shift of resources, priorities and attention by USAID's management of the project. We believe there are similar opportunities

within P&D and C&W where TADP could make the a greater difference in the future development of FATA by influencing development strategy and strengthening implementing institutions than it can by completing a relatively few well-designed and constructed infrastructure sub-projects.

Picking Versus Planning Development Sub-projects

At present, TADP selects potential sub-projects from lists generated by line departments, in consultation with the Political Agents. TADP has no ability to justify why it has allocated resources for roads rather than irrigation systems or schools; why it cannot consider projects not included on the list; or why it has developed no strategy that helps select locations where development expenditures will have a multiplier effect. In short, there is no plan according to which TADP provides resources. One type of sub-project is as good as another, since there is no way to compare intended benefits.

TADP can improve upon this state of affairs by supporting development planning for FATA. TADP computerization has started building the data base required, and can continue with more specific direction. Concentrating on one agency as a planning model, under the auspices of P&D, TADP could identify the missing pieces of the development puzzle and fill information gaps. The application of a development model or strategy to a knowledge of resources, demography, opportunities and problems would generate a plan that could serve to set priorities for sub-project funding.

With the Federally Administered Tribal Areas, Agency-based development (e.g., Kurram, with a predominance of TADP resources to date) presents a real opportunity for TADP in the future. Unworkable and unthinkable in 1982, an Agency focused development plan, backed by TADP resources, is well within reach six years later.

Estimating Versus Observing Development Benefits

In TADP, benefits accruing to sub-projects are estimated as part of the design process, incorporated within the PC-1. In FATA-DC's irrigation projects, the land to be brought under irrigation from tubewells is estimated from an understanding of the potential of water delivery, or from actual surveys of land commanded by a channel for surface irrigation. If a tubewell can theoretically provide water for 80 acres, that is listed as it's command area, and costs and benefits are allocated accordingly. The same system applies to surface water irrigation, children using schools, recipients of health clinic services, traffic on roads, etc. TADP and the implementing line departments can only estimate development impact of their infrastructure sub-projects.

Impact only occurs when construction is completed. TADP has elected, through its first six years, not to assign priority to collecting impact data. This was an understandable decision until recently, in the absence of completed infrastructure there will be no benefits.

As TADP moves into its final years, having successfully completed sub-projects, the question of beneficiary impact resurfaces. If USAID, TADP, P&D, FATA-DC,

C&W, LGRD want to know the real impact of development projects in tribal areas, benefits compared with costs, TADP will need to fund a unit that specifically compiles this information and makes it available to improve the next generation of development funding. The Special Development Unit within P&D is chartered to provide these services if supported by TADP. The recommendation made in the Interim Evaluation was to support such a unit. The lesson of the last three years is that in the absence of such support, by the end of TADP, there will be no solid information on beneficiary impact.

SECTION II

FUTURE PROSPECTS

OVERVIEW

Completing the Work Underway

TADP has 27 sub-projects under construction, with signed reimbursement agreements and earmarked funds. The largest dollar amount is contained within four roads, and a fifth not yet begun, with more than \$10 million obligated and no rapid disbursement of these funds expected. There are also 13 irrigation systems not yet completed, and 11 small buildings awaiting finishing touches by local contractors.

In addition to those sub-projects with completed RAs, there are seven sub-projects with RAs under processing to which funds have effectively been committed. The two categories of sub-projects: those with signed RAs, and RAs under processing are assumed to be included in TADP's present portfolio.³²

TADP must not lose the momentum for the completion of ongoing sub-projects, which should remain a priority concern of project management.

Examining New Priorities and Opportunities

In addition to completing ongoing schemes, TADP has the opportunity to extend infrastructure construction to new sub-projects, increase the funding devoted to institutional strengthening, or begin new activities during the final years of the project. Table 9 presents the details of the funds remaining that the Evaluation Team assumes could be reprogrammed, should that be the decision of USAID and the GOP, for new TADP activities.³³

³² No drastic changes in project approach or priorities are recommended that would negate the commitments made on the two categories of sub-projects within the TADP pipeline, or for that matter, many of the "under design" sub-projects.

³³ There are many sub-project activities underway that are in final stages of completion. There is no intent to suggest that these be held or dismissed. The purpose is to show that TADP contains a sufficiently uncommitted budget that there is no reason to accept "business as usual" on the basis of a funding constraint.

TABLE 9

**FUNDS REMAINING
FOR THE COMPLETION OF TADP**

Component	\$
Construction	3,487,721
Contingency	1,627,870
Commodities	360,192
Research and Evaluation	259,776
Technical Assistance	29,370
Training	3,580
Total	\$5,768,509 (Rs 107.290.000)

Satisfying the Project's Goal and Purpose

There have been major shifts in the integration of tribal areas into the mainstream of Pakistan in the last few years, promoted by development projects funded by TADP and the GOP, but propelled by the influx of Afghanistan refugees and the economic and social activity connected with their support. With less than eight percent of the annual FATA development budget, TADP will always be a minor contributor to development within the tribal areas overall.

One of the choices facing the project is whether to concentrate resources within defined areas to increase the impact of development funds. Such a concentration could result in a vivid demonstration of the benefits of cooperating with and accepting GOP development initiatives. Clearly observable pockets of increased economic activity and social services might provide a more realistic and obtainable goal for the Project than a broad dispersion of resources. The movement toward national integration might be reached more rapidly by a redefinition of project activities, and a concentration on specific locations that prior experience has shown to be ready for new development activities.

The project has had two principal purposes: institutional strengthening of organizations engaged in FATA development, and the creation of useful infrastructure that promotes local development. With a limit on the total funds available under TADP, the two purposes trade off, and funds for institutional strengthening must be obtained from what are presently infrastructure construction allocations. With the addition of the Thall-Parachinar road to the project, which will add \$21 million in road construction funds, the U.S. Government has certainly fulfilled its commitment to help create infrastructure in the tribal areas. The remaining TADP funds should be viewed as fungible, available to the highest priority activities agreed by USAID and the Government of Pakistan even if that calls for a shift of emphasis from predominately construction to more institutional strengthening.

Determining the Priorities and Activities of TADP's Remaining Four Years

There remains a good deal of unfinished business within TADP: old infrastructure to be completed, new infrastructure sub-projects to be generated and institutions to be strengthened. But TADP may also have a follow on project, funding for TADP II could carry forward work begun under the present project.³⁴ Should that decision be made by USAID and the GOP, the scope and direction of TADP II should influence the final year's activities under TADP I, that is, the present project could become an effective bridge into the activities of a new project to be designed.

There are many different opportunities that a new Tribal Areas Development Project might explore. Three points along a long continuum might be:

- Funding only for main highway construction that dispenses with local political issues and requires no TADP I bridge. This is called the "Transfer" option.³⁵
- Funding for infrastructure projects and those line agency activities that directly support infrastructure (e.g., agriculture and on farm water management to support irrigation systems construction) with stronger institutional strengthening and sub-projects scattered widely across FATA. This is called the "Expanded TADP" option.
- Funding for initiatives that are concentrated within selected and receptive tribal agencies, in which many line departments contribute to the development of a defined area. This is called the "Focused Development" option.

The last two of these three options, and all their variations and combinations, could have an impact on the final years of TADP I. These options are considered in the following section, along with the special considerations to be used to make a choice among the alternatives. The results are then applied to the recommendations for the remaining portion of TADP I.

³⁴ No commitment has been made by USAID that such a project will be funded. The Evaluation Team was asked to engage in a "what if" discussion.

³⁵ A "Transfer Payment" is an economic term that describes a movement of funds from one purpose or use to another that is not a payment for goods or services received.

THE OPTION SET FOR TADP II

There are three special considerations that will affect the selection of a strategy (the Transfer, Expanded TADP, or Focused Development Options) for TADP II. These are:

- the increasing presence of opium poppies in some tribal agencies;
- the economic and social impact, and the potential departure, of Afghan Refugees in the tribal areas; and
- the strategy to be pursued by USAID in supporting the development of lagging areas within Pakistan.

These subjects are analyzed below to determine how each affects the concept and design for TADP II.

Poppies and USAID Projects in FATA

There has been success in reducing poppy production elsewhere in NWFP, particularly as a result of USAID's NWFAD Project. As a result, the price has risen for growers, and increased poppy cultivation has been reported particularly in Bajaur and Mohmand Agencies. As poppy production increases in FATA, USAID has one of three basic options.

- work in areas free from poppies with enforced poppy clauses that halt construction and other benefits if poppies appear during the course of TADP II;
- work in areas that are known to have poppies, to provide the development benefits that encourages the integration of previously semi-autonomous areas into the mainstream of Pakistani society and, as a next step, enforcement by the GOP of the poppy ban.
- cooperate with the INM/NAU poppy programs in Bajaur and Mohmand after NAU spearheads development initiatives in regions that are not integrated into the legal system of Pakistan, with TADP II providing for development support once areas can be secured and poppy eliminated on a time-phased plan.

A more detailed examination of the background of poppy production and movement into FATA, with an examination of the options is included in Annex II-B (beginning on page 139). The conclusion and recommendation is to begin TADP II in poppy-free areas but prepare the project with sufficient contingency and flexibility to devote resources to poppy regions once the NAU/GOP programs create the environment for serious non-poppy development. If NAU can devote the proposed

funding of \$25 million (Rs 465 million) for the two agencies over the course of the 1989-1994 period, further USAID "topoff" may not be necessary.³⁶

FATA and the Afghan Refugees

The 800,000 Afghan Refugees residing within the tribal areas have had a significant impact on the pace of social and economic change since 1982. If there is a political settlement and the end to generalized fighting in Afghanistan, most refugees are, over time, likely to return to their homes. This will have some implications for the availability and price of farm or construction labor, the monetary flows from outside to inside tribal areas, and the pressure on the natural environment. An Annex examining the impact of refugee settlement on the tribal areas (page 135) and the consequences of their possible repatriation follows this Chapter.

The indigenous population of the tribal areas will continue to require integration through development after the refugees depart, labor will be imported from regions with surplus at slightly higher prices, and the animal flocks and herds will continue to overgraze the range and pasture, as was evident prior to the arrival of the refugees in 1982. Thus, in spite of the major influx of refugees into FATA, there are no obvious changes or adjustments needed in TADP II to account for the presence or the absence of Afghan Refugees, other than programs that are appropriate to the conditions that presently prevail in tribal areas.

USAID's Lagging Areas Strategy

The FY1988-1993 CDSS identified a "lagging areas" strategy within the priorities of USAID/Pakistan. This strategy is designed to continue the integration of isolated populations into the mainstream of Pakistan society begun under the prior six-year CDSS. The operating mechanisms are special development projects that help close the gap between resources and opportunities made available to irrigated areas of the country, and the more limited prospects for more isolated regions of Pakistan.

The continuing unrest in Afghanistan and along the Afghan-Pakistan border, the presence of Afghan Refugees, a Federal Budget that accounts for 76 percent of all development funds but, other than the ADP and SDP allocations, does not affect FATA--these and many more circumstances have limited opportunities for development within FATA. USAID was the first donor to help redress this imbalance, followed by more recent and more limited contributions to FATA by the Federal Republic of Germany and ODA. The need for national integration of the tribal areas remains as pressing in 1988 as when TADP was first authorized. With the benefit of hindsight and the success of recent infrastructure construction and computer technology introduction, the path to integration of tribal areas with the settled portion of Pakistan is clearly marked. TADP has demonstrated that while the impossible takes longer, USAID has put its stamp on FATA development. The next

³⁶ PC-1 Proforma, "Bajaur Tribal Agency Agricultural and Area Development Project", November 1988, from the Special Development Unit of the Planning and Development Department, Government of NWFP.

time around, building on what is now known, will be far easier.

The lagging areas strategy identifies four broad categories of project activities: infrastructure, education and training, institutional development, and area development (i.e., all of the first three plus social services based in a defined location). All can be easily accommodated within TADP II. Five criteria are offered for selecting possible project initiatives:

- responsiveness to national integration concerns;
- economic viability;
- priority within the GOP;
- direct enhancement through USAID involvement; and
- favorable image of the USG assistance to Pakistan's overall development.³⁷

The components and criteria that make up the Lagging Areas and National Integration Strategy seem appropriate to apply to the formulation of TADP II. They argue for selecting an option other than the "Transfer" Option, and are more expansive than the "Expanded TADP" solution. The best match is with the strategy tentatively called "Focused Development". All three options are considered in some detail below.

The Elements of a TADP II Project

Four major components define the possibilities for any TADP II within FATA. These parameters are:

- The Project's Location (dispersed or concentrated, within FATA and within Agencies);
- The Project's Selection Mechanism (lists or plans, Political Agents or Line Departments, USAID or P&D);
- The Project's Activity Set, that might include:
 - ✓ Planning, Research, Monitoring and Evaluation
 - Infrastructure Construction
 - Agriculture and Natural Resources Services
 - Social Services (Education/Health)
 - Private Sector Development Services

³⁷ USAID/Pakistan, " Strategic Approach to National Integration Issues and Development of Lagging Areas in Pakistan", October 13, 1988.

Institutional Strengthening

Technical Assistance

- **The Project's Management Structure (GOP or USAID Project Manager or Project Management Unit, SDP or SDU)**

Each of the four components that define the nature of a new project are considered across the three options sets for TADP II below. To set the stage, the three options (Transfer, Expanded TADP, and Focused Development) will be presented first in skeleton, outline form below, and then in more detail in the Chapter that follows.

The Transfer Option for TADP II

Project Description

Selecting this option would call for a follow on project that is free from problems of managing development activities in tribal areas. National Highways within FATA clearly belong to the Government of Pakistan, and USAID support for major road and bridge infrastructure construction can be internationally designed, tendered, and inspected. The results would be a contribution to modernization, an improvement in the ease and timeliness of road transport, but little new opening of areas presently isolated or detached from GOP involvement, inasmuch as the major highways would most likely be upgraded existing roads.

Other infrastructure options that could make a contribution to FATA integration might be in telecommunications, to link isolated regions to the central government, a project that could mainly be supported from outside the tribal areas. Power is also a continuing issue, and a more reliable electric power supply would boost agricultural production in FATA. Table 10 provides a summary of the project components in the Transfer Option.

TABLE 10
OPTION I PROJECT COMPONENTS
(The Transfer Option)

Component	Specification
Project Location	Determined by Construction Possibilities
Project Selection Mechanism	USAID and P&D from Lists Presented by PAs and Line Departments
Project Activity Set	
Planning, Research, M&E	No Requirement
Infrastructure Construction	Sole Activity
Ag and Natural Resources	No Requirement
Social Services	No Requirement
PS Development	No Requirement
Institutional Strengthening	No Requirement
Technical Assistance	No Requirement
Project Management Structure	USAID Engineering Oversight

The Transfer Option is the least satisfying option from a development perspective, but large construction funding would make a contribution, be well received by the GOP, and create minimal demands upon USAID to design (using A&E consultants) or oversee (using A&E consultants) the infrastructure sub-projects.

The Expanded TADP Option for TADP II

Project Description

TADP I has shown the way toward a project that provides infrastructure, strengthens institutions involved in planning for and creating infrastructure, and provides support services that complement the provision of new construction. For example, a project building upon past experience could choose from a number of options for road construction: more careful selection, i.e., selecting projects in areas where the chances of completing construction are higher; funding the C&W Department to build roads to their satisfaction; funding construction of larger or smaller roads; opening tracks that were not defined as roads for access.³⁸ In a

³⁸ It is clear that the construction of major highways in the tribal areas avoids the complications of multiple nominated contractors that affect the roads being constructed under TADP's current portfolio. It is also likely that the

similar manner, other project activities could be selected with a range of implementation options.

A TADP II could implement sub-projects dispersed across agencies and regions, expand the activity set, provide planning assistance to assist in project selection, and integrate the project's management structure into the Government of Pakistan. Table 11 provides a summary of possible project components.

TABLE 11
OPTION II PROJECT COMPONENTS
(EXPANDED TADP)

Component	Specification
Project Location	Dispersed
Project Selection	Through Agency/FATA Development Plans
Project Activities	
Planning, Research, M&E	FATA Planning/Research, Information Collection, Monitoring and Evaluation
Infrastructure Construction	Roads, Irrigation Systems, Schools, Health Clinics, Potable Water Systems
Ag and Natural Resources	Agriculture Extension, Forestry/Range, On Farm Water Management, Watershed Management
Social Services	No Requirement
Private Sector Dev	No Requirement
Institutional Strengthening	P&D, C&W, FATA-DC, LGRD, FATA-AG, FATA-Forestry, FATA-
Technical Assistance	P&D (Planning and Research, PR&E), FATA-DC (Planning), C&W (Design/Inspection), FATA-AG/Forestry/Watershed Management
Project Management	Project Director in P&D/SDU, Project Review Board to Pre-approve Funding

construction of small roads, linking single communities (i.e., the constituency of a single nominated contractors) to major highways, may be similarly less complicated. Under the Expanded TADP Option, TADP might test this theory in a small access road not calling for A&E consultant design.

This Option is achievable, and would be a valuable follow on from the present set of project activities. In its final years, TADP I could provide an effective bridge to the new activities and support the project management required for this expanded infrastructure alternative.

The Focused Development Option for TADP II

Project Description

Focused Development suggests a concentration on development within a defined area and a full set of development activities backed by planning, research, monitoring and evaluation. The project can be sized so that new areas, mostly likely to be Tribal Agencies, can be added or subtracted, as funding is available. If a well-conceived program in one Agency might cover 5 years and 5 million dollars, a four-Agency program would total something less than \$20 million. Table 12 presents a summary of this TADP II Option.

Focused Development is a demanding organizational and management task. There are special requirements for effective operation in tribal areas, and the project must learn by doing, working in ways and with institutions that have not been a part of TADP I. But with four years remaining, and the potential to start new pilot activities in new areas and sectors, TADP II could begin with a reserve of useful experience and a full head of steam. It would represent a significant challenge as well as an exciting opportunity for the next phase in USAID's tribal area development strategy.

Describing TADP II Options and Complementary TADP I Recommendations

The following chapter gives recommendations for TADP I under the three options defined for TADP II. The details are covered in two ways. First, TADP II options are considered for their influence on TADP I future activities. As there are bridging possibilities in TADP I that would initiate and lead onto identical activities in TADP II, these are explored and explained. In Section III, the next four years of TADP I are programmed considering the requirements of the most challenging option, Focused Development.

Second, in the Chapter Annexes attached to the Section III, possibilities for expanded and new Activity Sets for TADP I and II are presented. These Annexes detail, for example, the prospects, resources and possibilities for primary health care services and educational development services, should those components fall within TADP II, or be desired to initiate on a pilot basis in TADP I, as well as institutional strengthening programs, and potential agricultural and forestry activities.

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TABLE 12
OPTION III PROJECT COMPONENTS
(Focused Development)

Component	Specification
Project Location	Concentrated
Project Selection	Tribal Agency/FATA Development Plans
Project Activities	
Planning, Research, M&E	Tribal Agency Planning/Research, Information Collection, Monitoring and Evaluation
Infrastructure Construction	Roads, Irrigation Systems, Schools, Health Clinics, Potable Water Systems
Ag and Natural Resources	Agriculture Extension Forestry/Range, On Farm Water Management, Watershed Management
Social Services	Teacher Training, Teaching Resources, Health Services Strengthening (immunization, mother-child health activities), Non-formal Education, Community Health Programs
Private Sector Dev	Enterprise Development Services and Credit
Institutional Strengthening	P&D/SDU, C&W, FATA-DC, LGRD, FATA-AG, FATA-Forestry, FATA-Education and Health
Technical Assistance	P&D/SDU (Planning and Research, M&E), FATA-DC (Planning), C&W (Design/inspection), FATA-AG/Forestry/Watershed Management, Health and Education
Project Management	P&D/SDU Project Manager, Project Management Unit, Project Review Board to Pre-approve Funding

Four matrixes on the following pages, of TADP II Options matched with TADP I recommendations, help point the way.

TADP OPTIONS

Project Components

TADP in 1988

TADP assuming
*Transfer
Option*

TADP assuming
*Expanded
Option*

TADP assuming
*Focused
Option*

Project Location:

Dispersed

Dispersed

Dispersed/
Concentrated

Concentrated/
Dispersed

Project Selection:

USAID from
lists

USAID from
lists

Planning Model
for FATA and a
few agencies

Planning model
for Agencies
and FATA

Project Management:

USAID

USAID,P&D

P&D/SDU,USAID

P&D/SDU

TADP OPTIONS

Project Activities

TADP in 1988

**TADP assuming
*Transfer
Option***

**TADP assuming
*Expanded
Option***

**TADP assuming
*Focused
Option***

Planning/R&E:

No capacity

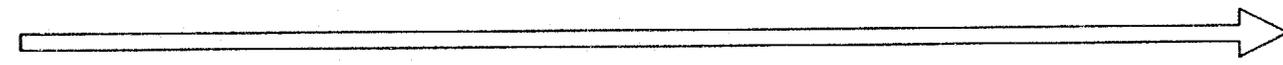
R&E

R&E/Planning

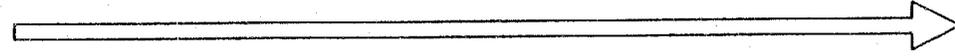
Planning/R&E

Infrastructure

Roads
Groundwater
Surface Irrigation
Schools/Clinics



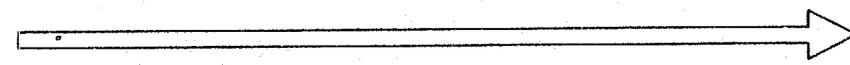
Potable Water
Systems



**Agriculture/
Natural Resources:**

None

Ag Ext/Irrigation



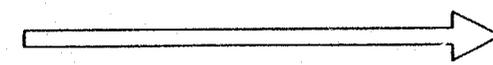
Social Services:

None

None

Forestry Ext

None



Education/
Health

**Private Sector
Development:**

None

None

None

ADBP Credit

TADP OPTIONS

Institutional Strengthening

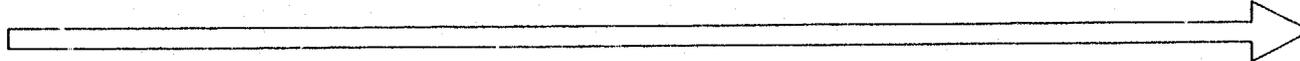
TADP in 1988

**TADP assuming
*Transfer
Option***

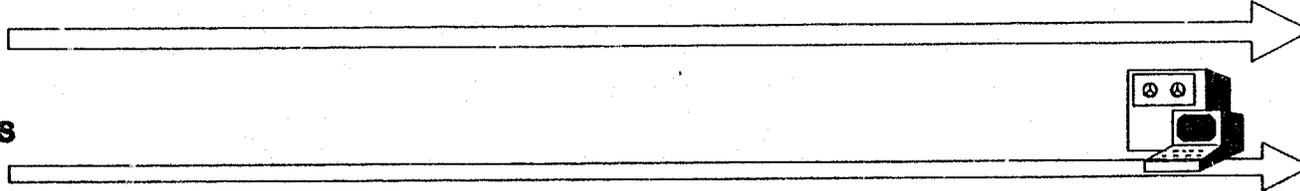
**TADP assuming
*Expanded
Option***

**TADP assuming
*Focused
Option***

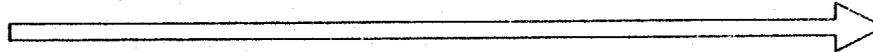
**Groundwater/
FATA-DC**



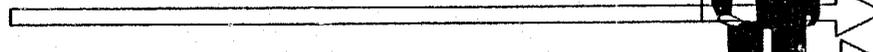
**Computer Centres
in P&D, FATA-DC
C&W, and LGRD.**



**Planning,
Computer
Technology
FATA-DC**



R&E / P&D

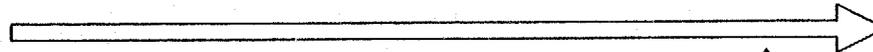


Planning/P&D

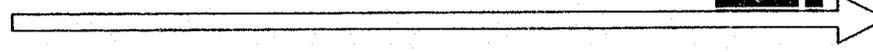


**Project
Management/P&D**

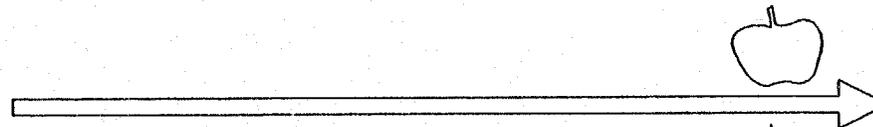
**Design,
Inspection,
C&W**



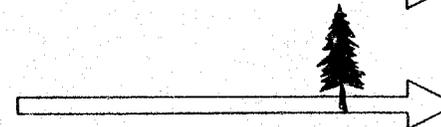
**On the Job
Training
LGRD**



**Irrigation
Extension
FATA-AG**



**Ag Development
FATA-AG**



TADP OPTIONS

Technical Assistance

TADP in 1988

**TADP assuming
Transfer
Option**

**TADP assuming
Expanded
Option**

**TADP assuming
Focused
Option**

Computer
Systems
Analysts
5 FN
Engineers
7 FN



R&E/P&D
1 Ex • 2 FN

Plannings
Computers
FATA-DC



Agri.Extn
FATA-AG
1 FN



Forestry/FATA
1 FN



Education/FATA
Health/FATA
1 FN

Planning/P&D
1 Ex • 2 FN

Ex = Foreign TA, FN = Local TA

THE RECOMMENDATIONS FOR TADP I MATCHED TO TADP II OPTIONS

The Building Block Analysis

The next few pages consider how TADP I might bridge into a follow on project. Under each TADP II Option, the four parameters (Project Location, Selection Mechanism, Project Activity Set, and Project Management) that define the project will be outlined. These four serve as the basic building blocks for the analysis of how TADP I might be redirected once a TADP II strategy is decided.

