

A.I.D. EVALUATION SUMMARY

1. BEFORE FILLING OUT THIS FORM, READ THE ATTACHED INSTRUCTIONS.
2. USE LETTER QUALITY TYPE, NOT "DOT MATRIX" TYPE.

IDENTIFICATION DATA

A. Reporting A.I.D. Unit: Mission or AID/W Office <u>USAID/Manila</u> (ES# _____)	B. Was Evaluation Scheduled in Current FY Annual Evaluation Plan? Yes <input type="checkbox"/> Slipped <input checked="" type="checkbox"/> Ad Hoc <input type="checkbox"/> Evaluation Plan Submission Date: FY <u>95</u> Q <u>1</u>	C. Evaluation Timing Interim <input type="checkbox"/> Final <input checked="" type="checkbox"/> Ex Post <input type="checkbox"/> Other <input type="checkbox"/>
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D. Activity or Activities Evaluated (List the following information for project(s) or program(s) evaluated; if not applicable, list title and date of the evaluation report.)

Project No.	Project /Program Title	First PROAG or Equivalent (FY)	Most Recent PACD (Mo/Yr)	Planned LOP Cost (000)	Amount Obligated to Date (000)
492-0420	Rural Infrastructure Fund (RIF)	9-28-87	06-95	178,000	178,000

ACTIONS

E. Action Decisions Approved By Mission or AID/W Office Director	Name of Officer Responsible for Action	Date Action to be Completed
<p align="center">Action(s) Required</p> <p>The Department of Public Works and Highways (DPWH), Department of Transportation and Communications (DOTC) who has jurisdiction over the Philippine Ports Authority (PPA) and the local government unit concerned should resolve responsibility over collection of fees at municipal ports funded under RIF.</p>	DPWH DOTC PPA LGU USAID	

(Attach extra sheet if necessary)

APPROVALS

F. Date Of Mission Or AID/W Office Review Of Evaluation: _____ (Month) _____ (Day) _____ (Year)

G. Approvals of Evaluation Summary And Action Decisions:

	Project/Program Officer	Representative of Borrower/Grantee	Evaluation Officer	Mission or AID/W Office Director
Name (Typed)	Emmanuel R. Miciano	Florante Soriquez	Salpicio Roco	Gordon H. West
Signature				
Date				4/10/96

ABSTRACT

H. Evaluation Abstract (Do not exceed the space provided)

1. The Rural Infrastructure Fund (RIF) Project aims to improve rural roads and bridges, ports and airports in order to stimulate economic expansion and growth in the rural areas.
2. The impact evaluation examines the economic and social impact of Subprojects funded under RIF. The evaluation focuses on the economic growth and investment that are occurring because of the subprojects as well as social benefits - improvements in income, employment and social well-being.
3. A 5-person multi-disciplinary team reviewed project documentation, results of survey conducted on selected roads and ports, visited subprojects, interviewed teachers, pilots and discussed economic and social impacts of RIF Subprojects with DPWH, local government units, consultants and USAID.
4. Findings:
 - Infrastructure improvements funded by RIF have generally been of high quality design and construction compared to other locally funded infrastructure.
 - Overall economic impact of RIF Project is very positive giving results like increased commercial activities, greater competition/
 - Transportation sector because more efficient and provided savings in travel time, transport cost for businesses, increased use of the road/ports.
 - Nav aids has contributed to flight safety, improved operations and better air traffic control.
5. Recommendation:

DPWH, DOTC/PPA and the LGU should work out a solution on jurisdiction over fees collected from port operations.

COSTS

I. Evaluation Costs

1. Evaluation Team		Contract Number OR TDY Person Days	Contract Cost OR TDY Cost (U.S. \$)	Source of Funds
Name	Affiliation			
1. Chris Hermann				Project Funded
2. Randall Cummings				Project Funded
3. Ruperto Alonzo				Project Funded
4. Leah Panganiban				Project Funded
5. Carmelo Royeca				Project Funded
2. Mission/Office Professional Staff Person-Days (Estimate) <u>7</u>		3. Borrower/Grantee Professional Staff Person-Days (Estimate) <u>5</u>		

b

A.I.D. EVALUATION SUMMARY - PART II

SUMMARY

J. Summary of Evaluation Findings, Conclusions and Recommendations (Try not to exceed the three (3) pages provided)
Address the following items:

- | | |
|--|--|
| <ul style="list-style-type: none"> ● Purpose of evaluation and methodology used ● Purpose of activity(ies) evaluated ● Findings and conclusions (relate to questions) | <ul style="list-style-type: none"> ● Principal recommendations ● Lessons learned |
|--|--|

Mission or Office: USAID/Philippines	Date This Summary Prepared: December 1994	Title And Date Of Full Evaluation Report: Rural Infrastructure Fund (RIF) Project Impact Evaluation - December 1994
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Purpose of Activity

The objective of the Rural Infrastructure Fund (RIF) Project is to develop adequate physical infrastructure particularly roads, bridges, seaports and airports -- to support and sustain economic growth in the rural areas of the Philippines.

Purpose of Evaluation & Methodology Used

The purpose of the impact evaluation is to assess the economic and social impact of the civil works subprojects as well as the utility of the navigational aids, the Mt. Pinatubo Recovery Action Plan and the technical assistance for telecommunications policy formulation. The evaluation examines the extent to which RIF has achieved its original purpose of improving and expanding rural infrastructure to increase flow of commerce, encourage investment and production and provide for further economic expansion and growth of rural areas.

Findings and Conclusions

- The overall economic impact of the RIF Project is very positive and has achieved its goal of stimulating economic growth and investment in the rural areas.
- Infrastructure improvements (roads and ports) and new construction (schools and hospitals) have generally been of very high quality, both in terms of design, material input, and construction.
- The commercial impact of the roads and ports subprojects is quite strong, evidenced primarily by expanded production of farm products and increased growth and investment in agribusiness and other commercial activities.
- RIF Project roads and ports greatly improved access to both health and educational services, relieved the discomfort and tediousness of rural travel, and promote rural-urban integration by facilitating access to market towns and urban centers.
- RIF technical assistance on telecommunications assured the success of the first public telecommunications privatization and provided valuable guidance and lessons learned for future privatization.
- The provision of air navigational equipment (NavAids) has definitely contributed to flight safety, improved operations and better air traffic control.
- RIF-built schools are well-designed, well-constructed and are highly valued by students, their parents, and the community at large.
- Though unquestionably a technically sound product, the Mt. Pinatubo Recovery Action Plan (RAP), prepared in large part at the Portland Engineering District of the U.S. Army Corps of Engineers, falls far short of the DPWH's expectations for operational guidance. The RAP was supposed to be an analytical tool that requires regular updating. However, the DPWH has no system in place that can handle the periodic updating of the RAP.

Principal Recommendations

Due to the jurisdictional conflict between the PPA and the local government on collection and retention of port fees, DPWH and PPA should find a workable solution as soon as possible.

Lessons Learned

Given the effects on infrastructure of an almost yearly devastations and destructions experienced by the Philippines from natural disasters, a study case can be advanced for continuing support for rural infrastructure component. Unfortunately, USAID will not be in a position to continue assistance of the type provided through RIF.

ATTACHMENTS

K. Attachments (List attachments submitted with this Evaluation Summary; always attach copy of full evaluation report, even if one was submitted earlier; attach studies, surveys, etc., from "on-going" evaluation, if relevant to the evaluation report.)

Final Evaluation Report

COMMENTS

L. Comments By Mission, AID/W Office and Borrower/Grantee On Full Report

Status of Recommendation (as of January 1995)

According to DPWH, the issue on jurisdiction on collection and retention of port fees is not their responsibility. It is now with the concerned local government and the field office of the Philippine Ports Authority to resolve the issue.

In most of the municipal ports funded under RIF, the local government collects fees and maintains the facility.

XD-ABM-028-A

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IMPACT EVALUATION OF THE RURAL INFRASTRUCTURE FUND

December 16, 1994

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This report was prepared for the Office of Investment and Enterprise Development of the United States Agency for International Development under the terms of Contract No. 492-0420-C-00-4102-00. The opinions expressed herein are the author's and do not necessarily represent the views of the United States Agency for International Development.

EXECUTIVE SUMMARY

The Rural Infrastructure Fund (RIF) Project was authorized on September 28, 1987. The project's goal is to develop adequate physical infrastructure to support and sustain economic growth. The project's purpose is to assist in the improvement and expansion of rural infrastructure to enhance the flow of commerce, encourage investment and production, and provide further economic expansion and growth in rural areas. Total USAID funding for RIF is now estimated to be \$178 million by the December 31, 1994 PACD.