For example, TADP I requirements for the Activity Set "Planning, Research, Monitoring and Evaluation" will be analyzed for the TADP II Transfer Option. This same Activity will be analyzed for the TADP II Expanded TADP Option and recommendations made that add to those considered in Option I. Planning, Research, Monitoring and Evaluation within TADP I in its final years will be further considered under the TADP II Focused Development Option. Recommendations made in an earlier analysis and still relevant (the building block) will not be repeated in the next.

Recommendations for TADP I Future Activities Considering the TADP II Transfer Option

The Transfer Option calls for no linkage or bridge between TADP I and any follow on project. Therefore, the task is to complete TADP to best satisfy the Project's goals and purposes. This will be considered across the four project parameters as follows:

Project Location. TADP is a dispersed-benefit project, with concentration only as separate sub-projects were sited in a contiguous location. New sub-projects being designed further spread TADP's impact. If there is to be no follow on, this strategy appears sound and should be continued.

Selection Mechanism. Without the development of a strategy and plan for those Tribal Agencies to be included in future TADP sub-projects, there is no method of improving upon the present sub-project selection mechanism. Without a follow on project, there is both no reason to initiate a planning project and no belief that such a project, if started, would be successful. Without funding to support the generation of plans, to strengthen the local institutions required to make the plans and carry them out, and to fund the first priority needs, local planning is an empty exercise.³⁹

³⁹ See the Chapter Annex on Planning and Budgeting for FATA Development for a discussion of how the system presently works, and how it might be improved.

Project Activity Set

Planning, Research, and Evaluation. With a minimal effort, TADP could create and support a Research and Evaluation Unit (as was originally envisioned in the PP) within the Planning and Development Department to provide hard data on such critical issues as the acreage irrigated by tubewells, the benefits of schools, roads, water systems, the efficiency of development financing within FATA. At the very least, the final evaluation of TADP could cite real impact of the project for the executing agencies, and P&D, which has the charter to review and approve most development programs in the tribal areas.

Infrastructure Construction. More of the same, with an inclusion of potable water systems, presently under design for the next phase of the program with LGRD. As all road funds are obligated (with the large exception of the Thall-Parachinar road), getting them completed will be a major task. Recommendations to make that happen are contained within the Road Construction Annex (beginning on page 47) of Section I.

Agriculture and Natural Resources. FATA-Agriculture has been involved with the project only on two occasions--for the Bara water use and land-leveling demonstrations, which were discontinued, and for the drip and sprinkle irrigation discussions, with equipment in Pakistan. Given the TADP resources devoted to irrigation, it would seem reasonable to develop a small program supporting FATA-AG to make more economic use of water resources from FATA-DC sub-projects. A program of supporting FATA-Agricultural staff posted in a few tribal agencies to conduct field trials and demonstrations, supported by ARD technicians, would add to the breadth and impact of the infrastructure program. (See Annex III-D for a further discussion of agriculture.)

Social Services. None recommended in this option.

Private Sector Development. None recommended in this option

Institutional Strengthening

A) Planning and Development. TADP should support the creation, training, and operations of a FATA Research, and Evaluation Cell (R&E) within the Special Development Unit of the Planning and Development Department. Technical Assistance will be important in establishing this Unit. Continued support to the expansion and integration of computer technology will be a necessary ingredient in the development of an R&E capacity.

B) FATA-DC. There is an opportunity to support FATA-DC to undertake critical studies of the surface water hydrology of the tribal areas, develop a new strategy for small dams to capture surface water for irrigation, oversee the reports of consultants now designing programs for surface water capture, and bring new computer engineering technology to bear on

surface and ground water development. FATA-DC has requested assistance in these technical fields.⁴⁰

TADP should provide equipment to satisfy these purposes, and FATA-DC has provided a list of requirements from their perspective. TADP should also provide, after negotiations and agreement with FATA-DC, a competent and experienced international engineer with good computer skills to work directly with their headquarters strategic planning staff, and with their field staff.

TADP should continue computer support to the Peshawar Headquarters, extending the capacity to design offices in the field; provide specialized training and observation within U.S. engineering firms that employ computer technology for small dam and surface irrigation system design, and ground water research and monitoring.

C. Communications and Works Department. The current leadership of C&W has requested assistance in building a road design capacity in the central C&W office, and in providing training to field staff in inspection techniques of contractor-constructed roads.⁴¹ There is much to be done, and many C&W engineers able to provide far better design and oversight than presently is being provided. At the least, TADP should provide field training and equipment to improve the oversight of roads under construction, a proposal that has been received from C&W by TADP and favorably reviewed.

Building capability in a Central Design Office (CDO) within C&W is a complex task, as it has been with many engineering design offices in Pakistan.⁴² We recommend a special study be commissioned by a USAID-

⁴⁰ FATA-DC, a semi-autonomous state corporation, is one of the few GOP organizations that has sought out foreign technical assistance. A PC-II has been underway for three years seeking Italian assistance and equipment to improve their understanding of surface and ground water hydrology and water flow. There is little empirical recording of stream flow, rainfall intensity, and water retention. After 18 years, a shift in strategy from present practices of reconstructing surface irrigation systems where irrigation has previously taken place, and drilling wells in obviously well-fed aquifers, calls for far better understanding of the water resource potential and its conservation. FATA-DC is requesting assistance to develop the required data base.

⁴¹ In contrast to lower-level field staff, the Secretary, C&W welcomed the addition of A&E consultants on the TADP-funded roads, arguing that he would rotate double the normal amount of C&W staff through these roads to obtain on-the-job training. He believes that consultants would also be necessary to upgrade the capacity of his Central Design Office.

⁴² Staffing issues have constrained the institutional strengthening of USAID's Irrigation Systems Management Project for many of the reasons that have made C&W's CDO accomplish less than is needed for a sound road construction system within FATA.

nominated expatriate engineer, a TADP roads engineer and someone appointed by the Secretary C&W, to determine if the necessary administrative, procedural and staffing changes can be made within the CDO and the Department to warrant serious TADP institutional strengthening support. If so, this program should be assisted, mainly through Pakistani engineering consultants. If not, in the absence of a system that provides a positive incentive for serving in the Central Design Office, U.S. training, the provision of local consultants, or upgrading of computer engineering technology, will show few results.

D) LGRD. The Local Government and Rural Development Department's assignments number in the hundreds per year, and TADP constitutes a very small player in their activities. One useful suggestion by the RAO/P/Eng was to propose to LGRD the establishment of a small cell responsible for TADP buildings, and rotate LGRD engineers through the cell every six months, providing specific on-the-job training in small building design, siting, and construction supervision. This would have the affect of providing at least some institutional strengthening as TADP enters its final years.

Technical Assistance

A) P&D/SDU, One expatriate R&E professional with supporting local staff.

B) FATA-DC, One planning, computer-qualified expatriate engineer.

C) C&W, If arrangements can be made that are mutually satisfactory, A&E consultant road-designing TA for the Central Design Office, with short-term visitations and technical assistance for computer-aided design and rate calculations. This is in addition to an already-favorably reviewed proposal for training of field inspection staff located in FATA.

D) FATA-Ag. support from local hire staff assigned to Peshawar, with technical backstopping from ARD.

Project Management. TADP should be moved, slowly and surely, into the institutional responsibility of the Planning and Development Department. The Special Development Unit is the appropriate home, if the SDU's charter is enlarged to accept responsibility for area development projects that are not included in the SDEP.

TADP needs the support of the Additional Chief Secretary to ensure construction problems can be overcome. The project should be given oversight by a Project Review Board that approves future funding, and operational support from the SDU. In the absence of a follow on project (TADP II) that requires a strong Project Management Unit, TADP's institutional strengthening of the SDU should be only as needed to carry out project activities.

Conclusion to the Recommended TADP Future-Years Actions Assuming TADP II Will Require No Bridge to Follow On Activities

TADP is working, and in the future it can work more closely in tune with the Project's goals and purposes. If no bridge is required to a follow on project, TADP should complete infrastructure that is underway, adding community water systems in the final years, complementing irrigation support with modest agricultural assistance in water use and higher-value output. The project should support a Research and Evaluation Unit within P&D, provide strong institutional strengthening to FATA-DC, and consider how to strengthen C&W's design and field inspection capacity. The project should move its locus to the GOP, into the Special Development Unit, carefully, and over time, so as to not impair but strengthen its implementation capacity.

Recommendations for TADP I Future Activities Considering the Expanded TADP Option

The Expanded TADP Option calls for a follow on project that builds upon the experience and the success of the past, but extends TADP II into new regions and activities. The task of the final years of TADP I is to undertake activities and build institutional arrangements that give the next project a full running start as it begins. Additional recommendations, building upon that need to satisfy TADP's own purpose and goal analyzed in the Transfer Option, are presented for the re-direction of the project in its final years, across the four project parameters. These recommendations assume that an Expanded TADP option has been selected for TADP II.

Project Location. TADP can move from a dispersed to a concentrated area project if a planning system can be established that sets priorities and demonstrates the benefits of integrated, coordinated activities. The majority of TADP sub-projects will continue to be scattered, but the remaining years can see roads, schools, health clinics, community water systems, and irrigation supported by agriculture extension, made available to defined and pre-selected regions of FATA. A planning system must be established for FATA before such activities can be implemented successfully.

Selection Mechanism. With a planning model, there can be some rationalization of the existing subproject selection process in the tribal agencies. Without the weight of a plan backed by assembled data, Political Agents select not only the location for development activities but the kind of development initiative--i.e., a school, a road, a clinic, etc. When any one sub-project is as good as another (that is, when no priorities are established through a development plan), there is no way the line department staff assigned to the Tribal Agencies can argue with the PA's choice. Even the P&D FATA Chief has difficulty winning allocation arguments with PAs's, who are supported by the higher echelons of the provincial government in their role of negotiating and horse trading with Maliks to gain compliant and supportive tribal behavior.

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A planning system installed in the Planning and Development Department can add support to the development aspects of Tribal Agency project selection, and tend to balance the allocation decisions made by the political authorities. This calls for the application of a planning model to new development undertakings. See the Chapter Annex on Planning and Budgeting for FATA Development (page 145) for details of the past and possible planning systems in the tribal areas.

Project Activity Set

Planning, Research, and Evaluation. TADP should support the creation of the R&E Unit described in Option I, and add a Planning Office for Tribal Areas within the Special Development Unit of the Planning and Development Department. Combining both information and strategy, the effort should begin by assembling the data on tribal areas already entered into computer systems supported by TADP, adding information on the natural resource base, population centers, tribal groups, development prospects. From this information base, in conjunction with the Political Agents and local line department staff, a development plan can be generated for one tribal agency after another.

In the concluding years of TADP, only one or two Agencies may be covered, with the most obvious candidates being those with the largest TADP initiatives. Kurram and South Waziristan are good prospects for the introduction of a development planning model to serve a tribal agency.

Infrastructure Construction. Same as for Option I.

Agriculture and Natural Resources. In addition to FATA-Agriculture support that complements FATA-DC irrigation systems (discussed in Option I), TADP should incorporate both Forestry and Rangeland Management into a few areas in which major TADP activities are underway. The agricultural resource base includes range and forest crops.⁴³ A jump to new levels of production and income can only be accomplished with a full range of farm output possibilities.

Such programs should be modest, pilot efforts, testing the waters to determine how to enlarge and shape major interventions under TADP II.

Social Services. None recommended in this option.

⁴³ The agricultural resource base also includes livestock, but the Livestock Department is almost solely concerned with animal disease, artificial insemination, and animal distribution programs. Experience in Gadoon suggests that an area development project would need to develop a new approach to animal production extension, now beginning in the Punjab. This may be a larger task than TADP can manage with its limited resources.

Private Sector Development. None recommended in this option.

Institutional Strengthening

A) Planning and Development Department. In addition to the Research and Evaluation Unit described in Option I, TADP should support the establishment of a complementary planning system for FATA development. Such a system must be provided senior level technical assistance, as the generation of a strategy from an information base remains a highly complex task if more than a compilation of lists (demands) is intended.

In addition, TADP must face the task of strengthening the capacity of the Special Development Unit, weakened and understaffed during the past several years. With the addition of the Bajaur and Mohmand NAU programs, and five remaining area development programs to support, the SDU needs help. In the past this has come from UNFDAC, which continues to provide two expatriate advisers and supporting services and equipment. An inventory of staff and facilities versus responsibilities needs to be completed, and frank discussions held with the leadership of P&D prior to "buying-in" on SDU management of an Expanded TADP II Option.

B) FATA-DC, C&W, LGRD. As recommended in Option I.

Technical Assistance

A) P&D/SDU. As defined in Option I for Research and Evaluation, but with an added emphasis on area planning.

B) FATA-DC, C&W. As recommended in Option I.

C) FATA-AG/Forestry. Support from local hire specialists assigned to Peshawar, with technical backstopping from ARD.

Project Management. There is a fine line between the placement of TADP and its potential follow on within the SDU and the institutional strengthening and technical assistance required to make the SDU an effective management and oversight organization. A Project Director should be nominated for TADP under this option, with real authority, to test the waters and understand how a TADP-type activity, in FATA, run through many different line departments and a state corporation, will be managed.

NWFADP has a Project Director from the Planning and Development Department, oversight from the Project Review Board, and a method of responding to implementation requirements, but is still responsive to USAID's interests and funding restrictions. A similar operation should be initiated for TADP, under this option, if P&D intends to provide senior staff and support to the SDU for this undertaking.

For sub-projects other than formal infrastructure construction, funding mechanisms other than Fixed Amount Reimbursement should be used. USAID/Islamabad has experience in making these disbursement and receipt systems serve the purposes of USAID's end use of funds requirements, and the project's need for flexibility and regular cash infusions.

Conclusions to the Recommended TADP Future-Years Actions Assuming TADP II Will Be an Expanded TADP Option

TADP can risk more, try more activities, encourage greater GOP involvement in project management, spend more time and energy planning, studying and collecting data if there is to be follow on funding that builds upon the successes of the present project.

If there is to be a TADP II project that adds new activities in the agricultural, and forestry sectors, that intends to build planning systems and approaches for tribal agency development and seek new funding channels that move through a Project Director nominated from P&D, TADP can provide useful lessons during the next several years. A redirected TADP can experiment with new activities and processes that provide the basis for an new project beginning, perhaps, in 1990.

Recommendations for TADP I Future Actions Considering the TADP II Focused Development Option

Focused Development calls for "whatever is needed" within a defined geographic region. It must begin with a development plan that sets priorities, and allows some sub-projects to be selected over others. The project must have linkages to a large number of interested and willing GOP agencies that work in FATA, and be able to support the expansion, improvement and introduction of their existing programs, while testing new initiatives, in a short period of time. A full range of development activities might be required, as well as a comprehensive Project Management Unit that coordinates, directs, monitors, and releases funds as pre-agreed activities occur.

Recommendations for TADP in its concluding years, matched against the TADP Option "Focused Development" are considered across the four project parameters as follows:

Project Location. Centralized within Tribal Agencies, and further to specific sub-regions within an Agency. Correctly choosing the location, gaining the support of the Political Agent and staff, the concerned line government workers, the Maliks and tribal elders, will be a large part of the success of the program. Since it is critical that TADP II have the right working environment, it will call for a major planning and data collection thrust from TADP to prepare the groundwork. The activities would be identical to the previous option, but more concentrated and supported by TADP.

Selection Mechanism. The heart of proper selection is a planning system, with information and a well-defined strategy of development interventions. This is not different from the prior option, only more intense. Unless there is a plan

from which to select sub-projects that are integrated and provide "multiplier" returns to development initiatives, TADP II will have meager success. If the Focused Development option is selected, this subject would need to take a top priority under the remaining years of TADP.

Project Activity Set

Planning, Research, Monitoring and Evaluation. As proposed for the previous option, but with more support, intensity and oversight.

Infrastructure Construction. As recommended in Option II.

Agriculture and Natural Resources. As recommended in Option II.

Social Services. New programs (for FATA) should be tested in education (teacher training, educational materials support, non-formal education) and health (community health, immunization, sanitation, maternal and child care) through the existing arms of the Education and Health Departments working in FATA. TADP should become incorporated into national initiatives planned by USAID in primary health care and educational development. (See the Chapter Annex to Section III, page 205, for more detail on possibilities in social services.)

Private Sector Development. Initiatives in the private sector, through credit lines established with the Agricultural Development Bank of Pakistan (ADBP) should be considered and tested. New investments in agricultural production, resources, animals or machinery may call for credit. The ADBP has shown an interest in private sector equipment-rental pools, animal feed production, transportation of agricultural commodities, etc., and has opened an office inside FATA. The population of the tribal areas includes traditional traders, and there is a burgeoning commercial market to and from the settled areas, reaching across the border into Afghanistan. This aspect of the program--in the private not the public-private sector--should be investigated during TADP's remaining years, if Focused Development is to be the TADP II follow on.

Institutional Strengthening

A) Planning and Development. TADP should build into the Special Development Unit (once the interest and agreement of P&D has been assured) a strong capacity to plan on the basis of research conducted and information collected, stored and retrieved. There must also be the ability to implement, coordinate, manage and direct the multifarious line agencies cooperating in the Focused Development project. In the early years, this will call for direct technical assistance, a mixture of the engineering and technical capacities assembled by TADP presently located at the USAID/Peshawar offices, and assigned P&D staff.

B) FATA-DC, C&W. As recommended in Option I.

C) **FATA-divisions of Line Departments in Agriculture, Forestry, Health, and Education.** Establish direct contact and working relationships with these departments from the SDU, supported by USAID-hired professional local staff, to determine the requirements of and interest in an institutional strengthening program for focused development in FATA.

Technical Assistance

A) **P&D/SDU.** One expatriate planning and R&E professional with supporting local staff (same number but slightly different emphasis as in Options I and II).⁴⁴ Professional engineering staff deputed from the TADP office for technical oversight of infrastructure construction activities.

B) **FATA-DC, C&W.** As recommended in Option I and II.

C) **FATA-Ag, Forestry, Education, Health.** Support form TADP or USAID/Peshawar local national specialists in these fields with technical backstopping from ARD.

Project Management. The goal of Movement of the project remains into the SDU remains the same (assuming all agreements and negotiations are concluded successfully) as in Option II. The time frame would be speeded, as TADP needs to get through the growing pains into operation through an effective Project Management Unit that can make this complex objective of Focused Development work.

Conclusion to the Recommended TADP Future-Years Actions Assuming TADP II Is a Focused Development Project

Focused Development is known for its complexity and its need for planning (to obtain the benefits of synergistic initiatives), coordination (to make certain a timeline is followed in the required order) and efficient execution of agreed sub-projects (to prevent failure of one component from holding up another). If this is to be the center piece of TADP II, the existing project needs to begin now to restructure, reorganize, and redirect its activities from a concentration on infrastructure completion, to the planning, coordination and implementation systems that will make the project successful. TADP has the resources and the capacity, it will need new marching orders. Correctly executed, the new directions will ease TADP II into early, rapid and effective operations, that, in the tribal areas, can take generations to establish.

⁴⁴ Two expatriate members of a technical assistance team are judged to be important in bringing the SDU into full operation. The staffing proposed for TADP assumes that UNFDAC will provide a second (or third) expatriate, as they are presently, under an expanded program. If UNFDAC is disinclined to provide future technical assistance to the SDU, TADP's share should increase to two expatriate positions. See the Annex to Section III entitled, "Integration TADP into the SDU".

ANNEX II-A

AFGHAN REFUGEES AND TRIBAL AREA DEVELOPMENT

Background

Since 1979, the GOP has settled more than 800,000 refugees from Afghanistan in the tribal areas. As a result, two out of every five inhabitants of the tribal areas are today Afghans. In certain localities, Afghan refugees outnumber local tribesmen by as much as five to one. By far, the majority of the Afghan refugees are ethnic Pathans who share strong cultural ties of Pukhtun language and custom with their hosts, many of whom trace their own ancestry to Afghanistan. Moreover, a large percentage of those refugees settled in the tribal areas originated in the provinces of Afghanistan that border the tribal areas.¹ Common adherence of the majority to the Sunni sect of Islam further reinforces the ethnic bond between the two populations. These continuities of custom, territory and religion no doubt underlie the tolerance with which the inhabitants of the tribal areas have received the enormous influx of refugees. Nevertheless, population growth of the magnitude that the region has experienced clearly places enormous strains on local resources and has had significant consequences for the largely subsistence economy of the indigenous population.

Refugees and the Environment

It is clear that the settlement of Afghan of refugees in the tribal areas has accelerated the depletion of an already limited natural resource base. Because of their concentrated pattern of settlement -- typically in large clusters of official "refugee villages" -- refugee demands for fuelwood, fodder and grazing land generally far outstrip local demand. For example, more than 320,000 refugees live in 30 refugee villages along the 25 km stretch of road between Thall and the Kurram Agency commercial center of Sadda. In their decade of exile, refugees have long since exhausted the fuelwood sources that are within reach of most of their settlements. By and large, refugees purchase fuelwood on the open market, as does much of the local population. The bulk of this fuelwood originates from the mountainous areas immediately adjacent to the Afghan border or from Afghanistan itself.²

Estimates of refugee livestock holdings have generally been exaggerated by official sources. Instead of the six to seven head of livestock commonly attributed,

¹ See R. English, "Preliminary Report on Conditions Affecting the Repatriation of Afghan Refugees." (Geneva: United Nations High Commissioner for Refugees, 1988).

² See H.H. Forsbach, et al., "Energy Survey on Family Level in Afghan Refugee Tentage Villages in Pakistan." (Frankfurt: Gesellschaft fur Technische Zusammenarbeit, October 1986.) According to this survey's findings, Afghan refugees settled in FATA consume on average 30,000 tons of fuel wood per annum.

recent surveys indicate that the typical refugee household seldom possesses more than two head of any livestock -- goats, sheep, cows or donkeys.³ The concentrated patterns of refugee settlement and the limitations of accessible common grazing land forcibly limit their livestock holdings to a minimum. Nevertheless, rangeland and fodder resources in much of the tribal areas are so depleted that competition for local grazing or fodder resources represents a serious constraint to the expansion of local livestock holdings.

The GOP has allocated Rs 30 million (\$1.6 million) to the FATA ADP/SDP in 1988-89 as part of a ten year Rs 3.5 billion (\$189 million) proposal for the rehabilitation of areas affected by refugee settlement.⁴ The most appropriate application of this resource will be the investment in the regeneration of fodder crops, rangeland management, and extensive reforestation in those tribal agencies most effected by refugee settlement, i.e., Bajaur, Kurram, and North and South Waziristan.

Refugees and the Labor Supply

Refugee employment surveys indicate that two-thirds of the able-bodied male refugee population aged 18-49 is engaged in some form of temporary unskilled employment.⁵ In the tribal areas, refugees find employment as agricultural laborers and construction workers. A household agricultural survey recently conducted in Kurram Agency indicates that refugees make up more than 67 percent of the hired agricultural labor force.⁶ The large scale migration by the tribal male population to the Middle East has reduced the available local labor supply. The resulting remittances from this migration has financed a large amount of new housing construction and, in a number of areas, land reclamation for agricultural production. The fact that wages paid to Afghans in the tribal areas are equivalent to, or in some cases exceed, those paid for similar work in the Peshawar Valley suggests that the demand for labor in the region is outpacing the available supply.

Field observations by the team revealed that Afghans made up a significant percentage of the unskilled labor working on those TADP sub-projects that were within the vicinity of large settlements of refugees (e.g., Sadda Marghan and Wana). However, the repatriation of refugees is not likely to deplete the labor supply and drive up the rates of day wages. Interviews of local employers by the team in areas

³ *Ibid.*, p. 61. See also, R. English, "Report on the Social Impact Assessment of the World Bank/Income Generation Project for Refugee Areas in Pakistan (Phase I)." (Washington, D.C.: The World Bank, April 1988).

⁴ Planning and Development Department/NWFP, "Rehabilitation, North West Frontier Province, Pakistan: Post Afghan Solution." (Peshawar, 1988).

⁵ See H. Christensen & W. Scott, "Survey of Social and Economic Conditions of Afghan Refugees in Pakistan." (Geneva: United Nations Research Institute for Social Development, August 1987).

⁶ USAID/Pakistan, "Economic and Financial Analysis Report: Thall-Parachinar Road." (Karachi, 1988).

not heavily settled by refugees indicated that there is a ready supply of labor that migrates from the neighboring districts of the settled areas.

Refugees and the Commercial Economy

Since the Soviet invasion of Afghanistan, the tribal areas have been the locus of an unprecedented level of economic and logistical activity related to refugee assistance and support for the resistance. The United Nations High Commissioner for Refugees and the World Food Programme spend approximately \$56 million annually to maintain the refugee population. This figure includes not only in-kind relief such as food, fuel and medical care, but administrative and personnel costs for the operation of the provincial Commissionerate of Afghan Refugees as well as the funding for PVO programs serving refugees in the tribal areas. The value of this assistance alone, exclusive of bi-lateral donations to the GOP earmarked for refugee assistance, is nearly equal to the GOP's regular and special annual development fund for tribal areas.

This circulation of enormous quantities of relief assistance combined with the concentrated settlement of large numbers of refugees has brought about a dramatic expansion of the tribal area commercial economy. Afghan-operated businesses providing goods and services to both the surrounding refugee and local population have proliferated. Growing commercial activity in the bazaars has also attracted investment of remittance earnings from the Middle East employment by the local population. This rapid and extensive commercial development has had spin-off effects for the wider regional economy as a whole inasmuch as merchandise sold in the bazaars is purchased through Pakistani wholesalers. A recent survey of commercial activity in five tribal area bazaars that serve largely refugee populations indicated a monthly turnover of goods of Pakistani origin valued at Rs 80 million.⁷

Afghanistan, the Refugees and Tribal Area Development

To a large extent, the prolonged settlement of Afghan refugees in the tribal areas has itself contributed to the integration of the tribal areas into the national mainstream. The support and maintenance requirements of the refugee population has resulted in a considerably larger and more visible GOP presence in many of the tribal agencies. The government administration of the refugee villages employs nearly 1500 tribesmen in six tribal agencies. Multi-lateral agencies such as UNHCR, Unicef and the World Bank have undertaken ground water development and environmental rehabilitation projects that benefits both refugee and local populations in the tribal areas. In these same areas, PVOs, with UNHCR support, have implemented infrastructure construction, sanitation and primary health care programs. The commercial activity generated by the refugees has provided opportunities for local tribesmen to start similar businesses, which provide additional employment for locals.

⁷ R. English, "The Economic Impact of Refugee Settlement on the Tribal Areas of Northwest Pakistan." (Geneva: United Nations High Commissioner for Refugees, December 1988), p. 16.

The return of the refugees to Afghanistan is not imminent and when it begins, it is likely to be prolonged over a number of years. The winding down of relief assistance is likely to cause the commercial development of the region to shrink in the absence of sufficient local demand to sustain activity at anywhere near the same level. However, many refugees are likely to continue in business within the tribal areas as long as they are not forced out by the local population or the GOP, and many will migrate to the tribal areas from neighboring regions of Afghanistan to take advantage of seasonal work opportunities.

Political instability may prevail in Afghanistan for some time to come. However, the divisive policies pursued by the Daoud regime in the 1960s that fueled the Pukhtun separatism in Pakistan are not likely to be revived inasmuch as the government of Afghanistan will be absorbed with controlling the myriad divisive tendencies and political demands of its own population. In other words, Afghanistan is not likely to represent a viable alternative to loyalty to Pakistan for the population of the tribal areas. Recent trends among many of the area's tribesmen of investment in commerce and agriculture in the settled areas indicates a certain proclivity for the security and economic opportunities that modern Pakistan has to offer. Further concentration of the development of the tribal areas can only accelerate these nation building processes.

Conclusion

The presence of Afghan refugees in the tribal areas has had no direct bearing on TADP activities in the past, nor is their possible repatriation likely to affect the future of TADP. The need for USAID to support the GOP's efforts to strengthen government services and the infrastructure to deliver those services throughout the tribal areas remains as pressing as when TADP was first conceived.

A decade of refugee settlement has opened much of the tribal areas to the outside world in ways that could not have been imagined at the time of partition. USAID has the opportunity to assist the GOP in capitalizing on this development and accelerating the processes of national integration.⁸

⁸ One new resource that both USAID and the government have to draw on for tribal area development is the experience that UN agencies and PVOs have gained in working with the Afghan refugees. Not only are many of the lessons learned in the design and implementation of refugee programs directly transferable to tribal areas development, but the national staff of these organizations represent a valuable resource in the design and implementation of any type of new programs. Should TADP embark upon a more focused and integrated program of development in the tribal areas, it will profit from drawing upon this body of experience and human resources.

ANNEX II-B

TADP'S ROLE IN ENDING POPPY PRODUCTION IN FATA

Background

In 1982, USAID sponsored a study that recommended the formulation of a narcotics strategy for USAID/Pakistan. This recommendation led directly to the design of NWFADP, then called the Gadoon-Amazai Area Development Project.¹ The Executive Summary justified the concentration on provincially-administered regions of NWFP, rather than FATA as followed:

"The study also recommends that opium production in the Federally Administered Tribal Areas (FATA), which border Afghanistan, not be a priority target for USAID efforts to eliminate poppy cultivation at this time. This is due to the limited amount of acreage in poppy in these areas and the low probability of achieving effective GOP enforcement of a poppy ban in the FATA. Preparations should be undertaken, however, for an attack on FATA poppy cultivation at some future date. One important step is to learn how to work with traditional tribal leadership in the FATA to deliver development benefits and win their support for a poppy reduction program. USAID's Tribal Areas Development Project can play a crucial role in achieving this objective."²

TADP has accomplished many important tasks in its six years, yet it has been unable to learn how to work with tribal leaders in a realistic way that could lead to a negotiated end to poppy production. The recommendations of the 1982 study suggested that, in addition to learning how to negotiate for an end to poppy production (through the PA), USAID also needed to learn how to

"...identify improved agricultural opportunities applicable to conditions in the FATA region, especially low rainfall and isolation... Research is needed immediately, so that when USAID and the GOP determine how to effectively trade development benefits with the Jirga for a poppy ban, there will be some development benefits to deliver... Once this learning process has gotten under way, there are possible USAID and existing GOP mechanisms to deliver block grants to tribal leaders to gain their support for an ban on poppy cultivation."³

USAID originally funded the Gadoon-Amazai Area Development Project for \$20 million in 1983, and has agreed to a follow on (Gadoon II), as well as the Kala Dhaka Project for a new total of \$63 million (1988). This includes \$10 million to UNFDAC for a poppy elimination project in Dir District.

¹ Development Alternatives, Inc., "Recommendations for a Revised Narcotics Strategy for USAID/Pakistan", November 15, 1982.

² Ibid., page vi.

³ Ibid., page 26.

All these projects fall under the responsibility of the Special Development and Enforcement Plan for Opium Producing Areas (SDEP); a plan that was presented for funding by the Government of Pakistan in 1983 to the international donor community. This plan, which established the Special Development Unit (SDU) under Planning and Development, identified prospects for development projects in present or potential poppy cultivation areas in: Chitral (funded by IFAD and the ADB); Dir (UNFDAC); Bajaur and Mohmand (NAU), in addition to USAID's efforts in Gadoon and Black Mountain (Kala Dhaka); NAU's Malakand Project, and the EEC's Buner Project.⁴

TADP and the Poppy Clause

TADP was written with a poppy clause that required a cessation of USAID benefits, an end to reimbursement agreements, and in some instances, a call for repayment from the government of Pakistan should poppies be cultivated within "any village or area benefiting from the project."⁵ This clause has been invoked on two occasions.

The first occasion was during the Bara Watercourse Development Sub-project when, in the midst of an already complicated undertaking, USAID determined there were scattered poppy plots within the 40,000 acres of the Bara scheme. USAID wrote a letter to the Economic Affairs Division of the Ministry of Finance (USAID's principal point of contact with the Federal government) citing the poppy clause in the Project Agreement, and requesting immediate removal of the poppies. The Federal Government's request for action on this issue was passed on to the Political Agent for Khyber Agency, who negotiated the elimination of the poppy fields with tribal elders, and the matter was dropped.⁶

The second instance concerned tubewells in the Salarzai Area of Bajaur, where the Reimbursement Agreement was suspended in March 1987. TADP has received a request from FATA-DC to re-submit the RA in September, 1988, and TADP correspondence records that a "PIL is in clearance process to reinstate RA".^{7 8}

⁴ GOP, "The Special Development and Enforcement Plan" (for Poppy Growing Areas of Pakistan), GOP, 1983, [prepared by Development Alternatives, Inc.]

⁵ USAID/Pakistan, Project Paper, "Tribal Areas Development", September 1982, page 85.

⁶ The Bara Sub-Project was terminated for many reasons but poppy cultivation was not one. See the Interim Evaluation, pages 19-30.

⁷ PROMIS Report, "Portfolio Review--Tribal Areas Development Project", September 30, 1988, Tubewell Construction.

⁸ Poppies are planted in the late fall, from October through the end of the year, depending upon the rains. The justification for reinstatement in Salarzai is that the area was free of poppy in the 1988 rabi (winter) season and the presence of an agreement with local leaders that no poppy will be grown on the land under

The SDU/NAU Programs in Bajaur and Mohmand Agencies

Bajaur and Mohmand have long been reported as Agencies that have poppy cultivation. During the first three quarters of 1988, the Advisory Staff of the SDU, provided by UNFDAC, assembled a report on the two agencies which proposed a development program, that was originally to be funded by UNFDAC, but picked up by INM/NAU, under the Special Development and Enforcement Plan.⁹

The SDU has turned the reports into PC-1s that total \$25 million from NAU for the two agencies, over a five-year life of project (1989-1994). The GOP has complemented this funding with a grant of \$1.8 million (Rs 52.28 million). An agreement was signed between the U.S. Embassy and the GOP on 5 September 1988 to provide funding for the project.¹⁰

The PC-1 proposes support to 12 line departments of the GOP operating in Bajaur, assembled from the lists of opportunities provided by each line department in the tribal agency. For the first year of the program, NAU proposes the following sub-projects, listed as "under consideration":

- 9 drinking water schemes (LGRD)
- 6 feeder roads upgrading (LGRD)
- 9 villages electrified (WAPDA)
- 1 Basic Health Unit in Salarzai (C&W)
- 24 tubewells (test bore only) (FATA-DC)
- 2 upgrading of irrigation channels (LGRD)¹¹

There is a potential for confusion when NAU and TADP are providing support to tubewells in the same region. TADP closes its Reimbursement Agreement because there are poppies being grown. NAU opens its project because there are poppies being grown. A better accord is needed to prevent multiple, mixed signals from being sent to the leadership and line departments working in the tribal agencies.¹²

irrigation from TADP's tubewells (or perhaps a larger area) in the next season. The details of the negotiation have not been obtained by the Evaluation Team, but there appears to be evidence of a successfully negotiated local poppy ban.

⁹ Special Development Unit, P&D, "Draft Proposals, Bajaur, Tribal Agency Development Project", August 1988.

¹⁰ SDU/P&D, "PC-1 Proforma, Bajaur Tribal Agency Agricultural and Area Development Project", November 1988, page 1. The level of funding available each year for the two projects has some flexibility, required by the annual budget confirmations of NAU.

¹¹ Memo from Stan Sammelson, NAU Consultant, 12 November 1988.

¹² The PA in Bajaur had difficulty distinguishing TADP from the NAU-supported Bajaur "Tribal Agency Development Project". It is an understandable error.

Conclusions

Selecting the Major Targets for TADP II

USAID has funded two major development projects directly, and the third indirectly, targeted at eliminating poppy production in the provincially-controlled regions of NWFP. This \$63 million investment has been directly tied to an enforcement plan in USAID's own projects in NWFADP and Kala Dhaka, less specifically in the UNFDAC-directed Dir Project. The commitment by USAID to drug control in Pakistan is well documented. USAID is doing its part in those circumstances in which development assistance is an important ingredient in poppy elimination.

Poppy production in FATA areas is not as amenable to eradication through the same strategy that USAID has used successfully in Gadoon, and is planning to use in Kala Dhaka. In provincially-controlled regions, the government will enforce when scheduled development benefits are delivered. In FATA, the first problem is for the government to gain access to an area--to integrate it into Pakistan's area of control--and then provide benefits that can be used as the basis for ending poppy cultivation.

USAID's procedures and programs are not easily suited to the political negotiation that must take place as a new sub-region is opened to the government, and development benefits and services provided in the midst of poppy fields, with the potentially flexible enforcement arrangements that must prevail. "Opening" is better left to other organizations if they exist. In FATA they do exist, and NAU is programmed to provide substantial support to government services in the two most obvious poppy growing agencies: Bajaur and Mohmand.

USAID has the capacity to "finish" this assignment, with a significant level of development benefits programmed under TADP II. NAU "opens", USAID "finishes", is a sensible cooperative program that can take poppy out of those tribal sub-regions the that government can reach.

Eliminating and Preventing Poppy in USAID's Target Tribal Agencies

In the nine FATA jurisdictions that are not major poppy growers, there are reported to be some scattered poppy fields, particularly in Khyber Agency. Getting rid of these small fields, and preventing the establishment of larger ones, should be USAID's goal. This will call for a more flexible approach to the "poppy clause" than has previously been used. There are two open issues, the definition of near-location beneficiaries of TADP's sub-projects, and the distinction between direct and indirect benefit to areas that grow, or might grow, poppies.

The tribal areas are governed, in most instances, tribally, through internally-accepted leadership. A TADP sub-project that benefits one tribal grouping may have no carry-over to a second. If the second group elects to plant a poppy field near the geographic location of the sub-project (as land may be irregularly apportioned), and the poppy clause is interpreted literally, the reimbursement agreement becomes suspended or void. This could easily cause a hardship on a cooperating group (not

growing poppy) and deliver a benefit to a non-cooperating group (the poppy growers).

To prevent this eventuality, TADP (through a jointly undertaken planning effort with P&D) should acquire the necessary data on tribal groupings, Maliks' spheres of influence, and relations between groups, as was recommended many years before, and thus be able to determine if poppy is being produced by the group that is, or will, benefit from TADP's sub-project. If it is not, then cutting off benefits will not affect poppy production.

The second issue concerns the types of sub-projects that are determined to benefit areas in which there are some poppy growers. Irrigation systems and agricultural services are the most obvious direct potential contributors to increased poppy production, and should not be funded by TADP in areas where poppy is grown.¹³ But a clinic, school, or potable water system may be a good bargaining chip with tribal elders to eliminate poppy, since the benefits do not directly assist the growers.

In both these instances, TADP's ability to support a negotiation between the PA and the tribal group that removes poppy in the following season in return for sub-projects in this season may be a valuable bargaining weapon in the effort to stop production. A poppy clause should allow this prospect, with adequate protection to be certain that there is not continued production and continued TADP benefits.

The Project Officer for TADP, in 1987, made a recommendation that these indirect benefit projects be allowed to go forward under the terms of a negotiated settlement with tribal elders, generated by the Political Agent.¹⁴ There is merit to this suggestion if one purpose of TADP is to use USAID's resources to stop and prevent poppy production.

Recommendations

TADP should not commit major funds to development of Mohmand or Bajaur from the remaining budget until there are clearly delineated "open" areas that can sustain GOP enforcement. Small buildings, schools and health clinics under design, with an RA yet to be completed, should be allowed to go forward, under the negotiation strategy mentioned above. Existing sub-projects should be completed.

¹³ The size of the affected area, as previously mentioned, needs some careful delineation.

¹⁴ Memo from Michael McGovern, Project Officer, to the RAO/P, subject, "TADP 'Poppy Clause'", May 17, 1987.

For TADP II, funds should be cached for Bajaur and Mohmand development, to be programmed after the NAU program has opened areas and resolved the issue of government enforcement capacity when development benefits can be delivered by the new USAID project.

TADP should begin, and TADP II complete, the tribal agency specific data collection necessary to be able to define tribal groupings by location and sphere of control. This will identify the beneficiaries of sub-projects in areas of poppy production, and to help determine whether cutting off TADP support will, in fact, impact on poppy production.

TADP deserves a more flexible poppy clause, not to place sub-projects in poppy producing areas, but to allow negotiation, when it is appropriate, to end poppy cultivation.

There are important opportunities for agricultural development that TADP can support in the future. Some portions of South Waziristan are reported to be highly anti-poppy, on religious grounds.¹⁵ The KfW is supporting major tubewell development on the plains of South Waziristan, with the possibility for 180 wells. There is a dryland agricultural research station in D.I. Khan, a sub-station of the Quetta Arid Zone Research Institute. It should not be difficult to build a pilot program from those components with some surety that the end result would be more, and better, non-poppy agricultural production in FATA.

¹⁵ Reported, among others, by the Chairmen of FATA-DC.

ANNEX II-C

PLANNING AND BUDGETING FOR FATA DEVELOPMENT

The Funding Sources

FATA receives its development budget from the Federal Government through SAFRON and foreign donors.¹ In the 1988-89 fiscal year, the budget consists of three components, each independently programmed. These are:

- The Annual Development Plan (ADP) for FATA, with funds allocated through the Planning and Development Department (in the same process that funds are allocated to support the ADP for the non-federally administered area of NWFP).
- The Special Development Plan (SDP) for FATA, with funds allocated through P&D, for both the provincial agencies working in FATA and for FATA-DC. This budget may contain or be supplemented by foreign donor contributions.
- The allocation for FATA-DC (applicable only to FATA).

The actual numbers for each budgetary component change as the submission, review, and final approval process moves forward. The funds expended in any one year may differ from the budgetary allocation, making the issue of FATA funding highly dependent upon the point in the budgetary cycle that the figures are extracted.

For example, Rs700 million appeared for FY87-88 in the FATA/ADP printed approximately March 1987 (from the TADP-supported Computer Center). Federal review in June established a five percent ADP cut that P&D believed it could absorb within the year's actual expenditures. Thus, the sector allocations were not changed on the basis of this reduction. However, after another review process, late in August, the allocation was reduced 25 percent by the Federal Government to Rs527 million. Since development activities had been started in June on the basis of the higher figures, actual expenditures for FY87-88 were higher than allocated, reaching Rs581 million. There is now ongoing discussion as to how the excess expenditures, the outstanding bills that are over and above the allocated budget, will be funded.

The FATA-DC budget proceeds a different channel at the Federal level. For FY87-88, Rs359 million was requested, reduced by the Board of Directors review, and the SAFRON review, reduced to Rs190 million by the Priorities Committee in Islamabad in March 1987, and further reduced to Rs170 million by the Planning Commission. The Ministry of Finance imposed an additional cut to Rs101 million that was vigorously opposed by FATA-DC. A restoration during the budget revision

¹ There are a great many steps in the process, with allocation, funding release, and scheme approval all interrelated, but moving in separate channels. The following information is our best understanding at this time, to be improved in the following week.

increased the FATA-DC allocation to Rs136 million, of which Rs132 million was actually expended.²

Table II-C1 provide the allocations currently (December 1988) listed for the FATA budget.

TABLE II-C1
FATA BUDGETARY ALLOCATIONS BY COMPONENT
(Rs 000,000)

Component	1986-87	1987-88	1988-89
ADP Allocations	609	527	540
MNA Allocations	80	80	0
SDP	66	73	217
FATA-DC	145	136	91
Totals	900	816	848

Source: FATA/P&D

Notes:

1. MNA allocations allowed elected representatives to nominate local development schemes implemented by LGRD. This was discontinued in FY88-89.

2. SDP allocations were foreign funding for FYs 86-87, and 87-88, complemented in some foreign donor projects (not including TADP) with 34 percent GOP contributions. In FY88-89, the SDP is ensured through budgetary allocations of the GOP. Foreign donor funds will add to the SDP, in those instances that prepared and approved schemes can be substituted to those destined for donor funding. If there are not sufficient schemes to add to the SDP authorization, the foreign donor funding will substitute for GOP funding.³

² "Surprisingly, Ministry of Finance has imposed another arbitrary cut on our approved ADP for 1987-88 of Rs. 170.000 million, shrinking it to Rs. 101.499 million only. The cut of Rs. 68.501 million has been resisted. The government has been moved on the subject and the case is being followed vigorously. However, no final decision of the Government, has yet been communicated." FATA-DC, "Brief for the Governor, NWFP", c. July 1988. The allocation was increased mid-year by Rs28 million, and FATA-DC was allowed to expend Rs3 million from a prior year's savings.