This evaluation examines the economic and social impact of sub-projects funded under RIF. The evaluation focuses on the economic growth and investment that are occurring because of the sub-projects as well as social benefits - improvements in income, employment and social well-being.

The bulk of RIF's funding was directed toward the construction of 14 roads and 19 feeder ports. One major bridge was also constructed. Navigational equipment was installed in 25 airports nationwide. Technical assistance was provided to develop guidance for telecommunications privatization. In response to the Mt. Pinatubo eruption, 12 schools, two city hospitals and the development of an engineering framework to guide investments in civil works in the affected areas were funded through RIF.

Infrastructure improvements (roads and ports) and new construction (schools and hospitals) funded by RIF have generally been of very high quality, both in terms of design, material input, and construction. Technical feasibility studies were, for the most part, very sound. A solid quality assurance program - including construction supervision, monitoring, and inspection - was established before the project commenced, and these procedures were followed strictly throughout project implementation. RIF sub-projects are generally superior to similar types of infrastructure throughout the Philippines.

The overall economic impact of the RIF Project is very positive. The project has achieved its goal of stimulating economic growth and investment in the rural areas. Many of the RIF sub-projects are contributing significantly to local economic development. Improvements in transportation efficiency and the savings in transportation costs are significant and are resulting in business growth and investment. This growth is fairly wide-ranging, affecting previously remote rural areas as well as market towns and centers. More than 80 percent of sub-project beneficiaries live in provinces with poverty incidence above the national average. Considerable employment is also generated. Benefit-cost ratios are clearly positive.

The commercial impact of the roads and ports sub-projects is quite strong, evidenced primarily by expanded production of farm products and increased growth and investment in agribusinesses and other commercial activities. RIF sub-projects also encourage local government units to undertake additional infrastructure investments in and around the area of the roads and ports, which will stimulate additional commercial investment and activity in the area.

Major project beneficiaries include farmers, fishermen, businessmen, jeepney/bus and truck operators, and passengers. A broad group of rural and market town residents have gained employment in the construction of RIF road and port sub-projects. More significant, however, is the permanent employment generated by the increased investment and business expansion that these road and port improvements support. In general, rural incomes for many beneficiaries are improving.

A jurisdictional dispute concerning the collection and retention of port fees involving the Philippine Port Authority (PPA) and local municipalities (who have ownership of the improved facilities) could jeopardize adequate funding for maintenance and repairs. The problem arises from fee collection authorities stipulated in the Local Government Code. DPWH and PPA need to find a workable solution to this problem as soon as possible.

Finally, RIF Project roads and ports greatly improve access to both health and educational services, relieve the discomfort and tediousness of rural travel, and promote rural-urban integration by facilitating access to market towns and urban centers.

Under RIF Program funding, USAID also provided two-years of technical assistance to the telecommunications sector, primarily to assist with the privatization of government-owned telecommunications assets. The RIF advisor prepared inventories and evaluations of public sector assets and developed terms of reference for the sale of these assets. RIF assistance assured the success of the first public telecommunications privatization and provided valuable guidance and lessons learned for future privatizations.

RIF also funded the procurement, installation and associated training of users of air navigational equipment (NAVAIDS) at 25 airports located throughout the Philippines; installation and training is still underway at five of these airports. All indications are that the NAVAIDS program has definitely contributed to flight safety, improved operations and better air traffic control.

The NAVAIDS program permits upgrading of air service and the use of larger planes with greater passenger and cargo capacity; at some airports, night flights are also facilitated. This

expansion contributes to regional economic development in the areas served by airports benefiting from NAVAIDS. For example, more tourists can visit locations such as Palawan and more manufactured products can be air freighted out of processing centers such as Cebu. Smaller, regional airports generally receive larger and more immediate benefits from NAVAIDS than do larger airports (which generally already have some of this equipment), and this opens up more possibilities for local business and industries.

In response to the widespread destruction caused by the Mt. Pinatubo eruption, RIF provided \$8.76 million for construction of 12 school and 2 hospitals. RIF-built schools are well-designed, well-constructed, and are highly valued by students, their parents, and the community at large. Enrollments have increased, and students willingly travel many kilometers to attend classes.

The RIF-funded construction of two urban hospitals may not have been the best means of addressing medical and health needs in the Mount Pinatubo area. Limited RIF money might have been better spent constructing rural health care units at the municipal level, which have less demanding equipment and staffing requirements.

RIF funded technical assistance through the U.S. Army Corps of Engineers for developing a Mount Pinatubo Recovery Action Plan (RAP). The analytical framework developed identifies costs and benefits of engineering alternatives for civil works that mitigate the damage of annual lahar flows. The RAP was incorporated in the integrated plan submitted to President Ramos by the multi-departmental Mount Pinatubo Commission and has influenced some DPWH decisions concerning civil works constructed in 1993 and 1994.

Though unquestionably a technically sound product, the RAP falls far short of DPWH's expectations for operational guidance. The RAP is not intended as an operational plan; rather, it is an analytical planning tool which requires periodic updating. Systematic monitoring of key variables is necessary to make the RAP framework operational. However, no such systems are in place. Moreover, the RAP was developed in the U.S. rather than in the Philippines and participation of key GOP officials and other Filipinos was less than what was needed for "technology transfer" to occur. DPWH simply lacks the understanding and institutional capabilities to make effective use of the RAP. RAP's limited utility makes this activity one of the least successful components of the RIF.

Overall, RIF has been successful and has demonstrated clearly that improvements in rural infrastructure can have a strong commercial and investment impact. These improvements also have a positive social impact and generate broad-based employment.

Given the tremendous devastation and destruction caused by the many natural disasters which yearly affect the Philippines, a strong case can be advanced for continuing support of rural infrastructure improvement. Unfortunately, USAID will not be in a position to continue assistance of the type provided through RIF.

TABLE OF CONTENTS

Executive Summary	i-iii
Acronyms	iv
Section 1: Overview of the Rural Infrastructure Fund Project	1 - 13
1.1 Project Description	1 - 2
1.2 The Economic and Political Context of RIF's Implementation	3 - 4
1.3 Project Status and Outputs	5 - 10
1.4 Quality Assurance of Sub-project Implementation	11 - 13
Section 2: Purpose, Team Composition and Methodology Of the RIF Impact Evaluation	14 - 15
2.1 Purpose of the Impact Evaluation	14
2.2 Evaluation Team Composition and Methodology	14 - 15
Section 3: Survey Results of the Economic and Social Impact of the RIF Roads and Ports	16 - 38
3.1 Description of the Survey of Road and Port Improvements	16 - 18
3.2 Social and Economic Impact of Selected Road Sub-projects	18 - 29
3.2.1 Local Government Officials	18 - 20
3.2.2 Commercial Business Owners/ Operators and Manufacturers	20 - 21
3.2.3 Agri-business Owners/Operators	21 - 23
3.2.4 Farmers	23 - 25
3.2.5 Bus and Trucking Company Operators	25
3.2.6 Jeepney Operators	26 - 28
3.2.7 Jeepney Passengers	28 - 29
3.3 Social and Economic Impact of Selected Port Sub-projects	30 - 38
3.3.1 Local Port Officials	30 - 32
3.3.2 Business Owners/Operators	32 - 33
3.3.3 Fishermen	33 - 34
3.3.4 Banca Operators	34 - 35
3.3.5 Banca Passengers	36 - 37
3.4 Conclusions	38

Section 4: Commercial and Social Impact of RIF Sub-projects	39 - 45	
4.1 Introduction		39
4.2 Improvements in Rural Income	39 - 41	
4.3 Business Growth and Investment	41 - 43	
4.4 The Impact on Employment	43 - 44	
4.5 Access, Well-being and Nation- Building: The Social Impact	44 - 45	
4.6 Conclusions		45
Section 5: Telecommunications Technical Assistance, NAVAIDS, Schools and Hospitals, and the Mt. Pinatubo Recovery Action Plan	46 - 63	
5.1 Philippines Telecommunications Development	46 - 50	
5.1.1 Background: The Telecommuni- cations Sector Prior to Privatization	46 - 47	
5.1.2 RIF's Telecommunications Technical Assistance	47 - 49	
5.1.3 Conclusions: Utility of RIF Technical Assistance	49 - 50	
5.2 Air Navigational Equipment	50 - 54	
5.2.1 Improved Safety and Airport Operations	50 - 51	
5.2.2 Puerta Princesa Airport	51 - 52	
5.2.3 Mactan Airport	52 - 53	
5.2.4 Conclusions	53 - 54	
5.3 RIF Schools and Hospitals	54 - 58	
5.3.1 Pagcalanggang Elementary School		55
5.3.2 Angeles City High School		55
5.3.3 Angeles City Central School	55 - 56	
5.3.4 Angeles City Emergency Hospital	56 - 57	183Y
5.3.6 Conclusions		58
5.4 The Mt. Pinatubo Recovery Action Plan	58 - 62	
5.4.1 Development of the Recovery Action Plan	58 - 60	
5.4.2 Implementation	60 - 62	
5.4.3 Conclusions	62 - 63	