³ The TADP contribution to FATA is not presently included in FATA-DC's SDP allocation. TADP funds will add to FATA-DC's SDP as additional schemes can be approved that substitute for those added to TADP's Reimbursement Agreements.

The SDP, in FY88-89, includes funding for FATA/ADP and FATA-DC, making it a supplemental allocation to both FATA development budgets.

The Budgetary Allocation Process

Allocations for the ADP are requested from NWFP, usually at some small percentage over a prior year, based upon an "Indicative" budgetary amount set by the Federal Government. Using the "Indicative" total amount (a block grant that is not earmarked at the Federal level), allocations are made by the Planning and Development Department (primarily the work of the FATA and SDP sections), first by sector, then by Tribal Agency. There are two components to the process, the P&D allocations that move down the hierarchy, and the Tribal Agency and line department requests that move up. These are described below.

The Top Down Allocation Process

Allocations for the FATA/ADP are made "sector-wise", by the FATA Section of P&D, generally providing an increase between five and ten percent over the previous year for sector allocations. In the new arrangement for the Special Development Plan, allocations are similarly made by the SDP Section of P&D for both the FATA/ADP and FATA-DC. Table II-C2 provides the sector allocations of the FATA/ADP and FATA/SDP for FY88-89, given in the Annual Development Programme before the reductions took place reflected in Table II-C1 above.

TABLE II-C2
SECTOR ALLOCATIONS, FY88-89
(Rs 000,000)

Component	ADP	%	SDP	%
Communications (C&W)	185	29.0	107	42.8
Agriculture	24	3.7	16	6.4
Education	143	22.3	15	6.0
Power	103	16.1	30	12.0
Health	80	12.5	0	0
Forestry	15	3.7	0	0
Housing	29	4.5	0	0
Area Development Projects	9	1.4	10	4.0
Public Health Eng	47	7.3	0	0
Research and Development	3	0.4	0	0
Post Afghan Solution	0	0	30	12.0
Rehabilitation of FATA				
Irrigation (FATA-/DC)	0	0	40	15.9
Minerals (FATA-DC)	0	0	2	0.8
Totals	638		250	100

Source: FATA/ADP FY88-89, and SDP-ADP 1988-89(FATA)

After the sector-wise allocations of the ADP are made, the sector allocations are divided among each of the seven tribal agencies (7) or Frontier Regions (4) on the basis of population, (for 90 percent of the total FATA/ADP funds), with 10 percent allocated evenly among the 11 FATA jurisdictions. This allocation system has recently been established by the FATA Section of P&D and is in its first year of operation.

The development budget is also used to support both ongoing and new development schemes. The first priority is to continue funding of work that has been started, the second to begin new sub-projects.⁴ In FY88-89, 68.3 percent of the FATA/ADP funds are devoted to ongoing schemes, and 31.7 percent to new projects. For the FATA/SDP, all the proposals submitted for FY88-89 are for new schemes.⁵

The FATA/SDP is a new process this year, and is not yet completed for 88-89. The original budget of Rs250 million for FATA/SDP has since been reduced to Rs217. At this time, there is no known proportion of the SDP which will be foreign funded.⁶

Projects such as TADP and the NAU-funded programs in Bajaur and Mohmand have no supporting GOP contribution, unlike some other donor funding that is divided 66 percent donor, 34 percent GOP. When there is a GOP contribution, the project must appear in a budget. When there is not a GOP contribution, the donor projects have, in the past, appeared in the SDP.⁷

There is also an informal relationship between the FATA allocations of the ADP and the SDP. When a donor provides an extraordinary level of funding to one tribal agency (road construction in South Waziristan under TADP is the example used within P&D), the ADP for that Agency is reduced by a small amount.

⁴ Development projects are approved for their total cost, but funded piecemeal from yearly allocations. Construction projects may take years to complete.

⁵ Reductions in the budgetary allocations will affect this division between ongoing and new schemes. In FY87-88, the original distribution, when the ADP totalled Rs700 million, was 61 percent for ongoing schemes, 39 percent for new schemes. The revision of the ADP downward was taken primarily from new schemes, and a few ongoing schemes not completed or engaged in local disputes.

Since the SDP is a newly created process this fiscal year, all schemes proposed for funding are new. In subsequent years, the SDP will have both ongoing and new schemes, as does the provincial ADP for FATA.

⁶ As previously mentioned, included foreign donor funds in the ADP is not straightforward. The funds may be additive, or may simply cover costs already programmed in the ADP. It will be some time before this new process is completed and better estimates are available of the impact of foreign funding on the SDP.

⁷ Each project must have an approved PC-1 even though there is no GOP complementary funding required.

The Bottom Up Budgetary Process: Development Planning at the Tribal Agency

There appears to be no formal Agency Coordinating Committee composed of the Political Agent (PA), the Assistant Political Agents (APAs), and line department heads in tribal agencies analogous to the District Development Coordinating Committees in settled districts.⁸ Informal meetings of all line department heads are called by some PAs to discuss the budgetary allocation, and to ensure that the decisions made by the PA (described below) are technically feasible.⁹

The Political Agent receives an indicative budget for the coming year's ADP from P&D, and discusses this with his staff (the Assistant Political Agents and Tehsildars) and the representative of the line departments resident in the Agency. Then he and the APA's select both the location/tribe to benefit from a new project, and the type of project to be provided. After these decisions are made, a meeting with all line staff representatives helps determine the technical feasibility of each of the selections, and modifications are made accordingly. This process generates a lists of schemes which are sent back to P&D, through the line departments, earmarked for the Agency. This allows the generation of an "Agency by Scheme", as well as a "Scheme by Agency" data base by the P&D Computer Center.

The decision on location and project type is a well established prerogative of the PA that has been slowly eroding over the last few years as the GOP has become more development and planning conscious. In 1986, the Governor of NWFP issued an order that the line department representatives should be responsible for determining locations for new development undertakings in tribal areas, but this was revised by his successor to return the system to its traditional process.

There are well founded reasons for this planning method. The PA is charged with maintaining the peace, and with opening presently "closed" areas to government intervention, as part of the process of national integration. A road into a "closed" area may be far more valuable to the integration process than a road in an already open area, even though the later may have much more economic benefit.¹⁰ Thus, the PA has retained his traditional responsibility to allocate development resources.

⁸ There is a formally constituted Agency Council, but as explained by the PAs, this council, which is nominated by the PA and staff, meets to approve development scheme allocation and location decisions that have already been made.

⁹ Reported by the PA, Khyber Agency.

¹⁰ There are many closed areas within FATA, well known to the PA and staff, but, so far as we can determine, not demarcated or documented elsewhere. Making a matter of record the distinction between portions of each Tribal Agency that are "Open", "Sometimes Open", and "Closed" would assist the development planning process.

Planning for Tribal Agency Development

The budgetary allocation system as presently constituted is unlikely to be improved until there is a significant change in the planning process for tribal agency development. The PA's have little incentive to call for such a change, and only P&D has a charter to revise the allocation system. To generate a strategy and development plan for an Agency would require a mandate from P&D, and the resources to establish an office within P&D that would be responsible for the plan. Then there must be agreement from the Political Agent before the planning effort can proceed.

If there were a donor that would support P&D with the resources to begin a planning process, and if a PA agrees, there are two possibilities for initiating a strategic planning system. First, a planning process would be based upon improving the efficiency of the existing resource allocation process. A development-minded PA might welcome the opportunity to obtain better data on his agency, to collect in one location information that would allow him to improve the argument he makes for an increased budgetary allocation. In this sense, more and better information might be brokered into being a useful incentive to start the planning process. Creating a computer capacity at the tribal agency, an outpost of P&D but at the disposal of the PA and staff (including the line department officials) might make the intervention additionally attractive. This might be called the "Planning Resources Only" intervention.

The least to be expected from such an intervention in a tribal agency in FATA is that a development plan with priorities and a strategy would allow the line departments and P&D to make arguments for the appropriate type of sub-project, after the PA has selected the location. Such a plan would, for example, show where there were sufficient graduates of primary schools to justify a middle school, rather than to offer a middle school as a political reward in locations where they are few available students. The plan could also show the future prospects for potential irrigation and agricultural opportunities, population centers ready for health, education and social services, and agricultural interventions which would take advantage of the natural resource base.

The second, and more powerful persuasion for the PA to adopt a planning model, would be the availability of block grant funds outside the normal GOP allocation, that could be made available after a development plan has been created. With the potential of extra-ordinary funds, the PA could be persuaded to allow these funds to be programmed on development, rather than political criteria. This would offer the line departments the opportunity to set priorities and make plans that are consonant with, but not directly driven by, the political considerations that condition the PA resource allocation decisions. This might be called the "Planning and Development Resources" intervention.

Conclusion

Little development planning presently takes place at the level of the Tribal Agency in FATA. This situation can be changed either slowly through the provision of planning resources only, or more rapidly if planning is accompanied by a development fund that is applied to projects in an approved Tribal Agency development plan. To date, TADP has selected sub-projects on an ad hoc basis. Through P&D, there are opportunities for TADP to enter and contribute to tribal area planning and development.

SECTION III

RECOMMENDATIONS AND ACTIVITY PLANS

RECOMMENDATIONS FOR TADP I AND II

Selecting Among the TADP II Option Sets

If TADP were an isolated project, unconnected with either the remainder of USAID's development portfolio or the GOP's multiple activities ongoing in the tribal areas, it would be relatively easy to justify selecting Focused Development, Option III, as the most challenging, and potentially the most rewarding follow-on project. But there are multiple considerations, issues of oversight and management, of the allocation of time and energy to one or another high priority in promoting development of all of Pakistan. Given the wide set of variables to be considered, and the Evaluation Team's concentration on only one of many projects, the recommendations contained in this report take a different tack. To assist the Mission and the GOP make their determination, this report

assumes that Focused Development is the selected option and examines in some depth the requirements--the demands and potential rewards--of that selection.

Taking the option that is furthest on the continuum toward an integrated area development project will provide perspective on the final position of the project as its design become clearer.⁴⁵ Section III undertakes this analysis, not as the recommendation, but as a recommendations that could bring major benefits to tribal area development.

A Perspective on TADP II

TADP II remains only a concept. This Section assumes that the Focused Development option is under active consideration, and proposes a perspective on TADP II, followed by a description of the changes needed in TADP I, to prepare for this follow-on project.

TADP II, as conceived in preceding pages, would have an institutional home provided by the Planning and Development Department, within the Special Development Unit.⁴⁶ TADP I could significantly strengthen this unit, and prepare

⁴⁵ This is the position we believe the Mission expressed in its review of the Field Draft--"give us sufficient detail on the 'hard' option so that we might determine if it can or should be tried".

⁴⁶ In this and other "recommendations", the caveats are obvious--in the case of the SDU, TADP should be incorporated into the SDU only after agreement with UNFDAC, the present donor, and with the Planning and Development Department, to ensure staffing and support. All recommendations are subject to negotiation and satisfactory agreements between USAID and the GOP. In the remainder of Section

for the next project, as proposed below. Field operations would be conducted within a number of tribal agencies, based upon the establishment of a development plan. A Project Management Unit would be created initially co-located with the SDU, and then over time work from the office of the Political Agent in each agency.

TADP II would have self-contained capacity to support infrastructure (roads, irrigation systems, schools, health clinics, and potable water systems) and agricultural development (extension, training, on farm water management, agricultural engineering, and agribusiness). When arrangements have been made in the PP's and Project Agreements for planned projects, TADP II could buy into ongoing or planned USAID projects in forestry (the Farm Forestry Project), health care (the Primary Health Care Project), and education (the Primary Education Development Project). A further expansion of project activities could occur in enterprise development programs of the Agricultural Development Bank of Pakistan, and electrification (WAPDA), neither requiring technical expertise from TADP. This "buy-in" procedure to technical assistance, established processes and commodity support would greatly simplify the technical and management demands on TADP project staff.

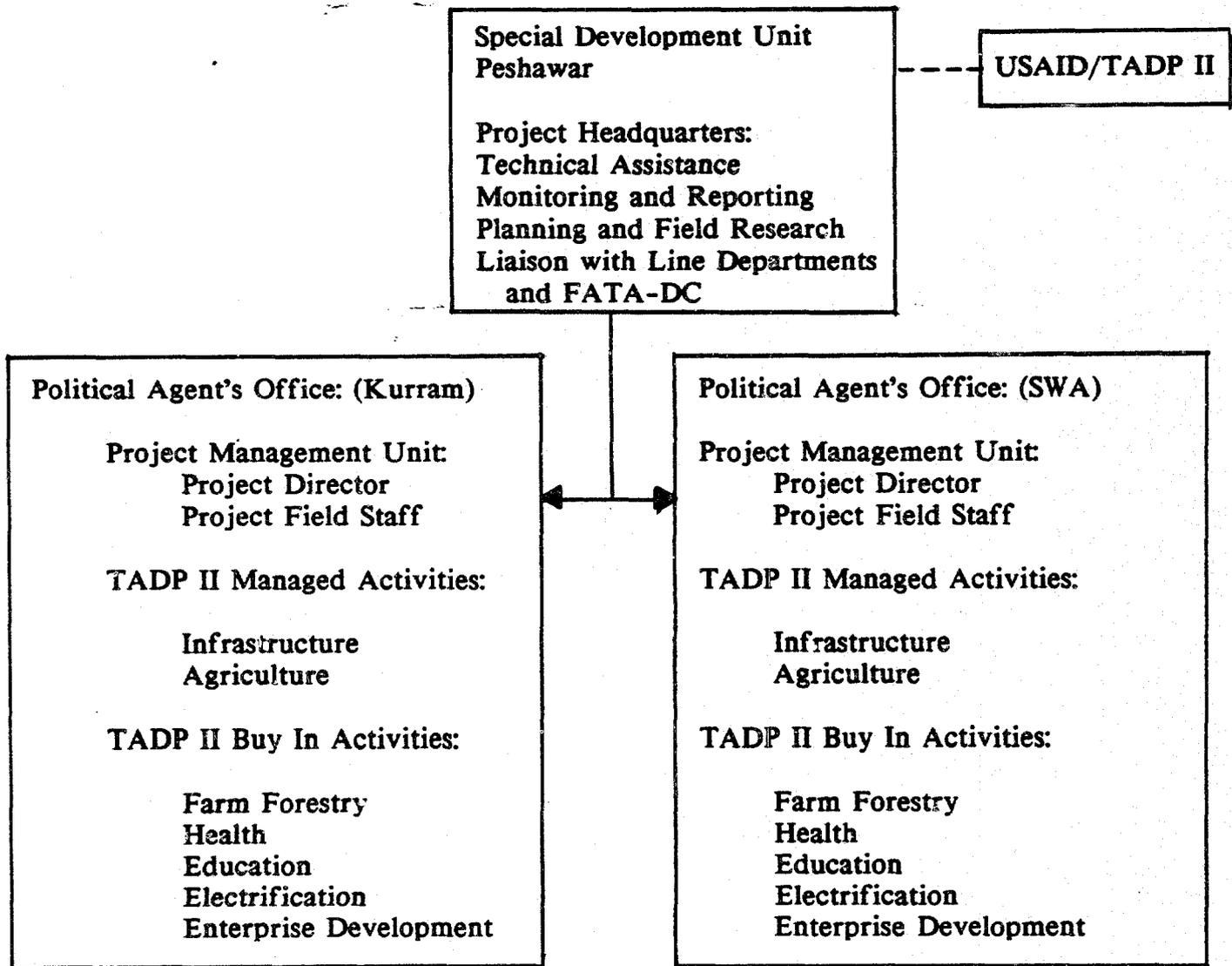
Project funding for focused development depends upon resource assignment.⁴⁷ The PID for TADP II should be able to define area coverage for an approximate sum, for example, \$2,000,000 per year for coverage of a tribal agency above and beyond existing ADP funds. The total project costs would then be calculated on the basis of the number of agencies to be covered, the length of the project, and the technical assistance and SDU costs of project establishment.

Figure 2 suggests a possible organization of TADP II, and the activity set proposed. Since the active participation and agreement of Planning and Development, the Commissioners Office, and the Political Agent would be necessary, it is not possible to select the tribal agencies in advance. However, based upon TADP I experience, Kurram and South Waziristan should be considered early in the selection process.

III we have dispensed with the explicit reminder of the required for agreed solutions, but they implicit in what has gone before, and will be provided in detail in the Chapter Annexes.

⁴⁷ The concept suggests that plans are developed with priorities, and funding is applied to the limits of availability. This is in consonance with the system presently in use by the GOP, except that there is no overall development plan generated for FATA or any tribal agency. Each scheme is approved and then funded as the budget allows. If the new concept were exclusively Focused Development, funds would not, for example, be proposed for a \$21,000,000 single road project, but distributed more broadly across multiple sectors. If the final project has some components of all three options, then a major road may serve as the keystone of focused development in the region opened, or made more accessible, by the road.

**FIGURE 2
POSSIBLE TADP II ORGANIZATION AND ACTIVITIES**



TADP I As the Bridge to the Follow-On Project

TADP in its last four years can make a major difference in the capacity of implementing GOP agencies to carry out TADP II. Strengthening done in the immediate future delivers benefits as TADP II begins, rather than at the mid-point of the new project's PACD. The following recommendations will allow TADP to bridge into a focused development concept for TADP II.

Planning and Development Department

When arrangements have been made with P&D to ensure adequate support, and staffing on an acceptable schedule, TADP should provide (with UNFDAC) a vastly expanded capacity within the Special Development Unit, moving much of the existing USAID-funded TADP supporting staff to this unit after completing negotiations with

P&D over GOP staffing and support. Add to the SDU a capacity to begin planning at the level of the tribal agency, using TADP staff to train GOP staff to be able to carry on this function in the future. Move the director of TADP into the SDU when it is functioning and staffed, creating a Project Management Unit that is co-located within the SDU over time.

At present, circumstances are conducive to making this transfer and institutional strengthening happen, leading to a development planning capacity for P&D in tribal areas.⁴⁸ The Secretary, P&D is interested in both a strengthened SDU and the movement of TADP into that revitalized organization. UNFDAC, both in its Peshawar advisory staff to the SDU, and in its headquarters in Islamabad, would welcome USAID involvement to increase the level of attention and support provided this unit by the GOP. The Chief of the FATA Section of P&D is an advocate of tribal agency planning, and sees the need to rationally distribute development resources within FATA. Together these key individuals can encourage a process that would be key to the success of TADP II

The details of this proposed program are contained in the Chapter Annex entitled, "Integrating TADP into the Special Development Unit" (page 161).

Institutional Strengthening of FATA-DC

FATA-DC has proven to be a responsible and capable executing agency for TADP sub-projects. Completed and ongoing surface irrigation systems demonstrate FATA-DC's willingness to adapt to TADP requirements and construct according to FAR standards. The receptivity of the organization to ground water research in the last three years is impressive. FATA-DC is a competent organization that can be strengthened by selected TADP support.

After many years of re-building local irrigation intakes and drilling tubewells in hopeful locations, FATA-DC is now ready to conduct the basic research that will develop both ground and surface water resources. Groundwater development has been aided by TADP, and the future calls for adding to groundwater research equipment required in the six FATA-DC Field Offices. Surface water development depends upon a far better understanding of rainfall and flow hydrology among the five major basins of FATA. This is the program that FATA-DC has requested TADP support, in order to make full use of the water resources available.

Details of the proposed technical assistance, commodity support and assistance to build a surface irrigation research and design capacity within FATA-DC, as well as to complete computerization of the FATA-DC headquarters and field offices, and to improve the capacity to conduct ground water research, is presented in the accompanying Chapter Annex, "Institutional Strengthening of FATA-DC" (page 171).

⁴⁸ The Chapter Annex, "Integrating TADP into the SDU" presents criteria used to select first, P&D, and then the SDU as the most appropriate institutional home for TADP. USAID and the GOP could agree, of course, on some other institutional arrangement that could work if it provided P&D authority over multi-departmental, provincial and federal, development activities in FATA.

Institutional Strengthening of C&W

If the Thall-Parachinar road is approved and completed, along with the five remaining roads underway, TADP will pass more than \$32 million dollars through the Communications and Work Department in reimbursement for road construction in FATA. To date, building a stronger capacity within C&W has not been a priority of the project. There are significant opportunities for organizational capacity-building, at both the field circles, for road surveys and field inspection of ongoing construction, and in the Central Design Officer.⁴⁹

In the past, TADP was not concentrating on institutional strengthening, and requests from line agencies needed to be directed at specifics of road construction to be approved. In the October 1988 restructuring of USAID Project Management, C&W has now requested USAID assistance in building a better organization with discrete funding proposals. This evaluation has attempted to find a more general plan for the strengthening of C&W. The details are contained in the attached Chapter Annex, "Institutional Strengthening of C&W" (page 181), which proposes a program of technical assistance, commodity assistance and related support for a beginning to improving the organization that oversees road construction in FATA.

Supporting FATA Agriculture

Since the failure of the Bara irrigation project, there has been no involvement of the Directorate of Agriculture-FATA with TADP. Now that the infrastructure construction is well underway, it is an appropriate time to add agriculture to TADP. The proposed additions comprise two types of activities; those agricultural activities which complement existing TADP activities, such as extension and on-farm water management on the irrigation schemes; and some pilot activities that will test the water and prepare the way for an expanded agriculture program in TADP II.

As the development of the valleys goes ahead under the FATA-DC valley development program, there should be an increased interaction and cooperation between the two organizations and joint PC-Is could be prepared to implement both the watershed development programs and the small dams schemes that are already in the ADP pipeline. Training of FATA field assistants for the expanded agriculture program in TADP II can also be undertaken by TADP I, and surveys of the agribusiness potential of possible future project activities in TADP II, such as horticulture, (fruit trees, and potatoes); and apple storage and marketing (in Wana SW) can be funded under TADP I.

Details of the proposed programs for TADP I are found in the Chapter Annex which follows entitled, "Incorporating Agriculture to TADP" (page 189).

⁴⁹ An earlier Chapter reported on the complexities of supporting engineering design offices in Pakistan, with the recommendation that a serious study be conducted by TADP in conjunction with the C&W Department, to determine if the organizational, incentive and staffing issues that prevent improved design work by C&W can be addressed prior to agreeing to a major effort to upgrade the Central Design Office.

Supporting FATA Forestry

Forestry is an area which has been considered previously for inclusion in TADP, and now is the appropriate time to incorporate activities in this sector.⁵⁰ The TADP forestry activities should begin by incorporating the experience and the activities of the ongoing USAID-funded Farm Forestry project. Training should be given by the existing USAID forestry project to FATA-DC foresters in the techniques of social forestry, and a program be designed that adds to the existing Farm Forestry Project for FATA. Research results that are appropriate, particularly those from the barani areas on forage sources can be transferred and tested in the FATA areas.

The Chapter Annex which follows entitled, "Incorporating Forestry and Rangelands Management into TADP", details TADP I funded pilot activities in farm forestry and pasture regeneration that will complement inputs from the Farm Forestry project.