Tables:

1 - RIF Sub-projects and Costs	8
2 - RIF NAVAIDS and Costs	10
3 - Road Improvements - Local Government Officials	19
4 - " " - Business Owners/Operators	21
5 - " " - Agri-business Owners/Operators	22
6 - " " - Farmers	24
7 - " " - Bus and Trucking Company Operators	25
8 - " " - Jeepney Operators	27
9 - " " - Jeepney Passengers	29
10 - Port Improvements - Local Port Officials	31
11 - " " - Business Owners/Operators	32
12 - " " - Fishermen	34
13 - " " - Banca Operators	35
14 - " " - Banca Passengers	36

Maps:

1 - RIF Road and Port Sub-projects	8
2 - RIF NAVAIDS Airports	10

Annexes:

Annex 1 - RIF Impact Evaluation Scope of Work	
Annex 2 - Individuals Interviewed and References	
Annex 3 - An Economic Impact Analysis of the RIF	

ACRONYMS

ADB -	Asian Development Bank
ASEAN -	Association of South East Asian Nations
ATC -	Air Traffic Control Tower Equipment
ATO -	Air Transportation Office
DME -	Distance Measuring Equipment
DOH -	Department of Health
DOTC -	Department of Transportation and Communications
DPWH -	Department of Public Works and Highways
ESF -	Economic Support Fund
FSN -	Foreign Service National
GOP -	Government of the Republic of the Philippines
ILS -	Instrument Landing System
IMF -	International Monetary Fund
JICA -	Japanese International Cooperation Agency
LBII -	Louis Berger International, Inc.
MDP -	Mindanao Development Project
MPC -	Mt. Pinatubo Commission
NAVAIDS -	Air Navigational Aids/Equipment
NDB -	Non-directional Beacon
NGO -	Non-governmental Organization
NTDP -	National Telephone Development Plan
NTP -	National Telephone Program
O&M -	Operations and Maintenance
OECS -	Overseas Economic Cooperation Facility
PACD -	Project Agreement Completion Date
PAL -	Philippines Airlines
PHILVOCS	Philippines Institute of Volcanology
PLLT -	Philippines Long Distance Telephone Company
PMO -	Project Management Office in DPWH for RIF
PPA -	Philippines Port Authority
RAP -	Mt. Pinatubo Recovery Action Plan
RIF -	Rural Infrastructure Fund Project
RTDP -	Rural Telephone Development Program
TELOF -	The Telecommunications Office of DOTC
USACE -	United States Army Corps of Engineers
USAID -	United States Agency for International Development

1. OVERVIEW OF THE RURAL INFRASTRUCTURE FUND PROJECT

1.1 Project Description

The Rural Infrastructure Fund (RIF) Project was authorized on September 28, 1987. The goal of RIF is to develop adequate physical infrastructure to support and sustain economic growth. The purpose of the project is to assist in the improvement and expansion of rural infrastructure in the transportation and telecommunications sub-sectors in order to enhance the flow of commerce, encourage investment and production, and provide further economic expansion and growth in rural areas. In general, RIF was intended to help reverse the deteriorating condition of public infrastructure thereby aiding the recovery of the Philippines in the post-Marcos period. By focusing on infrastructure in rural areas, RIF would also help to correct the serious imbalance between urban versus rural infrastructure investment. Through RIF-funded improvements to selected roads and ports, the utility of existing infrastructure would be significantly upgraded.

RIF was initially authorized for \$90 million in grant funds from the United States Agency for International Development (USAID) and \$4.5 million in counterpart contributions from the Government of the Republic of the Philippines (GOP). Through a series of eight project amendments, USAID funding was increased to \$190 million and the Project Assistance Completion Date (PACD) was extended by two years to December 31, 1994 (which is currently expected to be extended to June 30, 1995 to provide additional time to complete several remaining sub-projects). This substantial increase in funding over the original level supported several major additional elements which were consistent with the development purpose of RIF and responded to the emerging needs of the Philippines for assistance in financing rural infrastructure development. Due to recent USAID programming changes, total funding for RIF was reduced by \$11.58 million which was unlikely to have been spent before the PACD.

RIF is an "umbrella" design; that is, the overall project serves as a funding mechanism for several major program components consistent with the purpose of project and numerous sub-projects, e.g., road and port improvements. RIF consists of five main areas of activity:

1. Road and Port Improvements involving the construction (upgrading) of 14 road sections covering 312 kilometers, 19 feeder ports and one major bridge with total estimated expenditures of \$97.26 million, or 54.5 percent of total estimated project expenditures;

2. **Schools and Hospital Construction in the Mt. Pinatubo Affected Areas** involving construction of 12 schools and 2 hospitals with total estimated expenditures of \$8.76 million, or 4.9 percent of total estimated expenditures;

3. **Air Navigational Aids (NAVAIDS)** which provides electronic guidance and communications equipment for aircraft navigation and control at 25 airports (six airports received NAV AIDS equipment in Phases 1 and 2, giving a total of 31 sub-projects) with total estimated expenditures of \$15.44 million, or 8.7 percent of total project expenditures;

4. **The Mt. Pinatubo Recovery Action Plan** which is an integrated decision-making framework to guide infrastructure construction in the affected areas prepared by the U.S. Army Corps of Engineers (USACE) at a cost of \$6 million, which 3.3 percent of estimated total project expenditures;

5. **Telecommunications Technical Assistance** involving assistance to the Department of Transportation and Communications (DOTC) for policy formulation and privatization of assets costing \$368,000;

6. **The South Cotabato Demonstration Area Component** involving construction of major roadways in conjunction with the Mindanao Development Project (MDP) with total estimated funding of \$38.81 million which constitutes 22.3 percent of total project expenditures (this component is not included in this impact evaluation, it will be evaluated in the MDP final evaluation).

RIF also provided \$1.2 million for initial short-term technical assistance, followed by a \$8.5 million contract with Louis Berger International, Inc. and TCGI Engineers for long-term assistance to DPWH's Project Management Office (PMO). This technical assistance supported the entire implementation cycle of the roads and ports sub-projects, from initial feasibility studies through to project completion. Additional funding was provided for limited training and commodity procurement for the RIF PMO; monitoring, evaluation and audit; and other small project-related expenses. USAID estimates that total project expenditures will reach \$178,414,000.

Corresponding to these project components, GOP counterpart agencies for RIF are: a) the Department of Public Works and Highways for the roads and ports improvements, schools and hospitals in the Mt. Pinatubo affected areas and the Mt. Pinatubo Recovery Action Plan; b) the Air Transportation Office (ATO) of the DOTC for the NAV AIDS; and DOTC for the technical assistance for privatization and telecommunications policy formulation.

1.2 The Economic and Political Context of RIF's Implementation

RIF was developed at a time when the Philippines was undergoing an extremely difficult period in its history. 1986 marked the end of the Marcos regime and the re-establishment of a democratically elected government with the victory of Cory Aquino. The new government faced numerous problems, including an economy that had been in steady decline during the 1980s as confidence in the Marcos Administration deteriorated and corruption and cronyism guided the government's control of economic affairs. The decline hit rock-bottom in the two years preceding Marcos' removal from office as the economy suffered negative annual growth rates. Reversing this trend was clearly essential for the Aquino Administration to carry out its populist mandate and set the country on a course of economic growth.

A staggering foreign debt which resulted from the disastrous mismanagement of the economy during the Marcos period was the most urgent economic problem facing the country. By the end of December 1987, the country's foreign debt amounted to \$27.9 billion of which \$3.7 billion was for short-term loans. Out of the \$24.2 billion in medium and long-term debt, \$17 billion was eligible for some form of debt relief. How to manage this substantial foreign debt was central to the country's economic planning and its dealings with donors and commercial creditors. In turn, maintaining an economic program with the IMF was crucial for these discussions to continue.