The Costs of Redirecting TADP to become a Bridge to TADP II

The Overview Chapter of Section II (page 111) laid out more than \$5.5 million dollars of TADP funds not yet earmarked, or incorporated within an Reimbursement Agreement presently under processing. If TADP II will require a bridge to move rapidly and effectively into focused tribal area development, then TADP should be redirected, without halting the momentum of sub-projects under construction, or new sub-projects that can be funded within the available project limits. Table 13 presents the "top of the line" proposals for additional TADP funding, to be drawn from the \$5.5 million not presently committed.

TABLE 13
TADP FUNDING REQUIREMENT FOR RE-DIRECTED ACTIVITIES

Component	Funding (\$ 000)
Special Development Unit and and Project Management Unit	1,000
Institutional Strengthening FATA-DC	1,200
Institutional Strengthening C&W	500
Agricultural Activities	400
Forestry Activities	300
Infrastructure Construction (in addition to ongoing completions and RAs in process)	2,100
TOTAL	5,500

⁵⁰ Dan Deely, AID/Washington, "TDY Report" (A Proposed Forestry Program for TADP), November 20, 1985.

Conclusion

With 27 ongoing sub-projects under construction, five more awaiting RAs, and five difficult roads needing attention to be completed, and soon to include the major Thall-Parachinar re-construction effort, prior to the PACD, infrastructure construction will remain the centerpiece of TADP. Assuming that TADP supports the major institutional strengthening programs and new activities in agriculture and forestry described above, there would remain more than \$2 million dollars for new infrastructure to be designed, reviewed, approved, RAs signed, contracted, constructed and completed during the last years of TADP.

Even without a TADP II follow-on project, there are important additions that should be made to TADP. These include FATA-DC and C&W strengthening, to fulfill project purposes of TADP. Other new activities are linked to TADP II (SDU strengthening), still others (agriculture, forestry) are options to be selected for TADP, or tested under TADP for the follow-on project, or both. The Chapter Annexes that follow provide details of these possibilities, with background, proposed programs and illustrative funding. Using this activity set, and others to be generated as the project proceeds, TADP can move from only building infrastructure, to creating sustained development in the Federally Administered Tribal Areas.

ANNEX III-A

INTEGRATING TADP INTO THE SPECIAL DEVELOPMENT UNIT

Recommendations

If the future of TADP calls for the creation of planning and field research capacity, as well as development activities beyond infrastructure, in particular, if the option of Focused Development is a serious consideration for TADP II, there is good reason to integrate TADP into an operational unit of the Planning and Development Department. This can be begun immediately, with preparation for TADP to be integrated into a reorganized and re-staffed Special Development Unit, with support for technical assistance, staff development, commodities and operating expenses for a newly-created Planning, Research, and Evaluation Division.

The following pages suggest a beginning for the strengthening of the SDU and the integration of TADP into this organization, with a direction and funding estimates. USAID and UNFDAC must agree on a total level of support to the SDU, the level of each agencies contribution to that total, and then negotiate with P&D to provide the GOP staff and services required. When these agreements have been satisfactorily completed, USAID should ask P&D to create a TADP Project Management Unit, co-located with the SDU for the remainder of the project.

Together, an operating PMU for TADP, integrated into a strengthened and supported SDU within P&D, will provide TADP with the institutional home that has been lacking during the first years of the project.

Overview

The Special Development Unit (SDU), a subordinate unit of the Planning and Development Department NWFP, was established in 1984 to design, administer, coordinate, monitor and evaluate area development projects funded under the Special Development and Enforcement Plan (SDEP), to eliminate opium poppy cultivation in NWFP. Since its founding, the SDU has added to its concern for areas presently growing poppies, those with the potential for poppy cultivation. In effect, the SDU has become P&D's oversight agency and institutional home for multiple-function, multiple-line department, area development projects. This organization, however, is not presently staffed or supported to be an effective institutional home for these projects as the following paragraphs demonstrate.

The SDU, in December 1988, is the headquarters within P&D for eight area development projects (with the donor shown in parentheses): Chitral (IFAD and ADB); Dir (UNFDAC); Buner (EEC); Gadoon (USAID); Kala Dhaka (USAID); Malakhand (NAU); Bajaur (NAU); and Mohmand (NAU). The SDU has varying responsibilities for the eight projects, from very light administrative oversight in the USAID projects, to far heavier involvement in Dir.

The SDU is presently staffed as follows:

**FIGURE III-A1
PRESENT STAFFING OF THE SDU**

Staff Position	Funded by
Director General	GOP (on a training assignment for the past four months)
Chief	GOP
Research Officer	GOP
Programme Officer	UNFDAC
Budget Analyst	UNFDAC

Additional support staff are funded by both the GOP and UNFDAC. UNFDAC has also provided two expatriate Technical Assistance advisors with backgrounds in planning and agricultural development, as well as commodity and operating support for the SDU.

Issues to be Resolved

Selecting the SDU as the Institutional Home for TADP

The Special Development Unit is but one alternative institution that might house TADP. The following criteria have been used to propose this organization for strengthening and direct involvement in the project.

Multi-Departmental, Provincial and Federal, Oversight of FATA Development
The Planning and Development Department oversee development resource allocation of all NWFP line departments working in FATA, and those of FATA-DC, a federal semi-autonomous corporation whose PC-1s are submitted through the PDWD, headed by the Additional Chief Secretary of P&D. This criteria narrows the alternatives to an organization under P&D.

Operational Support for Implementation The Special Development Unit is chartered to provide implementation support--troubleshooting, liaison with line departments, recommendations on solving project difficulties to the Secretary, P&D, and direct linkages to Project Directors of PMUs. It is also chartered to provide field support for planning, research and evaluation, monitoring and reporting. Staffing for the SDU reflects a field orientation and requirement to actively support area development projects.

Consonance with P&D Assignments of Similar Projects The SDU presently has responsibility for seven area development projects, five within (including NWFADP's Gadoon and Kala Dhaka) and two outside the SDEP. Adding TADP would be a natural extension of an existing organization's responsibilities.

Discussions with the Secretary, P&D indicated that the GOP believes the SDU was the obvious home for TADP, based upon the above criteria.

Expanding the Scope of the SDU

The SDU served as the umbrella for projects directly related to opium poppy production. In the past year, both Buner and Chitral have been placed under the SDU, although neither are technically under the SDEP. It would seem to be a simple step for P&D to re-charter the SDU to serve as the P&D unit that has responsibility for all area development projects in NWFP and the tribal areas. However, such action would need to be undertaken, with UNFDAC agreement, before TADP should be subsumed under the SDU.

Expanding the Staff of the SDU

Present staffing is not sufficient for existing SDU responsibilities. The addition of TADP would increase staff demands. One justification of the movement of TADP into the SDU is to help strengthen the organization. This is only possible if there are sufficient P&D staff ready and available for training. USAID should lead negotiations with P&D before shifting the locus of TADP, to ensure that the staffing will be assigned at the level necessary to coordinate and support the project.

Ensuring the Capacity of Each PMU

The SDU is the umbrella organization that overlays Project Management Units that, in most instances, actually direct each project. There are PMUs established in all projects under the SDU except the NAU's Malakhand efforts, which were direct assistance to the operating line departments. P&D has successfully insisted that new NAU projects, as Bajaur and Mohmand, must have PMUs established, to provide coordination and give direction to the projects.

To be able to adequately staff and define SDU responsibilities, each PMU must fulfill three functions: A) Project Management, B) Financial and Physical Attainment Monitoring, and C) Technical Capacity to support project activities. If a donor refuses or is unable to provide a PMU with this capability, P&D should negotiate with UNFDAC or some other donor to make these services available, or have them furnished from GOP resources. With self-contained PMUs directing each area development project, the SDU can provide generalized services and oversight at a predictable level of staffing and support.

Consolidated SDU Support from UNFDAC and USAID

UNFDAC has provided technical assistance, vehicles, computers and operating expenses for the SDU. This month, a new version of future UNFDAC support has gone forward from Peshawar to UNFDAC/Islamabad.¹ This agreed support package will soon be sent (or has been sent) to Geneva for headquarters approval. If USAID is to consider supporting SDU activities that pertain to TADP, an agreement with UNFDAC on a total support package, and the division of that support between USAID and UNFDAC, is necessary. These subjects are considered below. Then USAID should lead three-way discussions with P&D on future staffing and operations. This is the time to hold these negotiations, since the UNFDAC assistance package is still under consideration, and the two expatriate advisors' contracts presently end in March 1989.

Functions of the SDU

The SDU has a formal charter from the NWFP government and staffing pattern for one level of operation. That charter includes the following activities:

- To prepare development plans and conduct research and evaluation of development impact within area development projects;
- To provide implementation support and serve as the institutional home for area development projects within P&D (although the SDU was originally established to support the Special Development and Enforcement Plan that was directed at opium producing areas of NWFP);
- To conduct financial, physical target, and progress monitoring against work plans, and provide reporting to P&D and donors.

No additions to the charter are required, so far as is obvious, for TADP to be integrated into the SDU.

Requirements for each PMU Operating under the SDU

Each PMU operating under the auspices of the SDU should fulfill the following criteria:

- PMUs include management, coordination, accounting, detailed monitoring for all project activities;
- PMUs complete and send to the SDU standardized computerized financial, physical and progress reporting from each PMU to the SDU; and

¹ "Future Activities and Staffing of the Special Development Unit", draft, submitted from the SDU/Peshawar (UNFDAC Advisory Staff) to UNFDAC/Islamabad, c. November 1988.

- PMUs fund technical specialists as needed, i.e., the SDU is not required to support each area development project with specialized technical assistance.

Proposed Organization of the SDU

There is an existing organization of the SDU. This proposed organization reflects the expanded roles and the special requirements that TADP would levy on the Unit (see the attached organigram). The SDU could be organized into the following Divisions and Cells:

- **Implementation Support Division**, headed by the SDU Deputy with two Professional Staff and supporting staff. This unit deals directly with the directors of each PMU on implementation issues requiring SDU involvement and assistance.
- **Planning, Research, and Evaluation Division**, to create development plans for area development projects, and conduct field research and evaluations on the results of the resource allocations made. This Cell should have:

GOP

Director/Planner
Economist
Agriculturalist
Engineer
Field Researcher (2)
Computer Specialist (2)

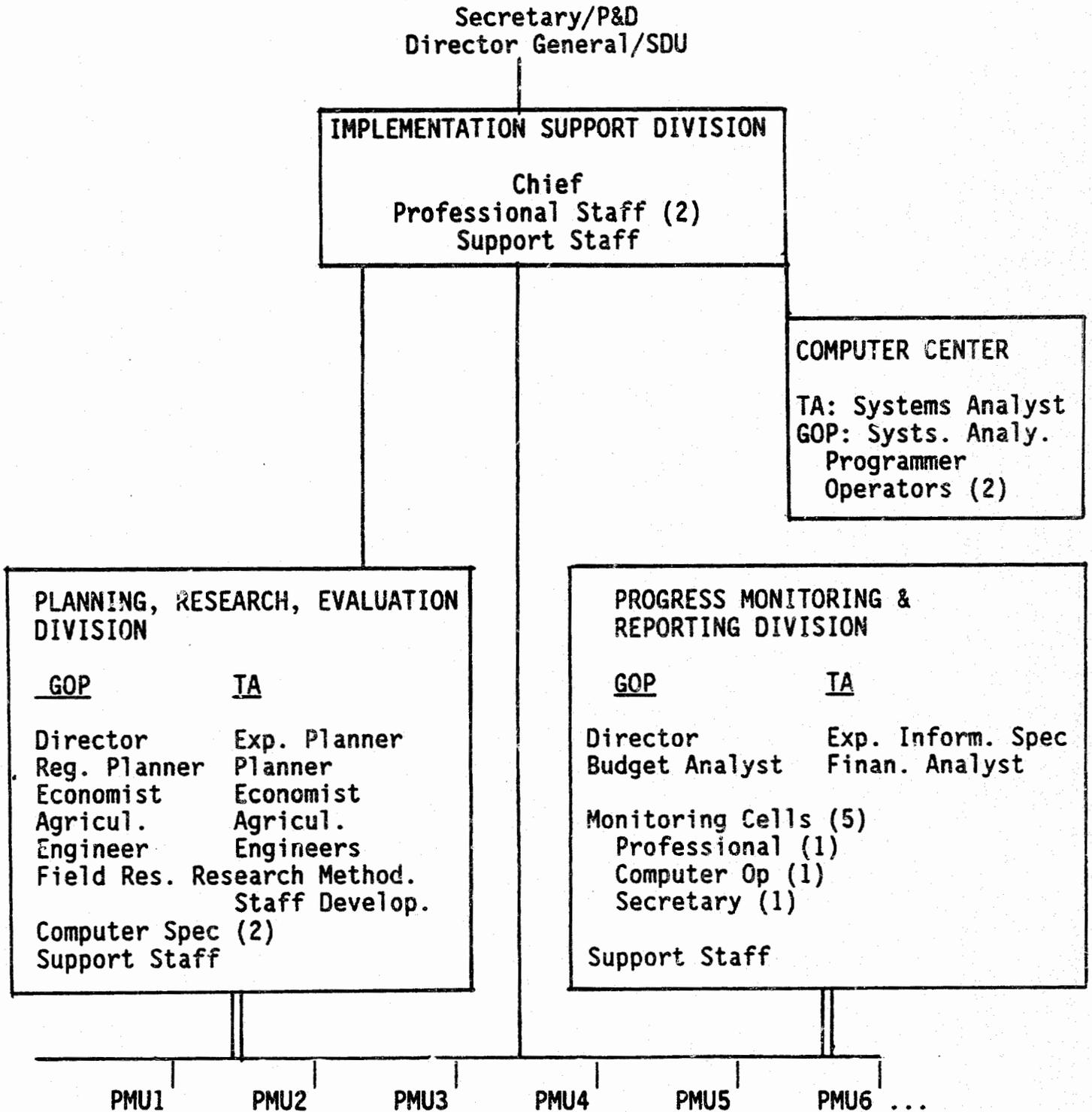
TA

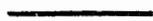
Expatriate Planner/Trainer²
Economist
Agriculturalist
Engineer
Research Methodologist
Staff Development Specialist

- **Monitoring and Reporting Division**, to process reports from the PMUs, and send to P&D and donors, and prepare reports and documentation for each Project Review Board meeting.

² Except as specifically noted and designated as "expatriate", all technical assistance is assumed to be provided by Pakistani local experts.

FIGURE III-A2
ORGANIZATION OF AN EXPANDED SDU



 Oversight and Reporting Channel
 Coordination and Liaison Channel

The Monitoring and Reporting Division should have:

GOP

Director
Specialist
Budget Analyst

Monitoring Cells (5)
[One for every two attached PMUs]
[Professional (1)
Computer specialist (1)
Secretary (1)]

TA

Expatriate Information
Financial Analyst

- Computer Center, a branch of the P&D Computer Center, with networked machines linking all sections:

GOP

Systems Analyst
Computer Programmer
Computer Operators (2)

TA

Systems Analyst

Dividing the Responsibilities between USAID and UNFDAC

If the future of TADP calls for Planning, Research and Evaluation capability to generate a strategy for the development of specific tribal agencies, then USAID should provide the resources for this division within the SDU, including the technical assistance, commodities, vehicles, and operating support. In addition, the Computer Center in the SDU should be placed under the overall administration and policy of the P&D Computer Center, and thus should be a USAID responsibility. The total package of donor support--commodities, operating expenses, rent, vehicles--should be based upon agreement between USAID and UNFDAC, and divided to provide sufficient support to the SDU.

Satisfying TADP's TA Requirements to Support the SDU

TADP presently has staff that could be assigned to the SDU with the understanding that their first priority is to perform TADP responsibilities, and that in doing so, the staff assigned by the GOP will have the opportunity to receive training. Since SDU staff could cover all the USAID area development projects (TADP, Gadoon and Kala Dhaka), TADP could assign to the SDU many of the existing TADP or USAID/P staff already on the TADP or USAID/P payroll:

Assignment

Staffing

Expatriate Planner/Trainer
 Economist
 Agriculturalist
 Engineers
 Staff Development Spec.
 Research Methodologist

To be Recruited
 TADP present resources
 USAID/P present resources
 TADP present resources
 TADP present resources
 To be Recruited

Staff would serve as technical assistance to the SDU, providing a transfer of skills to the permanently employed members of an expanded and strengthened organization.

Creating the TADP PMU

TADP should work with P&D to create a PMU that is co-located with the SDU. This would allow the PMU to begin functioning in close proximity to USAID, and obtain the advice and guidance needed to continue ongoing infrastructure programs. The PMU could be patterned after those within NWFADP. There may be sufficient available TADP resources to allow support to this unit without increasing the existing staff or vehicles, but funding will need to be assigned for PMU operating costs. Based upon the proposed Bajaur and Mohmand PMUs, a total of \$150,000 should cover three year's operating expenses. In later years, after there has been a completed development plan for a few tribal agencies, the PMU may relocate in these agencies. TADP II, for example, might program for up to four small PMU units working inside FATA.

Funding Estimates for TADP Support to the SDU and TADP PMU

<u>Category</u>	<u>Estimated Additional Expense for 3 years</u>
Technical Assistance	
Expatriate Planner/Trainer	\$450,000
Research Methodologist	36,000
Systems Analyst	36,000
Short-term TA	50,000
Commodities	
Computer Network	\$200,000*
Equipment	100,000*
Vehicles	100,000*
(14 required plus 2 utility; 2 available in SDU plus 1 utility)	
Office Rent	120,000*
Operating Expenses	250,000*
TADP PMU	150,000

* These are grossly-estimated total funding requirements, to be divided between USAID and UNFDAC. If it determined that USAID will provide the items, they can be either purchased or transferred from existing TADP inventory. Six vehicles for the Planning, Research, and Evaluation Division of the SDU, for example, could be transferred from the existing stock of 12 purchased from TADP funds presently assigned to USAID/Peshawar.

For the purposes of budgeting, TADP's involvement with the SDU is costed at a total of \$1,000,000, to include all technical assistance associated with the Planning, Research and Evaluation Division, the operations costs of the PMU, and an additional \$178,000 for commodities, rent and operating expenses from the total support to be divided with UNFDAC (as well as applied from the existing TADP inventory of commodities and vehicles).

ANNEX III-B**INSTITUTIONAL STRENGTHENING OF FATA-DC****Introduction**

TADP has previously provided limited technical assistance, commodity support and training to FATA-DC in ground water development. The results, reported in prior sections of this evaluation, have been impressive and provide powerful arguments for an expanded program of institutional strengthening. This Chapter Annex details the possibilities, explored in depth with FATA-DC staff, of an augmented program of technology transfer in surfaced water development for the organization.

In February 1988, a meeting was held between P&D NWFP and TADP project personnel. The purpose of the meeting was to discuss the implementation of TADP-II. One of the ideas that was discussed at that meeting was the supply of assistance (TA/Commodities) to FATA-DC in gathering and analyzing hydrologic and geohydrologic data.

A number of meetings have been held between the evaluation team and the Technical Executive Director of FATA-DC and his Additional Directors to discuss possible ways to strengthen FATA-DC's capacity to gather data, design, and build small dams within the Federally Administered Tribal Areas. The following section lays out a plan of action for TADP and FATA-DC that is based on a reallocation of funds from the surface water construction component of TADP, and moves the focus of the TADP/FATA-DC program away from infrastructure construction, (which is a major on-going part of the FATA-DC ADP) towards institutional strengthening.¹ The plan of action proposes ways and means to supply FATA-DC with the commodities and TA that are unavailable through the ADP.

Strengthening Surface Water Development by FATA-DC

The surface water section of FATA-DC has started to move away from a previous total commitment to the construction of river training works, (weirs and headworks constructed across rivers diverting the supply for irrigation). The strategy now is to commence to develop water storage facilities (small dams) in the upstream reaches of the major river beds within FATA. At present FATA is mainly constructing improvement schemes. The scope of this work is diminishing and FATA-DC realizes that it needs to extend its activities into other areas. Several assignments have been given to private and government consulting engineering firms to delineate sub-basins and provide technical data and schematic project layouts throughout FATA.

¹ As prior sections have demonstrated, new infrastructure construction can still proceed even under a reallocation of TADP funds.

FATA-DC commissioned a Valley Development study of the basins within FATA. Based upon this report, a number of structures have been designed with PC-1s approved. Four small dams are scheduled to start construction in early 1989. One near Wana in SWA, one at Jhar in Bajaur, and two in Kurram near Parachinar. In addition, FATA-DC has an ongoing contract with NESPAK for the field surveys and investigations needed to produce an overall plan of surface water development within the tribal areas. FATA-DC has expressed a concern about their ability to oversee the work of the consultants and has requested expatriate technical assistance to support both the hydrology program, and the planning and design of the small dams, which will be done both in-house and by consultants.

The effort to move in a direction of storage rather than diversion has been motivated by a concern about the reduction of flash flooding in the major rivers, a desire to provide year round irrigation water in areas where there is presently no perennial flow, and to provide recharge to areas where tubewells have been installed or are planned. FATA-DC has estimated that an additional 443,000 acres of land can be irrigated throughout the tribal areas by conserving water in storage facilities. The ongoing small dam development program in Baluchistan has been an encouragement to both FATA-DC and tribal leadership relevant to the potential benefits of surface water storage.

TADP has not been part of the development of the small dam strategy within FATA-DC up to date. Small dams are a major development intervention that can have serious negative implications if the planning, design and siting are not done correctly. The proper planning and investigative procedures need to be set up now to ensure the success of this new initiative. FATA-DC is committed to the construction of dams in early 1989, this may be somewhat premature as there is a dearth of data in the fields of stream flow, rainfall intensity and other climatic parameters that are a condition precedent to the successful design of river control structures. But there are important imperatives at work that call for some level of action even while hydrological research is underway. TADP can be of major assistance in improving the base for the next generation of surface water structures designed and constructed by FATA-DC.

There are many concerns that must be investigated. The most important are:

- rainfall runoff;
- siltation;
- seepage;
- evaporation; and
- availability of construction materials.

It is proposed that USAID, through the remaining years of TADP, assist FATA-DC in the investigation of these areas and in the establishment of a data gathering system. A brief description of this proposed intervention follows.

Rainfall and Snow Runoff

It has been estimated that the average annual rainfall in FATA is 430 mm (17 inches) over the entire 27,220 square miles of FATA. The water resources in the area are limited and the rainfall frequently comes in short duration, high intensity storms. Very little storage of this rainfall occurs in the ground, due to the nature of the soils and the terrain. Most rainfall and snow runoff goes down the rivers. In some areas snow melt slowly seeps into the ground and then exfiltrates near the major rivers lower down the valley.

At the present time there are only twelve rainfall gauges in all of FATA, and data has not been collected on any systematic basis. There is, for example, little or no rainfall intensity data. Without rainfall and stream flow data, dam design is problematic and the possibility of the flood overtopping the dam spillway in a large unexpected storm is always present. In an earth dam overtopping will quickly lead to damage to the spillway and the associated structures with the possibility of complete failure of the structure. The dam could also be rendered ineffective as a storage structure very quickly if the excess runoff cuts a new channel through the abutment of the dam. Alternatively the dam could be over designed and the actual runoff could be so small that the storage capacity may never be utilized.