The Aquino Administration and, subsequently, the Ramos Administration, correctly took the politically difficult position to meet foreign debt obligations and maintain the country's creditworthiness. However, in the aftermath of the preceding economic malaise, investors' confidence in the country needed to be re-gained. Economic recovery began in 1987, though economic growth in the following years was at generally modest levels, far below the rates achieved in neighboring East Asian countries. The heavy debt burden, combined with modest economic expansion, an ineffective revenue system and a bloated public sector, placed severe limits on the GOP's discretionary development budget.

The Government simply lacked the funds necessary to undertake projects on its own to stimulate the local and foreign investment required for economic growth. Major new investments in infrastructure were essential. Most notably in rural areas, infrastructure investments were seriously lacking to the extent that many existing facilities were in a state of decline or disrepair. Though modest in comparison to the enormous investment needed to address the country's overall infrastructure requirements, RIF was designed to provide much needed funding for infrastructure, particularly in rural areas where the need was greatest.

It is important to recognize the political or symbolic significance of infrastructure development as a means of improving the welfare of the citizenry. The Aquino Administration needed to establish its credibility throughout the country where insurgency was a serious problem. Many in rural areas had understandably come to view government as uninterested in, or even hostile to, improving their standard of living. The "peace and order" problems of the country stemmed directly from such perceptions, providing fertile ground for communists and others opposed to the government to gain support. Throughout the Aquino Administration, the "peace and order" problem worked contrary to efforts to promote investors' confidence. Without overdrawn the connection, economic stabilization would at least in part depend on achieving political stabilization, but this time based on democratic systems and institutions.

Cory Aquino and her supporters had been elected on a populist platform - "People Power" was the Cory slogan. Now in office, this had to be translated into action. From the outset, many quarters doubted the ability, if not the intentions, of Aquino and her Administration to make good on this promise. A series of failed, right-wing military-led coup attempts kept alive the lingering question of Aquino's ability to govern and, more fundamentally, to re-establish a genuinely democratic political system undermined during the Marcos regime. It was, therefore, imperative for the Aquino Administration to demonstrate that it was no longer "business as usual". The favoritism and protection of special interests were to be replaced by democratic policies to create more equal and open opportunities for a much broader spectrum of people.

One of the most tangible and enduring demonstrations government can make toward this end, especially in rural areas, is to provide the basic infrastructure communities need to grow. This includes roads, ports, bridges, schools and various other public facilities needed for social and economic development. During a period when the GOP lacked the resources to undertake projects which would advance national political interests, as well as economic development, RIF provided funding for the very types of projects most needed in rural areas.

1.3 Project Status and Outputs

At the time of this evaluation, the status of sub-projects involving construction and/or equipment installation was as follows:

<u>Sub-project</u>	<u>Total No. Planned</u>	<u>No. Completed</u>	<u>No. On-Going</u>
1. Roads	14	8	6
2. Ports	19	16	3
3. Bridges	1	1	
3. NAVAIDS	31	26	5
4. Schools	12	12	
5. Hospitals	2	0	2

Technical assistance to DOTC for telecommunications policy formulation and the Mt. Pinatubo Recovery Action Plan were also completed. The remaining on-going sub-projects are nearing completion. USAID and DPWH are considering a six month extension of the PACD to assure adequate monitoring of these remaining projects until completion. No new activities are anticipated during this extension period.

RIF has produced a genuinely impressive number of outputs over its life which are widely dispersed throughout the country and located in some fairly remote, rural locations. Tables 1 and 2 present the RIF sub-projects; Maps 1 and 2 show the location of these sub-projects.

(See Tables 1 and 2, Maps 1 and 2)

In addition to the sub-projects listed above, RIF also has accomplished the following:

- completed full feasibility studies of 25 roads, 14 of which received funding under RIF) covering 1300 kilometers;
- completed feasibility studies for a total of 43 feeder ports, of which 19 received funding under RIF;
- trained numerous airport technicians on the use of NAVAIDS;
- funded the development of a comprehensive planning framework to guide engineering interventions to control the lahar flows from the Mt. Pinatubo eruption (discussed in Section 7);
- provided two years of long-term technical assistance to aid DOTC with the first privatization in the telecommunications sector and the formulation of sectoral policies which would encourage private sector investment as the principal means for developing the national telecommunications system.

Table 1

RIF Sub-projects

Roads:

Estimated Total Cost *

1. Quirino Highway	\$9,799,193
2. Kalibo Highway	\$5,172,758
3. Kalibo Highway 1a	\$6,752,736
4. Estancia-Ajuy & Wharf	\$10,124,385
5. Balasan-Carles Rd.	\$3,324,068
6. Mabini Circumferential	\$5,393,148
7. Lipa - San Pablo Rd.	\$6,154,182
8. Maddela-Casiguran Rd.	\$3,965,228
9. Santa Fe-Rosales Rd.	\$8,262,391
10. Aboabo-Quezon Rd.	\$4,621,826
11. Baco-Puerto Galera Rd.	\$3,552,581
12. Batangas-Lobo Rd.	\$2,552,821
13. Sibuyan Circumferential	\$2,064,841
14. Tubay-Jabonga Rd.	\$2,867,985

Roads Total	\$74,608,143

Bridges:

1. Magat Bridge	\$11,386,763
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Ports:

1. Panacan	\$84,108
2. Santa Rosa	\$589,345
3. Almagro	\$207,637
4. Mandaon	\$530,834
5. Babak	\$574,666
6. San Jose	\$647,581
7. Bulan	\$623,080
8. Pinamopoan	\$545,480
9. Pandan	\$306,689
10. Cajidiocan	\$753,963
11. Malolos	\$153,757
12. San Pascual	\$822,501
13. Narra	\$853,530
14. Morong	\$712,408
15. Sagnay	\$1,331,873
16. Oras	\$802,252
17. Cawit	\$615,277
18. Pio Duran	\$726,061
19. Sogod	\$387,348

	\$11,268,390

* Engineering and Civil Works

Schools:

1. Angeles City Elementary	\$1,138,766
2. Salapugan Elementary	\$348,797
3. Angeles City High School	\$394,532
4. San Vicente/Gabalton Elementary	\$692,507
5. Concepcion Elementary	\$403,191
6. Magao Elementary	\$378,090
7. Pagalangan Elementary	\$346,538
8. Morong Elementary	\$407,126
9. Orani North Elementary	\$372,229

Schools Total	\$4,481,776

(Note: Three buildings were constructed at Angeles city and two at San Vicente/Gabalton in Bamban, Tarlac which makes a total of 12 schools)

Hospitals:

1. Olongapo City General	\$3,453,682
2. Angeles City Emergency	\$829,477

Hospitals Total	\$4,283,159

MAP 1

PROJECT LOCATION MAP

RURAL INFRASTRUCTURE FUND PROJECT-PMO
AID PROJECT NO. 492-0420

SUBPROJECTS
UNDER CONSTRUCTION

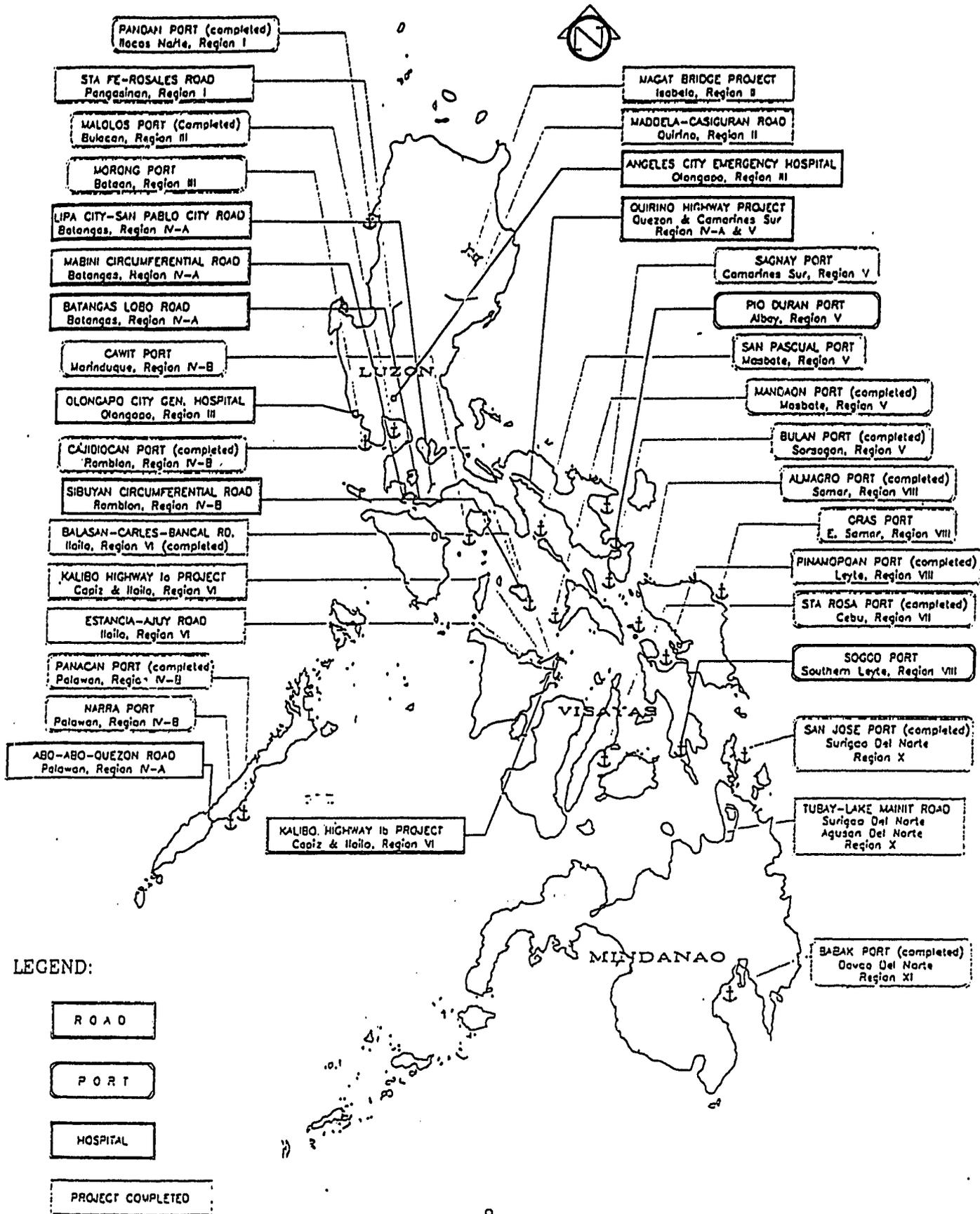


Table 2 NAVAIDS

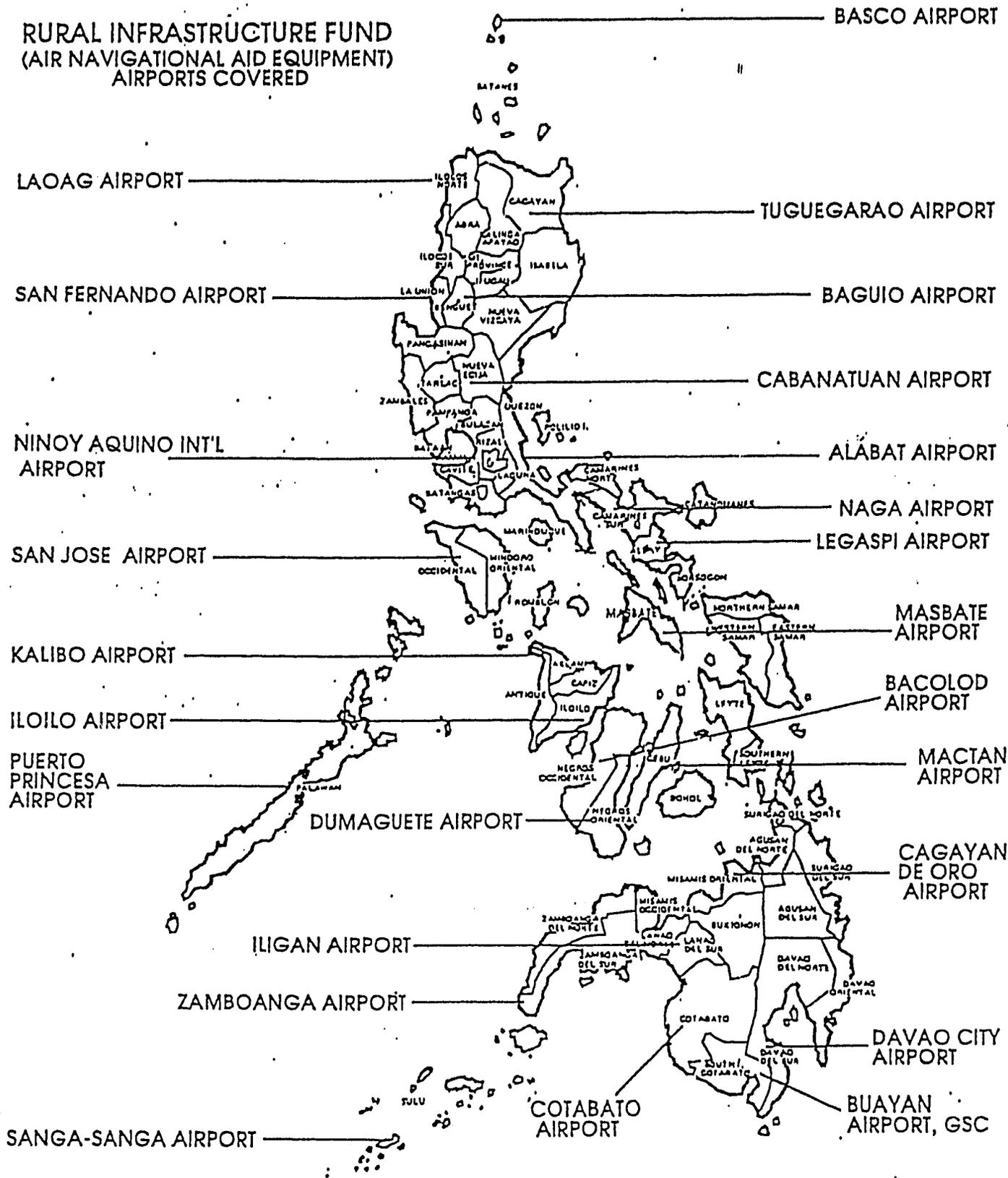
Type of Equipment

AIRPORT	ILS	VOR	DME	NDB	ATC	COST (\$000's)
1. Manila	*	+		+		\$1,720
2. Tuguegarao		*	*			\$419
3. Laoag		*				\$232
4. San Fernando, Union		*				\$231
5. San Jose, Occ. Min.		*	+			\$553
6. Naga		*				\$232
7. Bacolod	+	*	+			\$1,190
8. Cabanatuan		*				\$231
9. Masbate		*				\$237
10. Dumaguete		*				\$264
11. Cagayan de Oro	+	*	*,+			\$1,092
12. General Santos		*	+			\$541
13. Puerto Princesa		+	+	+	+	\$670
14. Cotabato City		*	+		+	\$769
15. Mactan	+		+			\$769
16. Legaspi		+	+	+	+	\$1,153
17. Lubang		+	+			\$592
18. Baguio				+		\$206
19. Davao City	+		+	+		\$1,066
20. Iloilo City	+		+			\$838
21. Zamboanga City	+		+			\$828
22. Basco			+			\$246
23. Sanga-Sanga			+	+		\$270
24. Alabat				+		\$142
25. Kalibo		+	+			\$452

* - Phase 1 + - Phase 2
 ILS - Instrument Landing System
 VOR - Very High Frequency
 Omnidirectional Equipment

DME - Distance Measuring
 NDB - Non-directional Beacon
 ATC - Air Traffic Control
 Tower Equipment

MAP OF THE PHILIPPINES



1.4 Quality Assurance of Sub-project Implementation

A critical concern for assessing project impact is the durability of the civil works constructed. This is particularly important in the Philippines where poor construction practices in public infrastructure projects by contractors who deviate, sometimes substantially, from design and engineering standards are widespread. This takes on special significance for RIF where the construction of roads, ports, schools and hospitals constituted roughly 75 percent of RIF funding for civil works (excluding the MDP roads component which was managed as a separate activity to expedite MDP's implementation). The only way to prevent such abuses is to monitor construction closely and tie payment to adherence with engineering and construction standards specified in sub-project contracts.