Rainfall and runoff should be collected on an ongoing basis, over a sufficient number of years, in enough stations that the data can adequately forecast the expected size and frequency of major storm events. This will allow a proper design using statistical probability techniques. The small dams in the settled areas of NWFP use a statistical storm event recurrence of one thousand years.

The TADP intervention to assist in the collection of rainfall and runoff data would be via the funding of the measuring equipment and rainfall gauges (both automatic and manual) required for use throughout four of the FATA valleys (Bajaur, Kalaya, Tochi and Kurram). The area of these four valleys is 8,453 square kilometers and the population in 1981 was 983,186 people.²

Rainfall gauges could be placed on a grid at approximately every four miles square, throughout the valleys. The position of many of the gauges could coincide with a village, however automatic recording devices will be needed for some of the remote areas, and the higher slopes. The automated record will be for a period of seven days and will include intensity data. As is usual in arid locations and mountainous areas, there is great variability in the location and amount of rainfall. This is the reason why such a high intensity of recording rainfall is suggested.

A new FATA-DC field section (hydrology) will also be established. Stream flow devices should be purchased and supplied to this unit, along with vehicles to collect the data from the various sites. In the higher elevations of these valleys, (ranging from 9,840 ft in Bajaur to 15,600 in Kurram) considerable snowfall occurs. This precipitation supplies a long period of snow melt in the spring. Electronic distance measuring equipment is suggested to perform snow surveys and thus accurately measure this important contribution to runoff.

² Valley Development Project FATA, Development Studies Institute, Ltd. Lahore.

Siltation

Excessive siltation can rapidly reduce the reservoir capacity of any water storage facility. The lack of vegetation on the watershed over much of FATA means that erosion is a continual problem. The eroded material remains in suspension during the storm events, but it will rapidly settle out in any reservoirs that pond the water.

The small dams that have been constructed in river valleys adjacent to FATA have high rates of siltation. The Kandar dam in the nearby Kohat District was designed with an anticipated siltation rate of 0.75 acre feet (AF) per annum per square mile of the catchment area. The actual rate observed during the last fourteen years has been 2.3 AF per annum per square mile. The reservoir is silting up three times faster than originally expected. The NWFP Irrigation Department has initiated a program to build a new auxiliary dam at a cost of Rs 25,306,000 (\$1,446,047) to replace the existing Kandar dam.

Soil conservation studies should be conducted throughout the proposed catchment areas in FATA to determine the expected siltation rates. The design life of most American small dams is 200 years.³ Without the watershed management programs in place to check erosion, the life of the FATA dams could be as low as ten years. There is a proposal in the forestry section that would supply technical assistance to assist in the development of a watershed management facility in FATA.

Seepage

A potential major problem in any reservoir is seepage of storage water through very permeable areas in the reservoir floor into an underground stream or tunnel. This can rapidly deplete the storage. Slow seepage can also occur across the whole reservoir floor due to the presence of highly permeable soils or rock formations throughout the reservoir floor. It is particularly important that the dam itself is set on sound water tight rock to keep seepage below the dam to an absolute minimum. Seepage flows as high as 3.9 inches per day have been observed in water storage facilities in areas near to FATA. Slight seepage is acceptable and assists in downstream tubewell recharge.

In the FATA areas the silt blanket that will be rapidly produced due to erosion will tend to impede seepage. Technical assistance is proposed to assist in using the geophysical and geotechnical testing techniques to help map the reservoir floors. An additional set of geophysical (seismograph and resistivity) testing equipment is proposed to assist with this endeavour.

Evaporation

In arid climates, (such as FATA) annual evaporation from open water surfaces can average 2,000 mm (78 inches) per year. If the site is chosen badly, the

³ Nelson, K.D., Design and Construction of Small Dams, Instate Press, Melbourne 1985.

reservoir can be large in surface area but shallow in depth. Losses due to evaporation become a high proportion of the total storage.

Both technical assistance and the hydrological equipment proposed above are needed to study the alternative locations within FATA for small dams, and obtain the lowest evaporation rates consistent with other requirements of surface water control.

Training

Training is proposed for key officials of FATA-DC, who will visit the western United States to see water catchment basin planning and small dam design and construction in areas of the US with low rainfall and high summer temperatures. South Western Colorado or Southern California would be appropriate locations. An eight week schedule is outlined below.

Week 1: Visit to the USDA Soil Conservation Service (SCS) and the U.S. Corps of Engineers (USCE) in Washington, D.C. to review the methods that SCS and USCE uses to collect hydrology data, and to see how this data is then converted into rainfall intensity curves for various hydrological forecasts. The study group could also see the use of computers to compile and store field rainfall and stream flow data, and then how this data is subsequently used to develop inflow and outflow hydrographs for the design of reservoirs.

Week 2: A visit either to a Colorado or a California SCS and USCE office to review the catchment basins within either Colorado or California that are similar to the FATA areas. Visits could be made to several catchment basins around the state. The SCS and USCE office staff would illustrate the special techniques used to forecast flood flows in areas with steep slopes and little vegetation.

Week 3-4: A visit to a basin with the approximate size of the Kurram valley, to study the equipment and the placement of the equipment and methods used to collect hydrological data. Meteorological stations and rain gauges would be visited throughout the catchment basin. The way the hydrological data is recorded and then used to plan river control structures would be demonstrated.

Week 5-6: A visit would be arranged to a consulting engineers office and a Bureau of Reclamation office, to see the way small dams are designed. The participants could observe and participate in the design of small dams for the catchment basin they have visited.

Week 7: This week could be spent studying erosion control and watershed management practices; the study of a catchment basin and the criteria for location of dams within catchment areas, plus the geophysical and geotechnical testing used to test reservoir floors and analyze seepage.

Week 8: A return to the State SCS and USCE office and the central Washington, DC offices to discuss lessons learned and points arising.

A similar program could be arranged for less cost at the Asian Institute of Technology in Bangkok for lower level executive engineers (XEN). There the

program would have the same focus; the design of small dams and the collection of hydrological data.

Following the study tour, long term technical assistance should be made available to FATA-DC for 24 months. The TA would be a hydrological engineer with experience working overseas, with ideally, knowledge of the basins visited on the study tour. The background for the TA should include the establishment of programs to collect and analyze hydrological data, combined with practical experience of the design of small dams.

Prior to his arrival the data gathering equipment should have been procured.⁴ He would participate in the establishment of FATA-DCs program to design and collect information for small dams, and would also assist in the geotechnical studies of reservoir sites.

Improving the Computer Capacity of FATA-DC

The following software is presently available at FATA-DC.

TABLE III-B1
HYDROLOGY/HYDRAULICS SOFTWARE
AT FATA-DC COMPUTER CENTER

HEC 1	Flood Hydrograph Package
HEC 2	Water Surface Profiles
HECWRC	Flood Flow Frequency
TR 20	SCS Project Formulation Hydrology
TR 55	Hydrology for Small Water Sheds

The FATA-DC computer center has also AUTOCAD 3d software and a Houston Instruments DMP 42 plotter.

The software for hydrological studies have been available at FATA-DC for some time (HEC 1 and HEC 2), plus the computers are available and being used for other applications. However there is presently no engineer available to demonstrate the use of this software and to train FATA-DC in computer engineering techniques. FATA-DC is aware of the potential of computers in this field and has requested TA.

⁴ This might be done most efficiently by allowing the Technical Assistance Contractor to procure the equipment. This system has worked previously for USAID projects, with turn around times of six months from beginning to arrival in Pakistan.

An engineer with computer experience and background in hydrology and small dams is proposed for 12 months to work on developing the computer center capability and to use the existing hydrology and hydraulics software (Table III-B3) to design small dams and evaluate potential dam sites.

Improving the Surveying Capacity of FATA-DC

Another area in which TADP could assist with commodity assistance is in the mapping and surveying of the valley areas. FATA-DC has the Colombo Plan aerial photographs, but they lack the stereoscope and the photogrammetric survey equipment to turn the photos into maps. Another possibility is the provision of planimetric survey equipment, computer theodolites and distomats, that can be used to survey the watersheds and lay out terraces. Using the Autocad software and the plotter, the computer survey equipment could produce vertical and horizontal alignments, map the basins and produce cross sections of nullahs for the design of control structures.

Summary

In summary, it is proposed that one long-term expatriate and 12 months of short-term expatriate assistance be provided for FATA-DC, that training is given overseas in small dams and hydrology and that equipment for data gathering in hydrology, survey capacity, enhanced computer capacity, and groundwater research be purchased. An illustrative budget follows, with a list of the equipment proposed combined with an estimate of its cost.

It is recommended that the procurement be done as soon as possible, preferably by a private consulting firm, to ensure the equipment is on site and available for the TA to work with when they arrive. Their utility is greatly reduced if the equipment is not available. It is also recommended that consideration should be given to phasing the implementation of the studies and the dams to ensure that the training and management of the program is worked out on a sample area prior to full scale implementation. This program should also be linked to the forestry watershed management component of TADP.

TABLE III-B2
STRENGTHENING FATA-DC
COST ESTIMATES FOR TADP

<u>Item</u>	<u>Details</u>	<u>Estimated Cost \$</u>
Technical Assistance	12 person-months short-term 24 person-months long-term	450,000
Commodities (See attached Table III-B4)		572,000
Hydrology		226,000
Geophysics		73,000
Survey Equipment		137,000
Computers		24,000
Vehicles		<u>60,000</u>
Subtotal		520,000
10% Contingency		<u>52,000</u>
		572,000
Training and Visitation		100,000
10 people X 1 month, Bangkok @ 4,000 = 40,000		
5 people X 2 month, U.S. @ 6,000 = 60,000		
Operating Costs		
POL 10 Vehicles @ 2,000 X 3 years = 60,000		66,000
Computer Services/Support 8 X 780 = 6,000		
To be Programmed		12,000
TOTAL		1,200,000

TABLE III-B4

FATA-DC
 COST FOR INSTALLATION OF METEROLOGICAL, TOPOGRAPHICAL,
 GEOTECHNICAL, GEOPHYSICAL, AND HYDROLOGICAL DATA GATHERING
 EQUIPMENT -- FOUR VALLEYS

No.	Description	Quantity	8,453 Km ²		Used for
			Unit Price (\$)	Total Price (\$)	
1	Automatic rain recorders (1)	150	500	75,000	Hydrologist
2	Standard rain gages (manual)	150	100	15,000	"
3	Stream gages (post-type)	300	70	6,000	"
4	River auto-recording gaging stations (2)	20	4,000	80,000	"
5(a)	Psychrometer (wet & dry bulb Humidity recorders)	50			
5(b)	Evaporation pans	50			
6	Maximum & minimum temperature gages	50	1,000	50,000	
7	Anemometers	50			
8	Sunshine (Radiation) recorders	50			226,000

9	RSP-PID resistory system	1	12,000	12,000	Geophysicist
10	24 channel seismograph-ES-2415F	1	37,000	32,000	"
11	Dust-frgl (4x4) Toyota Land Cruiser	2	13,000	26,000	"
12	Geophones (12 take outs)	2	1,500	3,000	73,000

13	Portable computers - Zenith (3)	8	3,000	24,000	Div. Xens

14	Laser beam levels (Nikon-Model NND-26) (3)	8	2,000	16,000	"
15	Electronic distance measuring devices (3)	8	12,000	96,000	"
16	Misc. Hydrology Equipment	LS		6,000	Hydrology
17	Misc. Geophysical Equipment	LS		8,000	Geophysicist
18	Misc. Survey/Computer Equipment	LS		6,000	Xen
19	Schmidt Hammers for concrete tests (3)	10	500	5,000	137,000

20	Suzuki Jeeps (Hydrology) (3)	8	7,500	60,000	
	Subtotal			520,000	
	10% Contingencies			52,000	
	TOTAL			\$572,000	

- 1 Similar or equal to metco Inst. Co. -- Sacramento, California
 2 Similar or equal to Leupold Stephens Co. -- Type F - Model 68 -- Beaverton, Oregon
 3 This equipment will be disbursed into the field offices.
 It is for seven divisions: Bajur, Khyber, Orakzai, Kurram, Bannu,
 North and South Waziristan, and Planning and Design.

ANNEX III-C

INSTITUTIONAL STRENGTHENING OF C&W

Introduction

TADP has provided little or no support to the strengthening of the Communications and Works Department in NWFP. As TADP moves into its final years, both the need for such assistance, and the interest in receiving assistance is clearly demonstrated. The following discussion reflects possibilities for development of C&W that have been mentioned in previous pages: technical assistance for the Central Design Office in Peshawar for road and bridge construction, equipment and training for field surveys of road alignment, a mobile laboratory to assist in monitoring and inspecting ongoing construction, computer-assisted engineering design and related office equipment, training for field inspection staff of C&W and visitations to both the U.S. and Thailand to review design and inspection offices in action.

The C&W Organization, Responsibilities and Requests for Assistance

The NWFP C&W Department is responsible for the construction and maintenance of all the roads within FATA. It is the counterpart department for all the TADP-supported road construction in the tribal areas.

Computer-aided Road Design

At the present time C&W is not designing roads for FATA. The design work is contracted out to local consulting engineering firms. There have been a number of instances over the last eight months, where C&W has requested assistance to strengthen their capability to design and supervise the construction of roads.

In May 1988, the Secretary of C&W wrote to RAO/P/ENG requesting an in country training program be initiated in road design, general inspection of roads and buildings, the use of computers to design roads, in contract management, and materials testing. This request suggested a program which included video presentations on inspections and laboratory testing; survey training provided by a local consultant for the field level staff (SDO's); and computer training for XEN's, Superintending Engineers and Chief Engineers, to increase the utility of the computer center provided by TADP. Specifically mentioned was computer aided design and drafting, (CADD) for the Central Design Office, (CDO). Another request was for contract management training to enable C&W to contract larger projects and procure internationally. The proposed Thall-Parachinar road could provide a number of opportunities for on the job training in this area.

Following this letter a supporting program was discussed by the TADP Project Officer, and in a subsequent memo he reported that the Secretary C&W had expressed his concern over the standard of basic skills in his department and that the Secretary was prepared to provide some guarantees to USAID about the participation of the trained staff in TADP projects.

C&W's request included foreign training; short courses on design for XEN's and SDO's at AIT, Bangkok and the US. The project officer estimated a modest training program of the type requested could be set up for \$30-40,000 (Rs 558,000-744,000).

On November 21, 1988, the Secretary contacted the RAO/P and specifically requested assistance with the development of the design capacity of his Central Design Office (CDO), particularly in the area of computers and computer aided design and drafting, (CADD) for roads and the major bridges, using FATA as a pilot area for the whole province. The need for the collection of accurate survey data for CADD was recognized.

The Secretary proposed that for one year, April 1989-1990 all the ADP road projects in FATA be designed using survey data provided by outside consultants, and that this data be used to develop the in-house software and design facilities and to train the C&W staff in the use of CADD. The secretary was particularly interested in developing computer derived plan sheets and PC-Is. The C&W department would use provisions from its ADP to train its staff to construct roads and structures using the computer generated designs. Cooperation was requested from USAID in providing the computer expertise, the hardware and software and the operational training.

Bolstering Computer Capacity at C&W

The design of roads starts with an exercise in transportation planning. The existing computer center at C&W could be used to store the data needed to make decisions about the locations of future roads. The Secretary proposed assigning a senior SDO to the computer center to help develop the inventory of the existing roads. Data stored would include, width, type and condition of the roadways, and the type, number and condition of all the drainage structures. Information could be stored on the grades, curvatures and alignment and this information could be used to develop good maps of the existing road network. The data base would allow the development of a maintenance schedule, and help to refute the observation that "in Pakistan maintenance is a small town in Russia". This data base will need continual updating as obsolescence, deterioration and new construction affect the layout. The broad outlines of the system have already been mapped out by C&W, by consultation between the Deputy Secretary and the C&W computer center staff. Development of the data base and the mapping would require the provision of some local technical assistance.

Traffic studies are conducted by C&W throughout the NWFP in order to collect data on road usage. C&W does this with observers and does not have automatic continuous counting equipment, and presently the data is assembled manually and presented annually. This type of activity is a prime candidate for computerization, as it has been requested by the Department and represents the type of activity that develops an awareness within an organization of the capacity of computers to do the kinds of things they are already doing, but much faster and more efficiently. The computerization of this data will allow its manipulation and presentation in ways impossible under the present manual system.

Way stations could be established throughout the FATA areas to monitor traffic. These stations should be located in areas which have a heavy flow of goods traffic, and at the junction of farm to market roads with the highway network. Weighing stations at the major locations would allow the recording of axle weights and lengths. The data on the volumes and the types of traffic using a road can be used to determine the radius of curvature necessary, widths, road bed load capacities and bridge capacities sizes. A flow map should be assembled, with the traffic densities expressed as a proportional width. This analysis would help in the selection of roads for improvement, and help to avoid the twin evils of over or under design.

Traffic studies will also assist in the design of intersections to reduce accidents, and the identification of the improvements required to reduce accident black spots. Accident information should be collected by the CDO from the police. Systematic collection and plotting of this information will allow the program of necessary design improvements to be planned.

The CDO can be introduced to methods for forecasting traffic flow increases. Other TADP interventions combined with the GOP program will alter the economic growth in certain areas and predictions will have to be made of the potential increase in traffic that will occur and these increases must be planned for.

Geometric Road Design

C&W lags behind the consulting engineers it uses in the areas such as computer aided drafting and design techniques, (CADD). This makes it difficult for them to evaluate the appropriateness of the designs produced and to examine alternatives to determine whether the designs proposed for a new road or a road improvement meet least cost criteria. Design fees to consulting engineers are also a major recurrent cost for C&W. Until the C&W Department acquires these skills, together with the hardware and software, and the ancillary surveying equipment required for geometric road design they will continue to fall behind their consultants.

There are two possibilities, a combination could be made of a number of software packages such as Lotus 123, Contour for mapping and Autocad for drafting or a comprehensive road design package could be purchased.

Two IBM/ATs with color monitors plus a graphics plotter and autocad software, Lotus 123 and Contour should be purchased initially. When the computer and design skills in the CDO have been upgraded and survey data is available in sufficient quantity and of sufficient detail to justify it, then a road design package such as MIT-Roads or BIPS should be procured for the Central Design Office. Also required to upgrade the survey skills and provide design input data are three automatic distance measuring machines, (Distomats) with associated computer packs, to record horizontal distances and horizontal and vertical angles in the field. Using this equipment, cross sections along a proposed alignment could then be printed out back in the CDO.

Geometric design of roads is based on design criteria, which are themselves based on traffic flows and assumptions about speeds and traffic volumes. Drainage characteristics of the terrain are needed to design culverts, drainage ditches, and gutters.

Bridge Design

In FATA bridges are a critical problem. The terrain is dissected by numerous tributary schemes, that must be crossed. Although most of the spans are relatively small, the design of the waterway opening and the abutments is a continuing problem because there is a lack of data on stream flows and rainfall which could be used to design the bridge. In a storm event there is an acceleration of the water through the waterway openings to a point that scour of and around the piers and abutments can cause damage. Damage of this sort was seen throughout FATA. The program proposed for a hydrological data base in FATA-DC will produce data that will allow the design of bridges that will not be subject to scour damage (without over design).

It is proposed that a bridge engineer work with C&W for 12 months to assist C&W to inspect its bridges in FATA, and to transfer information on computer aided design of bridges.

Training

It is proposed that to assist the C&W Department in setting up the CADD in the CDO, a training trip be organized for a one month visit to a U.S. State Highway Central Design Office. The visit would include work with the contracts office of the Department to learn how the department deals with contracts and contractors. Also in the trip would be a visit to a transportation planning firm, to see how they gather data and develop road transport plans, and a visit to an engineering design firm to work with CADD and to observe how road systems are developed and designed in the U.S.

After the training trip to the U.S., the engineers in the CDO should be joined by a highway engineer for 24 months. This TA should be experienced in CAAD applications and could help C&W modernize its CDO.

Summary

The following tables provide details of the proposed assistance to C&W in technical assistance, commodities, training and visitations and operating costs. The total package is estimated to consume \$500,000 over the remaining life of TADP.

TABLE III-B3

FATA-DC
TRAINING AND TECHNICAL ASSISTANCE

No.	Ex	TN	Description	No. of People	No. of Months Each Person	Type People
1	FATA DC	X	Study visit small dams in Arid Valleys in USA	4	2	Add. Dir.
2	USAID	X	Study visit small dams in Arid Valleys in USA	1	2	
3	FATA DC	X	Study visit small dams in Bangkok and a teaching course at AIT	8	1	
4	USAID	X	Study visit small dams in Bangkok and a teaching course at AIT	2	1	

X			In-house hydrology/civil engineer small dam design expert	1	24	
X			Short-term Computer Engineering Expert	1	2	
X		X	Short-term Technical Expert	1	10	

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After the training trip to the U.S., the engineers in the CDO should be joined by a highway engineer for 24 months. This TA should be experienced in CAAD applications and could help C&W modernize its CDO.

Summary

The following tables provide details of the proposed assistance to C&W in technical assistance, commodities, training and visitations and operating costs. The total package is estimated to consume \$500,000 over the remaining life of TADP.

TABLE III-C1
STRENGTHENING C&W
COST ESTIMATES FOR TADP

<u>Item</u>	<u>Details</u>	<u>Estimated Cost \$</u>
Technical Assistance	12 person-months bridge engineer 24 person-months highway engineer	108,000
Commodities		146,400
	Mobile CAB (See attached Table III-C4)	30,400
	Computers, Plotters, Software	31,000
	Vehicles	39,000
	Survey Equipment	36,000
	Office Equipment	10,000
Training and Visitation		148,000
	4 persons X 1 month, U.S., \$6,000 = 24,000	
	6 persons X 1 month Bangkok, 4,000 = 24,000	
	field training for road construction inspection 100,000	
Operating Costs		22,500
	POL 3 Vehicles X 3 years X \$2,000 = 18,000	
	2 Computers X 3 years X 750 = 4,500	
To be Programmed		<u>75,100</u>
TOTAL		500,000

TABLE III-C2
C&W TRAINING AND TECHNICAL ASSISTANCE

Expat	TN	Description	No. of Persons	No. of Months	Organization	Position
	X	Visit USA and observe State Highway Department and consulting engineering firm computer design	4	1	C&W	Chief CDO + 3
	X	Visit USA and DBS State Highway Department and consulting engineering firm computer design	1	1	USAID	
X		U.S. Highway Engineer provide computer design training in NWFP	1	24	Consultant	US/PE
X		U.S. Bridge Engineer provide computer design training in NWFP	1	12	Consultant	US/PE
	X	Visit AIT in Bangkok -- get computer training	6	1	C&W	XENS
	X	Visit AIT in Bangkok -- get computer training	2	1	USAID	Engr
		Bridge Engineer (computer design)	1	12	Consultant	US/PE
		Highway Engineer (computer design)	1	24	Consultant	US/PE

D = Central Design Office
 = Professional Engineer
 NS = Executive Engineers

TABLE III-C3
C&W COMMODITIES

Description	Quantity	Unit Price (\$)	Total Price (\$)
IBM/386 Computer (color monitor with keyboard)	2	8,500	17,000
Graphic Drawing Plotter	1	7,000	7,000
Electric Dist. Measuring Devices	3	12,000	36,000
Road Geometry Software (MIT Roads)	2	1,500	3,000
Bridge Design Software	2	1,000	2,000
Misc. Computer Elements	LS	2,000	2,000
Drawing Boards with Draft Machines	4	1,500	6,000
Desks and Chairs	4	500	2,000
Misc. Paper Etc.	LS	1,000	1,000
Portable Soils Lab.	1	30,400	30,400
Survey Vehicles	3	13,000	39,000

TABLE III-C4
C&W MULTI-DIVISION MOBILE SOILS LAB, WATER LAB, CONCRETE LAB

No.	Description	Quantity	Unit Price (\$)	Total Price (\$)
1	Drying Oven	1	600	600
2	Liquid Limit and Plastic Limit Test Seis	1	500	500
3	Balance (2.6 Kg. capacity)	1	300	300
4	Balance (20 Kg. capacity)	1	1,200	1,200
5	Fine Agregate Testing Seives	1	700	700
6	Extra 200 Seives	2	50	50
7	Coarse Aggregate Testing Seives	1	600	600
8	Asbestos Gloves	1	50	50
9	Sp Gravity Bottle & Pycnometer	1	50	50
10	Hydrometer Analysis Set	1	100	100
11	Auto Ph-Meter	1	350	350
12	Turbidmetre	1	400	400
13	Slump Test Cone	1	50	50
14	Concrete Test Hammer	1	400	400
15	Automatic Sieve Shaker	1	450	450
16	G.I. Cube Mold	20	30	600
17	Portable Generator	1	2,000	2,000
18	1 3/4 ton Truck	1	22,000	22,000
19	Schmidt Hammer	2	500	<u>1,000</u>
	TOTAL			30,400

ANNEX III-D

INCORPORATING AGRICULTURE INTO TADP

Scope of TADP Activity to Date

Following the closure of the Bara watercourse improvement program, no agriculture activities have been undertaken by TADP.