A form of host contracting was used for these sub-projects. DPWH was responsible for contracting for construction services, monitoring implementation and assuring compliance with contract specifications. DPWH was also responsible for reviewing contractors' payment requests to assure that construction standards had been met. Contractors were required to correct deficiencies to obtain payment. However, USAID made all payments directly to contractors when it was assured that construction standards had been met. In other words, USAID served as a final check on quality assurance.

To augment DPWH's capacity for assuring the quality of RIF sub-projects, technical assistance was provided for the entire project cycle. This included the key steps of initial review of proposed projects; selection of potential sub-projects that met economic feasibility standards (a minimum economic rate of return of 15 percent or greater) and environmental impact standards; development of detail designs, cost estimates and bid documents; review of proposals and awarding of contracts; monitoring contractor performance and resolution of deficiencies in construction; ending with the final inspection of the sub-project to assure compliance with design standards specified in the contract.

These services were provided initially by Parson Brinkerhoff, International on an interim basis beginning in early 1988. Louis Berger International, Inc. and TCGI Engineering (LBII/TCGI) were selected to assist DPWH on a long-term basis beginning in September 1988. Three resident expatriate advisors were provided at the peak of the contract when as many as 25 RIF sub-projects were under construction. For larger sub-projects, LBII would field as a team with four or five engineers and inspectors to supervise construction. This included a resident field engineer, a materials engineer, a quality assurance engineer and one or two inspectors. Smaller sub-projects might require only a resident engineer and a materials inspectors. The LBII/TCGI sub-project

teams were reported to be staffed with experienced engineers who were a cut above the average for the majority of sub-projects.

In addition to the LBII/TCGI field teams, sub-projects were routinely monitored by DPWH and LBII/TCGI engineers from the central PMO. Monitoring included both technical engineering problems and non-engineering issues, such as property rights problems and local political pressures. USAID also monitored sub-project implementation, at one point, assigning as many as four FSN engineers to RIF sub-projects. USAID engineers visited sub-projects on a monthly basis to check on such things as adherence to the schedule of equipment use (i.e., was the right equipment actually being used when needed), testing procedures and resolving conflicts between the resident engineer and the contractor. Periodic visits of USAID engineers was reported as providing additional motivation to the contractor to abide by the terms of his contract.

The quality assurance process used for RIF seems to have worked well. Deficiencies identified in construction were often resolved on the spot with the contractor agreeing to take corrective actions. However, conflicts did occur. Conflict resolution followed a three step process. First LBII/TCGI staff and the contractor tried to resolve the problem; some 70 to 80 percent of conflicts were resolved at this stage. If the conflict could not be resolved, the problem was referred to the PMO Director who elevates the conflict to the Undersecretary level if necessary. If that does not resolve the problem, the contractor could resort to arbitration (only one case reached this step).

During site visits, the evaluation team observed examples where deficiencies had been identified and remedial action was underway. In one case, the Mabini Circumferential Road, numerous sections of the road surface were being replaced, shoulders repaired and additional drainage constructed to meet contract specifications. On the same road, USAID had issued stern warnings to stop improper construction practices which were harming the immediate environment. The contractor was required to repair the damage and construct a proper dump site for excavated materials.

The extensive quality assurance process RIF followed appears to have resulted in considerably better than average civil works where environmental impact was reduced to acceptable levels in most cases. For example, there has been no report of typhoon or weather-related damage to RIF sub-projects thus far. This is in a country where infrastructure is routinely damaged or destroyed by severe weather. Morong Port was hit by a massive tidal wave shortly after completion, but suffered absolutely no damage.

Local officials reported that the quality of road construction on the Santa Fe-Rosales Road exceeds that of any other road in the area. The Secretary of DPWH was reported to have stopped to inspect the Madella Road sub-project on his way to see an ADB-funded road. Both roads were constructed at approximately the same time, but the ADB road was already showing signs of wear not seen on the RIF-improved road. The Secretary is reported to have questioned why the ADB road did not follow construction standards comparable to the RIF road. There are also reports of RIF road construction standards being adopted by other donors for their road projects. It should also be noted that the design developed for the Economic Support Fund schools, used for more than decade and well proven as a superior building, was followed for the RIF-funded schools in the Mt. Pinatubo area.

In short, it appears that RIF has produced superior quality sub-projects that certainly exceed standard roads, ports and schools. At the very least, it can be concluded that these sub-projects will be more durable than average and provide benefits to users for a much longer period of time.

SECTION 2: PURPOSE, TEAM COMPOSITION AND METHODOLOGY OF THE RIF IMPACT EVALUATION

2.1 Purpose of the Impact Evaluation

The central purpose of the impact evaluation is to assess the economic and social impact of the civil works sub-projects (i.e., roads, ports, schools and hospitals), as well as the utility of the navigational aids, the Mt. Pinatubo Recovery Action Plan and the technical assistance for telecommunications policy formulation. (See Annex 1 for a copy of the impact evaluation scope of work.) The evaluation examines the extent to which RIF has achieved its original purpose: "...to improve and expand rural infrastructure...to increase the flow of commerce, encourage investment and production and provide for further economic expansion and growth of rural areas." Since the project is nearing completion and no new infrastructure projects are anticipated by USAID in the Philippines for the foreseeable future, recommendations for future action are a moot point. Rather, the evaluation report serves as a "lessons learned" type of document for USAID and the GOP.

Project implementation procedures are not central to this evaluation. Project implementation was evaluated in 1991 in a mid-term process evaluation of RIF. Implementation was also reviewed in part by two audits conducted by the Regional Inspector's General Office in 1991 and 1994.

2.2 Evaluation Team Composition and Methodology

The evaluation was conducted over a four week period between November 14 and December 9, 1994. The evaluation team consisted of five members:

- the team leader/evaluation specialist who was responsible for the overall production of the evaluation;
- an area development specialist who focused on the commercial and social impacts of the infrastructure sub-projects;
- a senior transportation economist who focused on the impact of the infrastructure sub-projects on the local and regional economy;
- a research economist who worked with the transportation economist; and
- a telecommunications specialist who assessed the technical assistance for privatization and policy formulation in the telecommunications sector.

An engineer was not necessary because the evaluation focuses solely on economic and social impact. RIF Project Managers saw no need to re-assess such matters as the engineering quality of each sub-project.

Data sources specified in the Logframe for RIF were either impractical for assessing sub-project impact (e.g., national aggregate statistics, regional statistics on gross agricultural production) or are highly unreliable (e.g., DPWH traffic counts and available port statistics). Replicating the initial feasibility studies, for which independent traffic, shipping and passenger counts were made, exceeded available resources and time for the evaluation. In effect, there was no viable baseline data source to support a "before and after" evaluation design.

This evaluation differs significantly from most others in that a special survey was conducted as a first phase of the impact evaluation. The survey collected basic data about the economic and social impact that beneficiaries of the road and port sub-projects had observed. Given budget and time limits, a "rapid appraisal" approach similar to market research surveys was used. Questionnaires were developed for key respondents and specific groups of sub-project beneficiaries. Respondents were asked ten to twelve basic questions about the anticipated effects of the sub-projects. They assessed those effects qualitatively, using "no/low - some/medium - significant/high" categories. Eight roads and six ports were selected as survey sites. Coverage of the survey was national in scope. A local consulting company - the Economic Development Foundation - conducted the survey. More than 2,200 interviews were completed. Section 3 - Survey Results on the Economic and Social Impact of Road and Port Sub-projects - discusses the survey method in more detail.

In addition to the survey results, standard data sources were used for the evaluation. This includes sub-project site visits, field interviews about the effects of the sub-projects and review of project-related records and documents. For the NAVAIDS component, a set of technical questions regarding the effects of the equipment on flight operations was distributed to Philippine Airlines pilots who fly to the NAVAIDS airports. Flight crews were also interviewed at the airports and, in some cases, during flights. The telecommunications component was evaluated by a former DOTC official who was very knowledgeable about the technical assistance provided by RIF and who had ready access to DOTC staff about the utility of this assistance. The Mt. Pinatubo Recovery Action Plan was assessed on the basis of document review and interviews with USAID, contractor (LBII), DPWH and Mt. Pinatubo Commission representatives. Unfortunately, no one from the U.S. Army Corps of Engineers who had worked on the plan was available at the time the evaluation was conducted.

**SECTION 3: SURVEY RESULTS ON THE ECONOMIC AND SOCIAL IMPACT
OF RIF ROAD AND PORT IMPROVEMENTS**

3.1 Description of the Survey of Road and Port Sub-projects

A socio-economic survey was conducted during October/November 1994 to obtain information about the economic and social impact of selected RIF roads and ports sub-projects. Fourteen sub-projects - eight roads and six ports - where construction was completed or nearing completion were selected as survey sites. These sub-projects were geographically dispersed to reflect the national scope of RIF; they are as follows:

ROAD SUB-PROJECTS

1. Santa Fe - Rosales Road, Pangasinan
2. Baco - Puerto Galera Road, Mindoro
3. Batangas City - Lobo Road, Batangas
4. Mabini Circumferential Road, Batangas
5. Estancia - Ajuy and Wharf Roads, Iloilo
6. Kalibo Highway 1a, Capiz/Iloilo
7. Balasan Carles Road, Iloilo
8. Tubay - Jabonga/Lake Mainit Road, Agusan del Norte

PORT SUB-PROJECTS

1. Pandan Port, Ilocos Norte
2. Bulan Port, Sorsogon
3. Pio Duran Port, Albay
4. Santa Rosa Port, Cebu
5. San Jose Port, Surigao del Norte
6. Babak Port, Davao del Norte

Individuals from specific beneficiary groups - i.e., the principal users of the sub-projects - were interviewed for the survey. Short questionnaires consisting of ten to twelve basic questions appropriate for each beneficiary group were developed. The questions concerned the anticipated social and economic effects of road and port improvements which should be occurring if the sub-projects were indeed having an impact on economic and social conditions. Most of the questions required respondents to report on changes resulting from the sub-projects in the form of a high/medium/low scoring. Interviews lasted approximately fifteen to twenty minutes, though some respondents elaborated on points well beyond the scope of the questionnaire.

Time and budget constraints precluded selecting individuals on a statistically random basis. A lower cost "rapid appraisal" approach was used instead. Initial targets for the number of respondents to interview per beneficiary group were estimated, giving weight to the general public (i.e., passengers) and

producers using the facilities (i.e., businesses, farmers and fishermen). Selection of individuals for interviews was based largely on their availability, i.e., individuals who represented one of the various beneficiary groups and were present when the survey teams visited the sub-project sites. The actual number interviewed, therefore, corresponds to these original estimates, but also reflects the availability of these people when the interviews were conducted. The beneficiary groups and the number of respondents interviewed from each group are as follows:

ROAD SUB-PROJECTS

<u>Respondents</u>	<u>Total No. Interviewed</u>
1. Local Government Officials	44
2. Commercial Business Owners/ Operators	396
3. Agri-business Owners/Operators	149
4. Farmers	240
5. Bus and Truck Company Operators	32
6. Jeepney Operators	114
7. Jeepney Passengers	380

Road Sub-total	1,455

PORT SUB-PROJECTS

1. Local Port Officials	15
2. Business Owners/Operators	114
3. Fishermen	240
4. Banca Operators	93
5. Banca Passengers	300

Port Sub-total	762

Total Number Interviewed: 2,217

Mayors and other community leaders (e.g., barangay captains) from communities located along the improved road sections were interviewed. Though not a specific beneficiary group of the sub-projects, local officials serve as "key informants" knowledgeable about changes occurring in their communities because of the road improvements. Similarly, local port officials were interviewed because of their daily experience with the improved port facilities. Interviews of jeepney passengers were conducted with individuals traveling the improved road section, usually while waiting at the terminal for their jeepney to arrive or depart. A similar approach was followed for jeepney drivers, banca operators, banca passengers. Managers or other company representatives were interviewed from truck and bus companies using the improved road section. Fishermen and farmers were

selected from local communities nearby the ports or roads. Commercial and agri-business operators were selected to reflect a mix of the types of businesses present in the communities closest to the sub-projects.

The results of the survey discussed in the following sections are presented as percentages. Given the non-random basis for respondent selection and the relatively small number of respondents from certain groups (local government and port officials), these results should be used conservatively. Even though the results are presented as percentages, they should be viewed as showing only general patterns as opposed to providing precise statistical measures. Accordingly, the following sections treat the results - the percentages - as offering ordinal rankings - high, medium or low/no - of the magnitude of sub-project impact.

3.2 Social and Economic Impact of Selected Road Sub-projects

3.2.1 Local Government Officials

Table 3 presents the results for local government officials interviewed about the effects of the road sub-projects on their communities. As expected, road improvements have resulted in a substantial increase in the volume of commercial and passenger traffic. This implies increased movement or shipment of raw materials, finished products, consumer goods and people in the area. As a consequence, local officials reported a general increase in revenues generated by the greater flow of traffic.

The road improvements were also reported as having improved the availability and reliability of transportation, as well as the ease of travel. In other words, there are more trucks, buses, jeepneys and tricycles available now than before the road improvements. In turn, this results in transportation becoming more reliable, such as during bad weather, reducing the time passengers must wait for vehicles and making travel more comfortable for the public. Increased availability also means that transportation becomes more readily available to communities and households which previously were not well served. Overall, these responses, as well as those from other respondents reported below, describe the development of a more effective and efficient transportation system in areas benefiting from road improvements

Additional effects of better transportation are reflected in the responses regarding farm production and marketing. Interviews with farmers and agri-business operators confirm (though not to the degree reported by local officials) that road improvements

Table 3

ROAD IMPROVEMENTS

LOCAL GOVERNMENT OFFICIALS' assessment of the impact of road improvements on the following conditions/changes: (table reports the percentage of respondents' answers by category)

	NONE/LITTLE	SOME	SIGNIFICANT
Increased commercial traffic	2.3	20.5	77.3
Increased passenger traffic	2.3	20.5	77.3
Increased local revenues from traffic	2.3	44.5	44.5
Improved ease and reliability of travel	4.5	13.6	81.8
Improved availability of transportation	2.3	29.5	68.2
Assists farmers to market their products	13.6	13.6	70.5
Encourages increased farm production	20.5	22.7	50.0
Increases access to public services	6.8	22.7	70.5
Encouraged start-up of new businesses	15.9	43.2	36.4
Increased real estate prices	4.5	27.3	61.4
Encouraged increased outside investment	13.6	52.3	34.1
Encouraged planning of new public investment	18.2	25.0	56.8

(Note: "Do not know" or "Too soon to tell" responses are excluded; therefore, most row totals do not add to 100 percent.)

contribute to increasing the level of production, the types of crops grown and direct marketing by producers. Better roads and transportation assure farmers of such things as being able to get their products to market when necessary, and having access to transportation on a reliable basis which is necessary for producing higher value, perishable crops. Greater availability of transportation also encourages farmers to market their products directly without incurring the costs of a middleman.

Local government officials clearly associated the road improvements with commercial development and improved access to social services. Other survey respondents strongly confirm these effects. Government officials reported that the road improvements encouraged the start-up of new businesses, significantly increased the value of land (especially located along or near to the road) and made the area more attractive to investment. Similarly, the roads significantly improved the public's access to various social services and has encouraged planning of additional investments in infrastructure. This includes such works as additional road improvements, communications, irrigation and drainage systems and public facilities, such as markets and business centers.

3.2.2 Commercial Business Owners/Operators and Manufacturers

Table 4 reports the results from interviews with 396 commercial business operators and manufacturers regarding the effects of road improvements. It should be kept in mind that these businesses are, for the most part, small or very small scale operations. Approximately half of the respondents reported that the road improvements produced little or no reduction in transportation costs associated with their business; whereas slightly less than half report at least some cost reductions. This implies that shipping rates have not yet been reduced substantially on a broad scale as a result of the road improvements, but some movement in this direction seems to be occurring. Similarly, their access to supplies and materials needed for their business has not improved greatly as a result of the road improvements. However, they report that business-related travel is somewhat easier due to such factors as reduced travel time.

An important result is that the majority of respondents associated road improvements with expanding their business activity. They also reported some change in the types of business operating in the area, implying some diversification of business activities. Respondents divide almost evenly regarding the need to hire additional workers and purchase new equipment due to business expansion. This is actually a more positive result than might have been expected given that many of these businesses are small, family owned and operated establishments.

Respondents also divide evenly over plans to expand or improve their businesses as a result of the road improvements. This includes expanding the range of goods for sale in an existing business, as well as starting-up new businesses. As these plans materialize, increased hiring and new equipment purchases might become necessary.

The respondents clearly associate road improvements with greater competition. Though the individual business operator may not

welcome this, increased competition typically indicates the development of commercial activities in the area, giving the public a wider range of products and services to choose among and, perhaps, more competitive prices.