Potential Directions

- Irrigated agriculture extension, including on-farm water management linked to the irrigation infrastructure program.
- Horticulture production development using water conservation techniques, improved varieties and cultural techniques.
- Marketing, handling and storage programs linked to the Wana plain roads and the karez rehabilitation activities in SWA.
- Support to both the GOP agriculture extension programs and the private sector agricultural entrepreneurs, particularly in newly opened areas or target areas under TADP II.
- Training support for FATA-Agriculture staff who have no access to in-service training to upgrade their technical knowledge.

The Possibilities for Agricultural Development

There is a wide range of soil and climatic conditions in the tribal areas, combined with a spectrum of interest and aptitude in agriculture from tribe to tribe. In some areas agriculture competes badly with other more lucrative occupations, in others there are good opportunities for fine tuning an already existing production system, (such as the tree crop production in SWA), or to provide the initial technical insights when a new area is brought under irrigation, particularly the plains proposed for tubewell development. The proposed programs to develop the surface and groundwater resources in the Tribal agencies are moving away from the rehabilitation of existing systems to the development of whole new areas for irrigated agriculture.

Prior experience in Pakistan in the development of canal colonies has shown that irrigation development is both hastened and improved by the provision of thoughtful and appropriate extension services as the irrigation infrastructure is developed.

There are about 140,000 hectares of cultivated land in the Tribal Areas, of which about 78,000 hectares have some form of irrigation. Kurram and Bajaur have between them about 50 percent of the cultivated land in FATA. Tubewells are found throughout the plains of the tribal areas. The area irrigated falls rapidly as you move south, reaching a low of 4 hectares per tubewell in South Waziristan Agency.¹

The government resources allocated for development of agriculture in the tribal areas have been limited. The 1987-88 allocation was about 1 percent of the ADP. Of this meager program, more than half was allocated to the headquarter's expenses of the divisions and to one agency Bajaur. There is a shortage of staff at the agency level. In the whole of South Waziristan there is one agricultural officer. There are two Deputy Directors of Agriculture (D.D.A.s), one based at D.I.Khan the other at Peshawar. Twenty five Agricultural Officers are sanctioned to cover the seven agencies and four frontier regions. Typically, at any one time up to a quarter of these posts will be vacant.

The major activities of the Department at present are plant protection, demonstration plots and nurseries. There are nineteen FATA-AG fruit nurseries in the tribal areas producing subsidized fruit trees for sale.

Project Alternatives

Work with FATA-AG and FATA-DC to set up a support program for the development of irrigation being done by FATA-DC, Initially activities could be limited to TADP funded schemes, but later applied to all FATA-DC irrigation. This program would be particularly important if FATA-DC moved into the development of small dams. The experience with the Small Dams Organization in the Punjab has shown that the provision of irrigation services by an organization staffed and directed solely by engineers (without agricultural extension involvement) may lead to an under utilization of the irrigation water provided.

Consider ways to link FATA-AG with FATA-DC activities, both formally and informally. One possibility is the incorporation of agriculture into the proposed FATA-DC valley development plan, using the size of the land area available and its estimated potential to assist in the selection of priority schemes.

Develop the private sector in those areas that have an existing base of agricultural production, such as Kurram, Wana, and Bajaur. There is an interesting development underway in North Waziristan. The Agricultural Development Bank of Pakistan has offices in Kurram and Bajaur and is about to open its first office in North Waziristan, located at Miranshah. TADP II can use these opportunities to develop private sector activity and utilize the skill and experience base of the bank to develop selected areas.

One potential scheme for consideration is the use of local technical assistance to survey the market and the economic feasibility of a storage facility for fruit and vegetables. Seasonal gluts and poor storage and handling of high value horticultural

¹ Source: 1987-88 Annual Border Administration Report from FATA-AG.

crops such as apples are apparently causing significant economic losses to tribal horticulture. There has been an upsurge in fruit production in the tribal areas since the arrival of the Afghan refugees, who brought both experience and new varieties to the region. A number of new plantings were seen during the field trips and the subsidized fruit trees produced by FATA-Ag are popular.

Another options is to set up a training program in the deciduous fruit tree growing areas for the Agricultural officers and leading growers to provide technical advice on pruning, pest control, fertilization, and marketing.

Conclusion

The initial agricultural project activities proposed for TADP are based on developing the potential output from the irrigation schemes supported by the project. Selection of appropriate areas based on discussions with FATA-Ag and field surveys will allow the project to develop pilot programs in a number of new technical areas, such as fruit production and marketing, that can be built on and expanded in TADP II if they prove to be successful.

Details of ongoing and planned programs in agriculture, and a proposed budget for TADP in its final years, are provided below.

Existing Activities of FATA-AG

Staffing

The Director Agriculture-FATA is under the direction of the Director General-Agriculture Extension. He has two Deputy Directors; one based in D.I.Khan, who is responsible for North and South Waziristan; the other based in Peshawar responsible for Kohat, Peshawar and Malakand Divisions. The staff are on deputation from the Provincial Agriculture Department. The Directorate submits their annual development plans to the provincial agriculture secretary. Funding comes from SAFRON.

There are 24 Agricultural Officers, (AOs); one in SW, five in NW, six in Kurram, four in Khyber, five in Mohmand, three in Bajaur and none in Orakzai. The Field Assistants (FAs) are trained at the Agricultural Training Institute in Peshawar, for two years pre-service training. There were 113 FAs in FATA in 1987-88. There are also 157 field workers who help with the routine tasks, such as spraying, and 45 budders working in the fruit tree nurseries.

Departmental Programs

The present extension budget allocation is Rs 7,400,000 for all the agencies. The ongoing activities of the department include:

- Demonstration plots, moving from the research farm to the farmers land.
- Plant Protection subsidies of about Rs 2-300,000/- per year for each agency.
- There are fruit development nurseries in all agencies, (22 in total).

The demonstration plots are a favorite tool of the extension service, which lays out trials in wheat, rice and maize, to demonstrate, fertilizer usage, improved varieties and quality seed, pest control and cultural practices. A total 306 plots of wheat, 166 of maize and 3 of paddy were laid out in FATA in 1987-88.

Fruit tree are produced at 22 nurseries in FATA. Five in SW, five in NW, two in Orakzai, two in Kurram, one in Khyber, one in Mohmand, two in Bajaur, two in FR D.I.Khan, two in FR Bannu. There are two new farms in FR D.I.Khan and FR Bannu producing trees at a low altitude, and a new farm in SW which will produce citrus. The nursery farms have a target of 8-20,000 trees per annum each and grow apples, walnuts, apricots, peaches, persimmon. They produce about 200,000 trees per year and they sell them at Rs 1-2 which is half to one-third the market price.

The Commissioner D.I.Khan has recently, (November) approved the establishment of a revolving fund to purchase seed and fertilizer for sale at subsidized rates in North and South Waziristan. The Agriculture Department will be responsible for the storage, transport and sale. Seed will be purchased from the government wheat seed farms at D.I.Khan and the transport, handling and storage charges will be borne by the GOP. This fund will have a one to two year trial and it has started with 2,000 bags of fertilizer plus 5-600 maunds of seed for each agency, the fund is 300,000 Rs.²

There is a good collection of apple varieties at Parachinar, Kurram, which is suffering from drought. The varieties in Kurram, the golden and red delicious are better than those in SWA. The main problem in Kurram is monsoon hail, which damages the fruit and occurs annually. Scale and codling moth are found throughout FATA. Kurram has 200 hectares of apple, producing 3,750 MT. SWA has 2,800 hectares producing 50,000 MT. NW has 100 hectares producing 2,000 MT. Apples are the dominant crop. The total area of fruit is 3,300 hectares in SW producing 54,100 MT; 364 hectares in NW, producing 5,170 MT; and 518 hectares in Kurram producing 7,750 MT.

New varieties of apple, i.e. better table varieties, are needed in SWA, or perhaps a jam factory to process the low quality fruit. An agricultural seed and fruit farm has been proposed for 600 acres adjacent to Wana to serve as a progeny

² This idea was not approved by the Commissioner Peshawar division, apparently because at the meeting of the Departmental Sub-Committee, which includes the Commissioner, a representative of P&D, Finance and the concerned line departments as well as the P.A.s. The PAs of Khyber and Mohmand, apparently objected on the grounds that the use of private agents/traders was a better idea than the use of GOP staff.

garden, a source of vegetables for the camp, and a source of wheat, maize and vegetable seed. This will need Rs 10,180,000 over 5 years, the PC-1 is under review. Rs 250,000 has already been allocated.

A PC-1 for Fruit and Vegetables in FATA is in preparation under the SDP. Although the details are still under discussion, Wana is a likely candidate for the pilot project. Suggested activities are looking after a block of trees in a farmers orchard and pruning, fertilizing and spraying it, to provide a demonstration of the difference these activities make. Another suggestion is establishing model orchards from scratch of 1-2 acres, with fencing, training and establishment of the trees done by the GOP.

Proposed Activities under TADP

Extension Programs and Demonstration Plots for Cereal Crops

A provision has been made in the budget for the establishment of 200 acres of demonstration plots, combining seed multiplication and testing of new varieties. Basic seed of cereal varieties are produced at Central Cereal Crops Research Institute, Pirasabek. The extension farms plus approved growers produce the certified seed. There are sub-stations of C.C.R.I. in D.I.Khan, working on trials of mainly wheat, some maize and rice.

This program would be in conjunction with the development of irrigation infrastructure. Use of groundwater/surface water for irrigation changes the whole cropping pattern, the use of fertilizers and the optimum crop varieties. The field layout changes and if levelling is not done the field size has to be reduced from 3-2 acres to 1-0.5 acres. The channel have to be made or improved and the distribution system has to be laid out. New inputs have to be procured. The support to the FATA-agriculture staff with field day expenses, vehicles and training (see later section) would allow the development of an on-farm water management program and intensified agricultural extension on the irrigated command areas. The area under irrigation in FATA is shown in Table III-D2.

Improving FATA's Horticultural Production

There are a number of opportunities for expanded and improved horticultural production in the FATA. A provision has been made in the budget for five items that will impact directly or indirectly on this area of agriculture. The first is \$5,000 for new fruit tree varieties for testing, budding and distribution. These could be procured both internally and internationally. There is also a provision for a series of study tours for Agriculture staff, within the country to observe the horticultural activities at Quetta, Tarnab, Mingora and in the Punjab. This would establish networks and allow the collection of new germplasm. Cherries in Kurram are a potential new crop, the horticultural research station at Quetta has promised to send 2,000 budded plants per year and they are presently enquiring about the availability of suckers stock to propagate them. There is the question of compatibility to consider. Cherries, soft shell walnuts, apricots at higher elevations, and pecan and nectarines could be tried.

TABLE III-D1
ILLUSTRATIVE BUDGET
FATA-AG PROGRAM

Component	Details	\$
Technical Assistance	One FSN for Three years	60,000
Commodities	Two vehicles	26,000
	Ten Motorcycles	10,000
	Potato seed for 100 acres	30,000
	New Fruit tree varieties	5,000
	Vegetable seeds for trial	1,000
	Audio-visual aids	1,500
	Teaching equipment	1,500
	Misc. equipment	2,500
	Supplies	1,000
Construction	Training Centre Improvements	30,000
	Reservoir and channels	10,000
Other costs	Land Levelling, 2,500 acres	30,000
	Demonstration plots, 600 acres	50,000
	Field days	5,000
	POL, cars	6,000
	POL, motorcycles	9,000
	TA/DA	15,000
	Survey-agrobusiness	15,000
	Survey-storage	15,000
Training	150 people for one week/year	30,000
	Study tours	2,500
To be programmed		44,000
TOTAL COST		400,000

TABLE III-D2
AREA IRRIGATED (000 HECTARES) FATA 1978-79

Agency	Canals						
	Total	Govt.	Private	Tanks	TW	Wells	Others
Mohmand	4.8	4	-	-	0.004	0.3	0.5
Khyber	8.6	8.43	-	-	0.03	0.13	-
Kurram	17	-	16.8	-	-	-	0.2
Orakzai	0.1	-	0.1	-	-	-	-
Bajaur	0.8	-	0.8	-	-	-	-
NWA	8.6	-	5.6	-	0.2	0.9	0.1
SWA	8.4	-	4.8	0.2	-	0.1	3.3
Total	46.5	12.43	28.1	0.2	0.23	1.4	4.4

Source: NWFP Development Statistics, 1986

TABLE III-D2 (CONTINUED)
AREA IRRIGATED (000 HECTARES) FATA 1986-87

Agency	Canals						
	Total	Govt.	Private	Tanks	TW	Wells	Others
Mohmand	6.3	4	-	-	0.5	-	1.8
Khyber	13.5	10.5	-	-	3	0.04	-
Kurram	22.5	-	20.3	-	0.1	-	2
Orakzai	6	-	5.6	-	0.4	-	-
Bajaur	10.7	0.1	4.5	-	5.6	-	0.5
NWA	10	-	8	-	1.2	0.2	0.5
SWA	8.8	-	4.9	0.2	0.3	0.1	3.2
Total	77.9	14.6	43.3	0.2	11.2	0.3	8.1

Source: Annual Border Administration Report, 1987-88

Another area that is recommended for pilot studies is potato production. Potato is grown in NWA, SWA, Kurram, Bajaur, and Orakzai. The three big problems are seed, land preparation and blight. A small amount of seed is available from Kalam, but it needs storing from October. Perhaps this could be included in the survey of potential storage facilities at Wana, (proposed later). The planting season is April/May. The market price is Rs 8 per kilo and the 375 hectares in the FATA last year produced 3,800 MT, i.e. c. 10 MT/hectare. The seed requirement is 110 kg/kanal or 880 kg/acre. At the market price this is a seed cost of 7,040 Rs per acre. Blight, sowing techniques and certified seed are the three problems. The Punjab seed corporation imports potato seed from Holland every year but it arrives at the farm late. It is proposed that seed is procured sufficient to plant c. 30 acres of demonstration plots each year, to demonstrate the crop and the potential returns to the FATA farmers.

Quality vegetable seeds are in short supply, there are a number of ways to deal with this problem. Procure quality seed of improved varieties from Baluchistan; introduce new varieties for testing on a limited scale of Takaii hybrid seeds; and encourage a small number of farmers to go into the vegetable seed production business, and grow 0.25-0.5 acre plots with all inputs such spraying supplied by the GOP as demonstrations.

Olives are being tried in SWA, NWA, and Orakzai, budding onto the wild olives, Olea ferruginea which are the climax species in certain areas, especially on the north slopes. About 5,000 trees are being budded per year at Orakzai and 5,000 total at NWA and SWA. For the past three to four years, the wild trees are being cut back and the new growth budded with budwood from mother trees in Kurram which originated from Italy. In NWA the trees are beginning to bear and the problem now is how to extract the oil. There is an Italian team at PRC/NARC which is studying olives that is introducing new varieties and could be approached for help with oil technology. New lines could be supplied and a marketing/processing study done.

A joint PC-1 for the irrigation structures or a participation by FATA-Ag in the Valley study could improve the utilization of water from the TADP funded irrigation schemes. Land levelling could be subsidized, at Rs 500 per acre vs Rs 1000. Demonstrations could be done, inputs arranged for, possibly channels lined. These activities could be combined with in service training to the staff, subsidized sprays, and perhaps private tractor hire operations could be encouraged in conjunction with the ADBP. There is also the provision for land levelling in the budget, this would allow the development of watershed plans in selected basins.

Storage and marketing of apples are limiting returns in SWA. The market price is dependant on the season and the harvest glut lowers prices. At a recent visit by the governor to Wana, a demand was made for a storage facility. There is not a facility at present in F.R. Bannu or D.I.Khan, and local storage is done in underground pits. Apples are comparatively a new phenomena in SWA, they were introduced in 1965. A survey could be undertaken in 1989 of the feasibility of establishing a storage facility at Wana. The terms of reference should not be confined to examining the apple market alone, but should consider other opportunities, including the storage of seed potato harvested in the fall from the Swat valleys for spring planting in FATA.

The production at the nursery at Parachinar is falling due to drought caused by a shortage of irrigation water combined with a lack of a budget provision for dealing with cultivation, pruning and weeds. A tubewell has been sanctioned, but when C&W tendered the well, no contractors came forward. So two years ago, FATA-Ag paid FATA-DC Rs 100,000 for a well, to avoid losing the money due to non-expenditure, however a percussion rig is needed to reach the 7-800 feet required and FATA-DC does not have one. At a meeting between the Secretary Irrigation and USAID, the secretary agreed to exchange the one deep drilling percussion rig which USAID supplied to his Department in return for two smaller cable rigs.

A partial solution and an alternative is the proposed drip and micro-spray scheme based on the existing inadequate canal water being ponded in an reservoir and used on the nursery stock. The PDWP asked for the contingency amount in the budget for this scheme to be reduced from 15 percent to 10 percent before they would approve it. The total drip scheme at Parachinar is for Rs 223,074, Rs 112,977 for commodities, Rs 81,000 for TA, and 15 percent contingency, Rs 29,097. The total dollar cost at Parachinar would be \$8,527 and as the equipment has been purchased, the expense would be less, Rs 57,707 for the watercourse improvement and about Rs 45,000 for the reservoir. The total farm area is 2.4 hectares, (6 acres). Presently, in Kurram agency there are 220 acres of apples, 120 acres of walnuts, the areas under fruit has been increasing rapidly.

Training Support

Training is another area of concern, the training of the FAs at ATI is theoretical and they realize once they are posted in the field how little they actually know about the realities of agriculture in the FATA areas. The fact that the FATA-Ag is a federal government organization means that there is no provision by the provincial government for the in-service training of the FAs each year. This in service training is often much more useful than their initial training in that they come with the idea of finding out solutions to specific problems they have met in the field. The World Bank in the past has subsidized training at the Agricultural Training Institute (ATI).

There has been a proposal put to the Development Sub Committee, (DSC), Kohat for a decision on the 26th of December 1988, that an ATI be set up in Parachinar. There is presently a colony plus offices at Parachinar. The idea is to add some establishment, vehicles, TA/DA and instructors to the farm at Parachinar and use it as a site for training and demonstration plots. The cost of this would be Rs 1,918,400 over four years.

If a focused area option is envisaged for TADP II, then this PC-1 if approved could be supported and strengthened. The provision of audio-visual aids, short term TA in curriculum development, from AID/W or from within Pakistan, and perhaps construction at Parachinar could be funded. This would also tie in with the drip system proposed for installation on the farm there, which could then be used for training and demonstration purposes.

ANNEX III-E

INCORPORATING FORESTRY AND RANGELANDS MANAGEMENT INTO TADP

Scope of TADP Activity to Date

There have been no activities in this sector.

Potential Program Directions

- There is a potential for large-scale reforestation and rangelands management as add-on projects to existing TADP road and irrigation activities in selected target areas. Included could be the incorporation of erosion control practices on road cuts and embankments as a regular part of the roads program. This has been done with some success in NWFADP.
- There may be the potential for the development of fuel wood plantations of fast growing species in certain selected areas of the Tribal Agencies. The target areas would have a combination of a fuelwood deficit, a high demand for wood and suitable irrigation facilities.
- A survey could be conducted by the USAID Farm Forestry Program to map and delineate village wood resources and to select pilot areas for incorporation in a farm forestry program. The goal would be to introduce better management and regeneration of the existing resource if possible and to develop that resource through on-farm woodlots.
- Looking to the future, sites should be examined for plantations of marketable fodder and wood fuel/construction crops tied to irrigation and agricultural schemes.
- Although the most difficult part of the natural resource base to improve, a focused program aimed at the general development of fodder resources in the area surrounding a village would make a major contribution to local development. Through whatever means seemed feasible, including regeneration of pastures, introduction of new species, working with farmers to develop their on-farm forage resources, a successful program would alleviate the sub-standard nutrition of the village livestock and contribute towards improving the lot of tribal women, as typically, the collection of forage is women's work.

The Possibilities for Forestry/Rangelands Development

Wood lot activities can capitalize on existing systems of resource management. Along the TADP-financed Sadda-Marghan road, there are large areas of Mazari plantation. This palm resource is used to produce mats, ropes and other articles. At the present time there is a perception that the resource is diminishing. There is an

opportunity for an appropriate reforestation pilot project along the road. Palm plantations would provide both erosion control to protect the road and supplement the resources that are utilized by an extensive local industry.

UNHCR and the World Bank working through the provincial Forest Department have carried out both mazar plantation and reforestation in the tribal areas. The World Food Program has developed reforestation programs based on food for work in the tribal areas. INM has had forestry projects in Malakand and the Forestry Department has an allocation in the ADP which is three times that of agriculture.¹ Their program in FATA consists of the establishment of 1-2,000 acres of Government plantation per year and the sale of trees from an extensive network of tree nurseries, located throughout the Tribal Areas.

Should NWFP find a donor that will cover the costs of Post Afghan Rehabilitation, the majority of the funds in this 10-year program are in forestry and rangeland management.

Project Alternatives

The pilot projects should be initiated after consultation through the Forestry Department, utilizing their staff. The projects could both supplement their existing programs and develop the opportunities that exist at sites of TADP infrastructure development. In the future, a local range/forester could be hired to develop these programs in conjunction with the forestry staff. Opportunities include, tree nurseries and planting in conjunction with TADP funded schools, development of irrigated plantations of fuelwood species, establishment of farm forestry programs, and the use of trees and forage grasses for erosion control along TADP funded roads.

This could be supported through the provision of technical assistance to the Forestry Department to help them better account for existing forest and range resources and to target their planning in FATA. The next step would be to incorporate this planning into a larger agency level plan for development, proposed as a new component under TADP should an expanded TADP or focused development be selected for TADP II.

Technical assistance could be used to develop the farm forestry, the wood-lot management and rangelands management programs in TADP target areas with technical and administrative back-stopping in the Provincial Forest Department.

There is an opportunity to incorporate watershed management and monitoring into the proposed FATA-DC valley development plan. Once the watershed had been defined a watershed catchment plan could be designed and implemented through the World Food Program. This would be a particularly useful adjunct to the development of small dams by FATA-DC.

¹ Rs 18.8 million in 1987-88.

TABLE III-E1
 ILLUSTRATIVE BUDGET
 FORESTRY PROGRAM

Component	Details	\$
Technical Assistance	One FSN for three years	60,000
Commodities	Two vehicles	26,000
Other costs	POL	12,000
	500 acres of farm forest nurseries	150,000
	Pasture regeneration, 100 acre trial	15,000
	Roadside planting	10,000
Training	(In Farm Forestry project)	0
To be programmed		27,000
TOTAL COST		300,000

ANNEX III-F

INCORPORATING EDUCATION INTO TADP

Scope of TADP activities to date

Construction of schools and teachers' quarters in SWA, Kurram (not completed) and Khyber agencies under the phase I Supportive Rural Development through LGRD.

Potential Program Directions

- Increase and consolidate construction of schools and teachers' quarters in target areas.
- Design modifications to the existing schools to produce more appropriate structures.
- In-service teacher training and development of instructional materials.
- Vocational training integrated into sub-project activities.
- Non-formal education for women.
- Technical support to Directorate of Education/FATA

The Potential for Educational Development

All future TADP activities in this sector should be linked with the Mission's proposed ten year, \$280 million Primary Education Development Project which, in addition to targeting 11,000 schools for construction and/or rehabilitation throughout the country, will finance the provision of instructional materials, teacher training, educational administration and management, research and development, and teacher and community incentives. In the area of infrastructure development, TADP could continue its support for the construction of teachers' quarters in the Tribal Agencies. The construction of girls schools, which is a priority of the Missions proposed project, should be consolidated under Supportive Rural Development rather than be isolated as a WID activity. However, the whole area of non-formal education for women in the Tribal Areas remains an important opportunity for activities.

There is some potential for vocational training in the Tribal Areas, although the possibilities are limited by a customary reluctance on the part of the local population to enter the building trades. Training program trades must be carefully selected and have a strong job placement component. Apprenticeship training is likely to have more success. It should be possible to develop a program in conjunction with the infrastructure development, that would provide on the job training in basic skills such as masonry and carpentry.

TADP can also contribute technical assistance to the Directorate of Education for FATA by providing the computer capacity to aid in personnel and financial management, and in the planning of resource distribution.

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ANNEX III-G

INCORPORATING POTABLE WATER SUPPLY AND SANITATION AND HEALTH SERVICES INTO TADP

Potable Water Supply and Sanitation

Scope of TADP Activities to Date

No funding to date; a tentative start into this sector is contained in 29 drinking water schemes identified under Phase II of Supportive Rural Development component of TADP. These schemes will be implemented by LGRD.

Potential Project Directions

- A consolidation of the Phase II activities under Supportive Rural Development in areas selected as target locations for a focused TADP II.
- To overcome some of the problems of implementing schemes in the Tribal areas and the recurrent maintenance problem, limit sub-projects to minimal construction/low maintenance schemes, i.e., shallow well improvement, hand pumps, springs until such time as enough experience has been gained to expand the program, while ensuring maintenance capacity has been institutionalized.

The Potential for Potable Water Supply Development

There is a widespread demand for improved access to drinking water and the development of potable water systems in the Tribal Areas. Phase II of the Supportive Rural Development component of TADP has already identified a number of small drinking water schemes that can be added to the LGRD portfolio. These schemes should be comparatively easy to implement, and, as was demonstrated in the NWFADP, they can be a popular project sub-component. In addition, development of community water supply has the potential for reducing the time that women spend collecting water for their families. TADP should encourage the development of springs and gravity fed water systems through Supportive Rural Development. In addition, part of TADP's institution strengthening activities in LGRD should be directed at training LGRD engineers in planning and implementing small scale community water supply interventions.

Health Services

Scope of TADP Activities to Date

Construction of one clinic and one staff quarters in SWA (not complete) under Supportive Rural Development through LGRD.

Potential Program Directions

- Increase and consolidate construction, and introduce a new component to the infrastructure program: the rehabilitation of existing clinics in target areas.
- Expand the focus of infrastructure development to include in project selection criteria the strengthening of rural/urban health network, both by improving communications and developing and repairing clinics.
- In coordination with USAID's existing support to health care in Pakistan, strengthen and expand the capacity of the Provincial Health Department to implement their existing programs in FATA with technical assistance and training.

The Potential for Health Services Development

Unlike other provincial government agencies, the Provincial Health Department has no special section dealing with FATA. For this reason, TADP interventions aimed at institutional strengthening of existing health delivery in FATA must be integrated into the health delivery system of the entire province.

In the area of infrastructure development, TADP can contribute to the health delivery system in the Tribal Areas by supporting the construction and rehabilitation of rural health centers and the construction of small feeder roads to link rural with urban health centers under its Supportive Rural Development component.¹

Institutional strengthening interventions could capitalize on TADP's successes in the introduction of computers to line departments. The introduction of computers to the Provincial Health Department would assist in the systemizing of disease reporting, drug inventories and ordering procedures, and streamline the budgeting process. Such assistance would enable the Provincial Health Department to better target and plan immunization and related programs to FATA.

TADP could also tie into the Mission's major initiative in Child Survival, which incorporates immunization, ante-natal and maternal health care, nutrition and training of rural health.

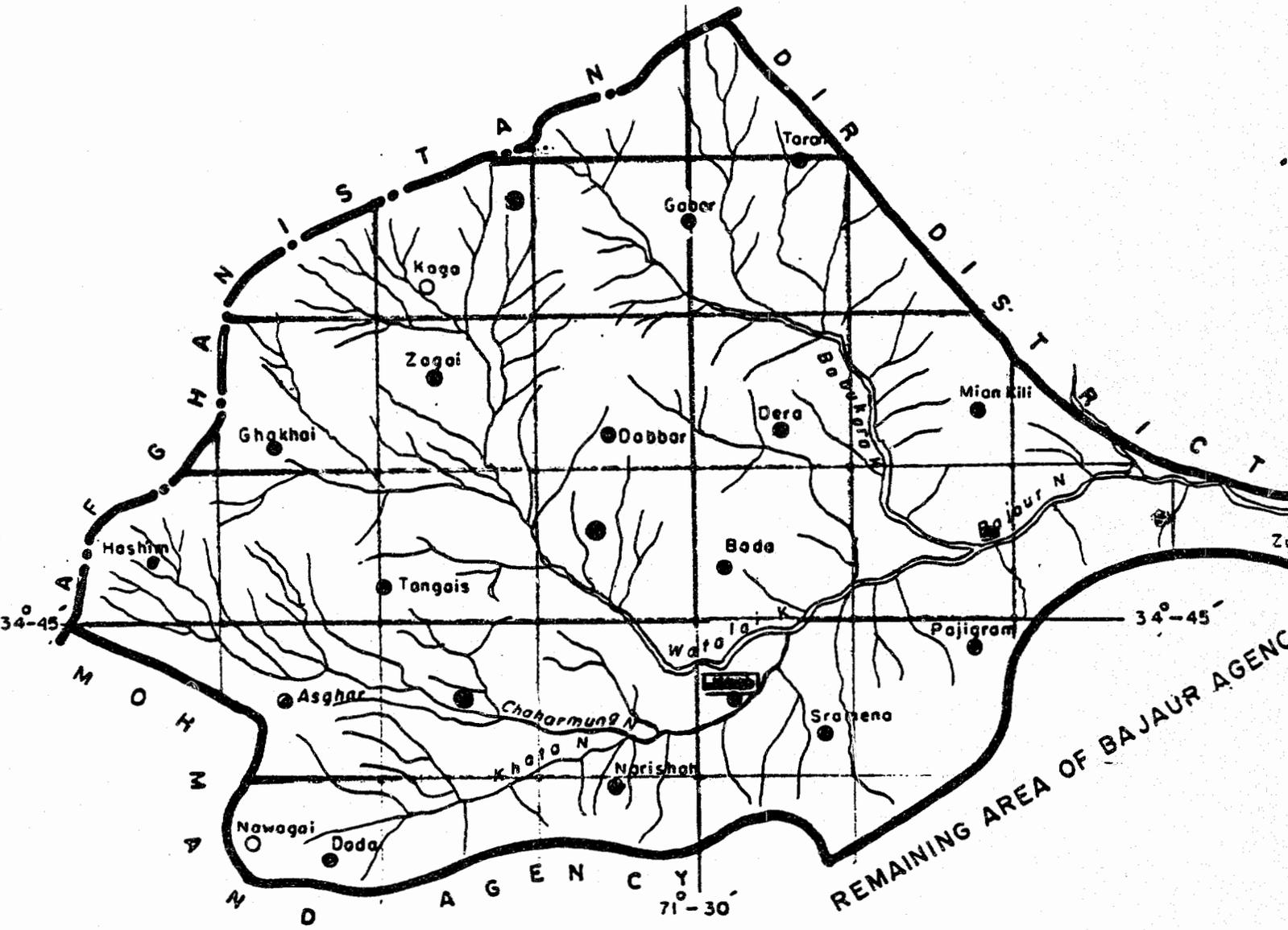
TADP could provide the technical assistance to the Health Department to establish and support training programs at the Agency level for personnel from the Tribal Areas. Such assistance could be extended to include non-formal community health programs in target areas, building on existing GOP initiatives in NWFP, such as the training of traditional birth attendants.

¹ One of the justifications being given by local people for allowing a new road under construction in what was previously a closed area in Khyber, is the faster access to health facilities.

BAJAUR VALLEY-I

(BAJAUR AGENCY)

71-30



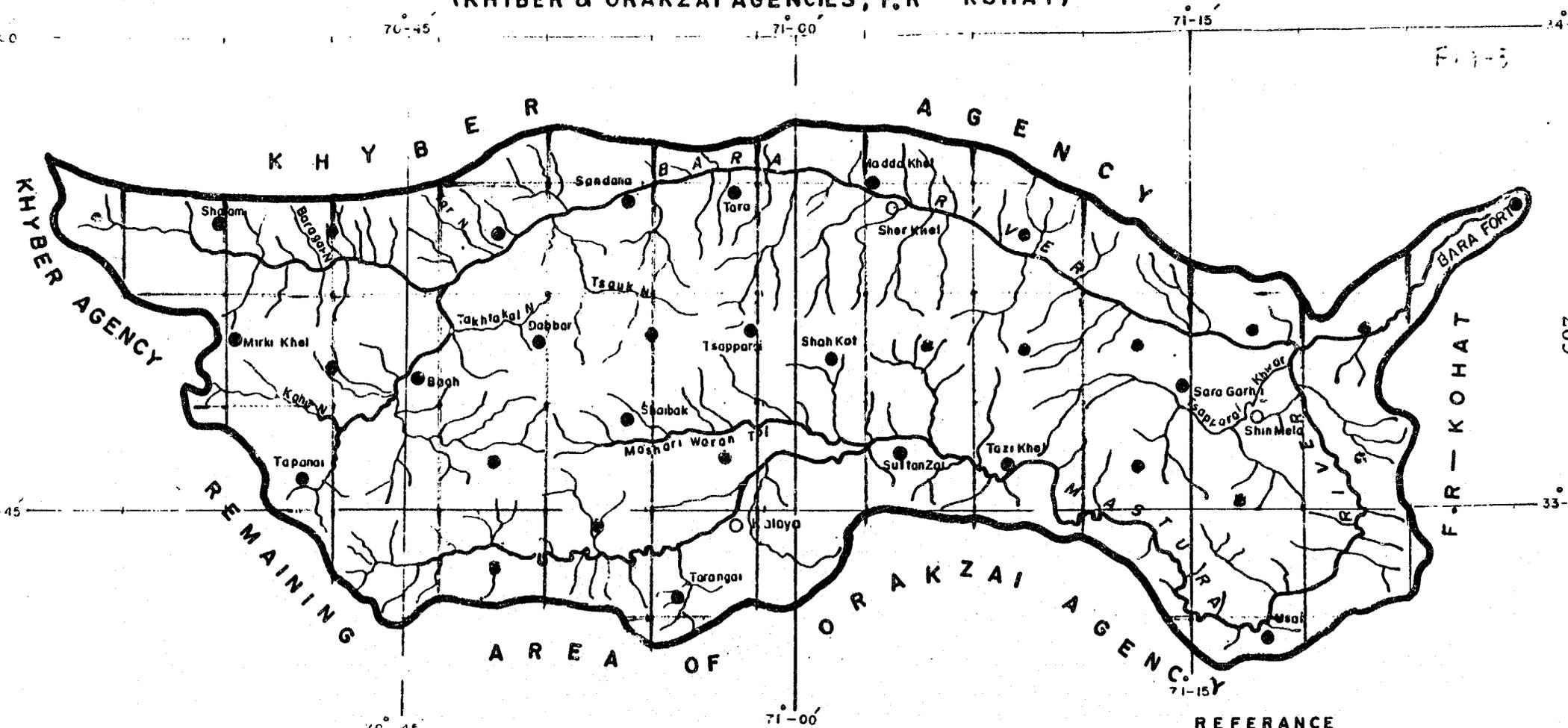
REFERENCES

- INTERNATIONAL BOUNDARY --- 
- VALLEY BOUNDARY - - - - - 
- RIVER/NALA - - - - - 
- VILLAGE - - - - - 

SCALE 1 inch to 4 Miles

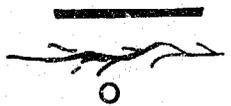
KALAYA VALLEY-3

(KHYBER & ORAKZAI AGENCIES, F.R - KOHAT)



REFERENCE

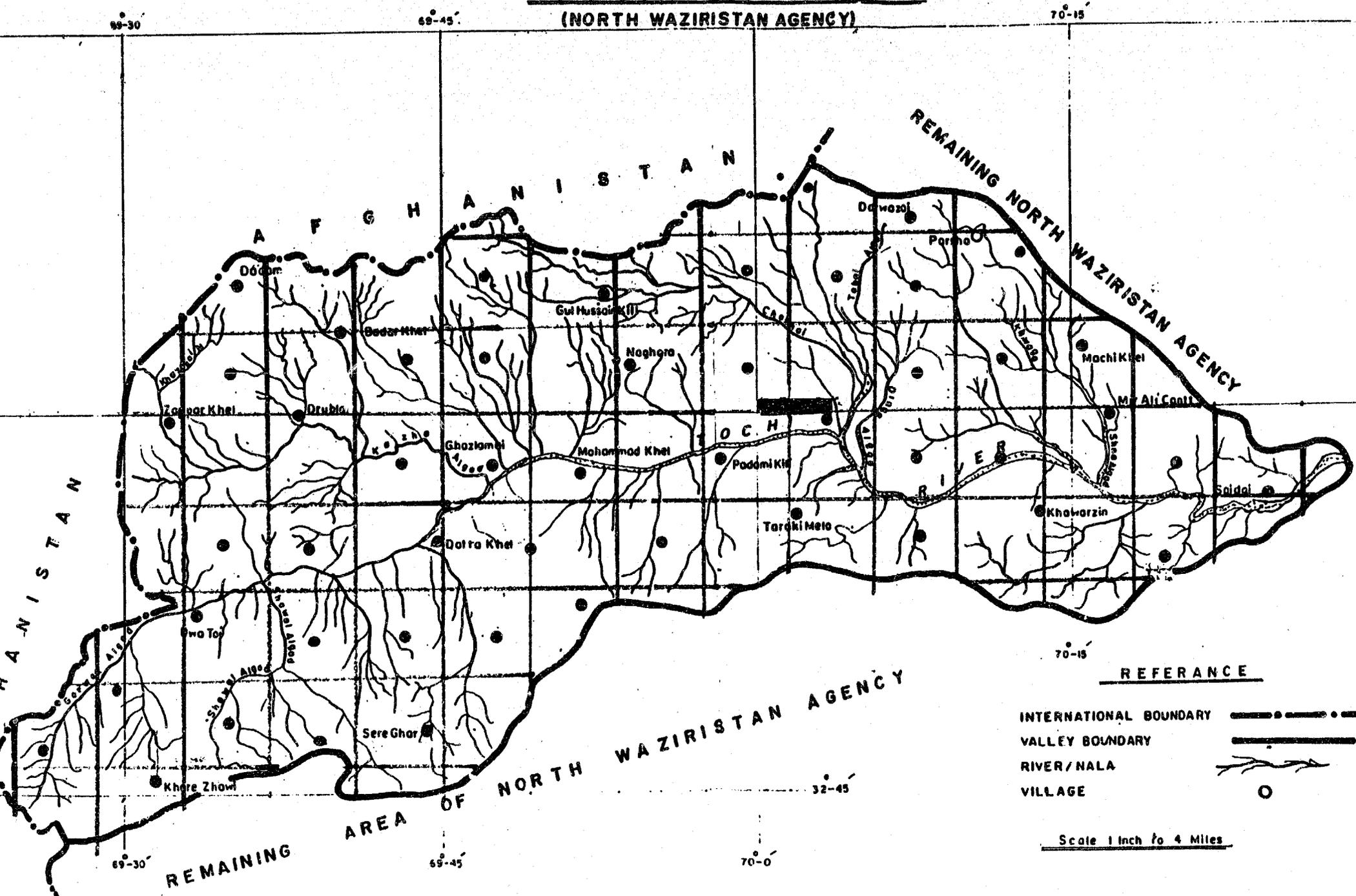
- VALLEY BOUNDARY
- RIVER / NALA
- VILLAGE



Scale 1 Inch to 4 miles

TOCHI VALLEY-5

(NORTH WAZIRISTAN AGENCY)



REFERENCE

- INTERNATIONAL BOUNDARY
- VALLEY BOUNDARY
- RIVER/NALA
- VILLAGE

Scale 1 inch to 4 Miles

APPENDIX A
SCOPE OF WORK

B. Scope of Work

This scope of work is composed of two components: the evaluation and the recommendations that flow from it.

Objective A (Evaluation) The evaluation will be composed of the following four major sections. Each section (1,2,3, and 4) shall be organized according to standard AID format: findings (evidence), conclusions (interpretation of findings), and recommendations (based on conclusions, actions to be taken).

1. Assess progress to date in implementing the TADP, in particular the progress in achieving output targets currently in place. This section shall include an analysis of project sustainability and specifically, which benefits are likely to be sustained after AID funding ends.
2. Review and evaluate project management, host country institutions and USAID, within the context of the socio-political reality of the Tribal Areas and the bureaucratic reality of a large donor organization. The analysis of project management shall discuss the level and type of technical assistance provided by USAID/Peshawar in terms of its appropriateness and cost effectiveness. Also, the evaluation team shall assess the level of GONWFP institutional development achieved in TADP.
3. Assess the impact of the project on the beneficiary population. This analysis shall include a comparison of project effectiveness by Tribal Area, and an explanation of the differential success rates. Also, the team will discuss which subprojects have had the greatest positive beneficiary impact, and examine how this impact can be replicated. This section shall also review the women in development component of TADP and assess to what extent other project activities have had an impact on women.
4. The evaluation team shall discuss lessons learned from this project that can be applied to similar projects elsewhere.

Objective B (Recommendations)

Based on the above evaluation, the evaluation team shall provide substantive recommendations for the design of a follow-on project. This shall include three major components as follows:

1. The evaluation team shall reassess and if appropriate redefine the purpose of the project, based on the changing socio-political conditions of the Tribal Areas, and from the perspective of three major variables: (a) The Mission's lagging area strategy, (b) Afghan refugees, and (c) poppy cultivation. Specifically, the team will: (a) assess if the follow-on project should be designed to make further inroads towards the objectives of the national integration strategy; (b) review the impact that Afghanistan and the Afghan refugees have on the Tribal Areas and assess to what extent the project can respond to the changing Afghan situation and the possible departure of the refugees; and (c) discuss if the increase in poppy cultivation is of such magnitude that it should be a determining factor in the design of the project.
2. The evaluation team will discuss if the options a, b, and c as noted above, are incompatible with one another from the perspective of design, implementation and administrative management. If so, given the limited resources available for the Tribal Areas and the changing environment of the region, the evaluation team will recommend the design approach that should be taken by the Mission.
3. The evaluation team will analyze the appropriateness of the present design in achieving the reassessed or redefined project purpose and develop alternative approaches in design, if appropriate, to achieve any newly defined purpose. Based on the recommendations made above, the evaluation team shall develop a complete and detailed log frame for a follow-on project.

APPENDIX B
INDIVIDUALS CONSULTED

INDIVIDUALS CONSULTED

The team met with a large number of people during their travels in the field and their visits to the various departments in Peshawar. All of the people they met gave freely of their time and their knowledge. Not included in this list of individuals consulted, are the USAID personnel, or the supporting staff of the civil administration and line departments.

Civil Administration

Manzoor Ahmed, Political Agent, South Waziristan Agency
Baz Moh'd. Khattak, Political Agent, North Waziristan Agency
Abdul Karim Qasuria, Political Agent, Kurram Agency
Maj. Sahibzada Moh'd. Khalid, Political Agent, Orakzai Agency
Syed Asif Shah, Political Agent, Khyber Agency
Masood-ur-Rehman, Political Agent, Bajaur Agency
Gulbaz Ali Shah, Deputy Commissioner, Dera Ishmail Khan

Planning and Development Department

Suleiman Ghani, Secretary
Ali Begum, Chief of Section, (FATA)
Akbar Shamim, Chief, Special Development Program
Jamil Amjad, Assistant Chief, Special Development Program

Communication and Works Department

Faqir Ahmad Paracha, Secretary
Ghulam Jaffar, Chief Central Design Office
Abdur Rehman Gandapur, Superintending Engineer, Southern Circle
Sher Ali, XEN, Tank Division, D.I.Khan
Zafar Beg Bhattani, XEN, Miramshah, North Waziristan Agency
Mohammed Akram, XEN, Parachinar, Kurram Agency

Local Government and Rural Development Department

Inayat Ullah Khan, Secretary
Iqbal Swati, Director General
Abdul Majeed Zakori, Asst. Director, South Waziristan Agency
Mashallah Khan, Asst. Director, Orakzai Agency
Abdul Rashid, Asst. Director, Khyber Agency
Moh'd. Arjumand, Asst. Director, Bajaur Agency

Federally Administered Tribal Areas Development Corporation

Jehanzeb Khan, Chairman
Taj Moh'd. Afridi, Additional Director
Mir Zakam Khan Wazir, XEN, South Waziristan Agency
Maqsd Ali, XEN Small Dams, Bannu Division
Said Muhammad, XEN, Kurram Agency
Siraj Ahmad, XEN, Bajaur Agency

Directorate of Agriculture, Federally Administered Tribal Areas

Akram Khan, Director
Sahibzada Ashraf, Deputy Secretary

Engineering Associates

Abdul Rehman, Resident Engineer
Sher Nawaz Khan, Resident Engineer

United Nations High Commissioner for Refugees

Abdul Hamid Afridi, Project Officer, World Bank Program
B. Kugathasen, Project Officer, World Bank Program

USAID/Washington

Dean Alter,
Robert Dakan
Richard Scott

APPENDIX C
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BIBLIOGRAPHY

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