Table 4 ROAD IMPROVEMENTS

COMMERCIAL BUSINESS OWNERS/OPERATORS' assessment of the impact of road improvements on the following conditions/changes: (table reports the percentage of respondents' answers by category)

	NONE/LITTLE	SOME	SIGNIFICANT
Reduced transportation costs for business	50.8	34.8	10.4
Improved supply of goods for sale or materials for production	46.5	7.3	9.8
Improved ease of travel to buyers or suppliers	49.5	23.5	12.1
Stimulated business growth/activity	29.0	56.6	14.4
Stimulated changes in type of business	53.5	28.8	17.7
Led to hiring of additional employees	36.6	(one) 23.5	(two or more) 10.9
Purchase additional equipment or increased business space	34.1	33.1	3.8
Led to increased competition	24.2	(one) 24.2	(several) 41.7
Plan to improve or expand business	No: 49.0	Yes: 51.0	

(Note: "Do not know" or "Too soon to tell" responses are excluded; therefore, most row totals do not add to 100 percent.)

3.2.3 Agribusiness Owners/Operators

Table 5 presents the responses of 149 agri-business operators/owners. The group interviewed included a diverse mix of businesses including rice, corn and copra/coconut traders; agricultural input suppliers; vegetable, fruit and livestock producers, coconut plantation operators and various other agribusinesses (e.g., fish ponds).

Table 5

ROAD IMPROVEMENTS

AGRI-BUSINESS OWNERS/OPERATORS' assessment of the impact of road improvements on the following conditions/changes: (table reports the percentage of respondents' answers by category)

	NONE/LITTLE	SOME	SIGNIFICANT
Reduced transportation costs of the business	43.1	44.4	12.8
Increased reliability of transportation	7.4	43.6	43.6
Encouraged expansion or diversification of agri-business	36.2	51.0	12.8
Plans to diversify or expand business further	(no plans) 47.0	(have plans) 53.0	n/a
Led to increased competition	17.4	(one) 36.2	(
Encouraged local farmers to increase production	23.5	39.6	24.2
Encouraged production of new types of crops	25.5	42.3	12.1
Led to increased use of fertilizers, pesticides or better seeds by local farmers	18.1	37.6	20.8
Increased prices paid to local farmers	42.3	38.3	13.4
Encouraged farmers to market goods directly	24.2	45.0	9.4

(Note: "Do not know" or "Too soon to tell" responses are excluded; therefore, most row totals do not add to 100 percent.)

Respondents divide on the question of reductions in their transportation costs due to the road improvements; however, the majority reports at least some decrease in costs. This suggests some favorable movement in shipping costs, but not to a great extent or across-the-board for most types of businesses. A large majority of respondents reported an improvement in the reliability of transportation, reflecting better market access, especially during bad weather, due to road improvements. A

majority also reported that the road improvements encouraged them to expand or diversify their business activities. At least half reported that they have additional plans for further business expansion and/or diversification. This suggests the potential for future employment generation in the area if these plans materialize.

When asked about the changes in the activities of farmers in their areas, agri-business respondents associated the road improvements with at least modest increases in production, introduction of new crops, greater use of inputs, increases in prices paid to farmers and more farmers marketing their products directly. All of these changes are positive impacts that appear to be occurring in the areas surveyed.

3.2.4 Farmers

Table 6 presents the results obtained from interviews with 240 farmers located along or near the improved road sections. The farmers interviewed produced the following crops for sale:

Rice -	57.5%
Corn -	22.5%
Coconut/Copra -	32.5%
Fruits -	33.8%
Vegetables -	34.2%
Others -	6.3%

(Note: most farmers produced two or more the preceding crops)

A majority of farmers reported little or no reduction in transportation costs associated with marketing their crops. However, roughly 40 percent reported at least some reduction in transportation costs. It is important to keep in mind that several of the surveyed roads had been completed for only one year or less, while some were in the final stages of construction. Therefore, it might still be too soon for major changes in shipping costs to have occurred (this also applies to changes in transportation costs reported by business and agri-business respondents). What the farmers are reporting might be initial stages of greater competition among transportation providers due to the road improvements. In time, competition among transportation providers could lead to larger or more extensive shipping costs reductions.

While most farmers reported little or no increase in the prices they receive for their products, roughly a third of the respondents did report such increases. Roughly 40 percent of the farmers do not market their crops directly, while an equal number reported they market their crops themselves and did so before the road improvements. A small but important percentage of respondents reported that they either recently started marketing their crops themselves or plan to do so in the near future.

Initial increases in prices obtained by farmers and more direct marketing by farmers might be signaling changes facilitated by the road improvements that with time could develop into significant economic benefits for the farmers.

Table 6 ROAD IMPROVEMENTS

FARMERS' assessment of the impact of road improvements on the following conditions/changes: (table reports the percentage of respondents' answers by category)

	NONE/LITTLE	SOME	SIGNIFICANTLY
Reduced transportation costs for marketing	53.3	33.3	6.3
Increased prices received for products	58.3	34.6	3.8
Markets products directly or plans to do so	No: 42.9	Yes: 40.4	Recently started or plans to: 16.7
Encouraged increased production or plans to increase production	35.0	(some or plans to) 57.1	7.9
Led to increased purchases of fertilizers, pesticides or improved seeds	30.0	54.2	12.9
Encouraged new crop production or plans to grow new crops	(none or no plans) 53.3	(some or plans to) 37.9	8.8
No. of additional trips to town by farm family per month	17.1	(one or two more) 45.4	(many more) 37.5
Better access to health or education services	10.0	50.4	39.6

(Note: Do not know" or "Too soon to tell" responses are excluded; therefore, most row totals do not add to 100 percent.)

With respect to production practices, roughly two-thirds of respondents reported increase purchased of agricultural inputs as a result of road improvements. While most farmers have not, nor do they plan to, produce new crops, a significant percentage have or plan to do so. The shift to new crops typically means producing commodities, such as vegetables and fruits, which have

higher value than traditional crops, but are also more dependent on reliable transportation. The road improvements are improving transportation for these farmers, as evidenced by more frequent visits to nearby towns. In addition to the economic benefits this travel has, most farmers reported that the road improvements has resulted in better access to health and educational services.

3.2.5 Bus and Trucking Company Operators

Table 7 presents the responses of operators of major bus and trucking companies which travel the improved road sections. The roads have clearly had a beneficial impact on these businesses. Most respondents reported improvements in the areas of increased business, expanded service area, reduced operations and maintenance costs, and increased reliability of company vehicles. It is not until these types of benefits result to transportation providers that cost reductions can be passed along to the users of these services - i.e., farmers, passengers and local businesses. What drives this process cost and price reduction is increased competition among service providers, which a majority of respondents reported being "significant".

Table 7 ROAD IMPROVEMENTS

Bus and Trucking Company Operators' assessment of the impact of road improvements on the following conditions/changes: (table reports the percentage of respondents' answers by category)

	NONE/LITTLE	SOME	SIGNIFICANTLY
Led to increase business for the company	18.8	25.0	46.9
Led to increasing service area	34.4	18.8	46.9
Reduced operations and maintenance costs	9.4	34.4	43.8
Increased reliability of company vehicles	9.4	40.6	34.4
Led to increased competition	18.8	18.8	62.5

(Note: Do not know" or "Too soon to tell" responses are excluded; therefore, most row totals do not add to 100 percent.)

3.2.6 Jeepney Operators

Further evidence of the development of transportation systems due to road improvements is seen Table 8 which presents the responses of 114 jeepney operators. Only one third of the jeepney operators reported that the number of passengers traveling their routes are increasing. However, more than half report that they have increased the number of trips they are making each day, in some cases, as many as three or more additional trips. These two responses are inconsistent, unless fewer passengers are being carried per trip. Field observations suggest this is not the case; jeepneys seen on RIF-improved roads are typically carrying many passengers. Moreover, if there were substantially fewer passengers per trip, there would be less incentive to increase the number of trips made per day. x

The increase in the number of trips per day is in large part possible because of the reduction in travel time reported by the jeepney operators. More than half reported a time savings of 10 to 20 minutes while another third reported time savings of greater than 20 minutes. The majority of respondents reported noticeable reductions in their operation and maintenance costs because of the road improvements. Similarly, the majority reported that the reliability of their service has improved, meaning fewer mechanical breakdowns and the ability to travel the road during bad weather. Consistent with these operating improvements, half of the respondents reported that they have expanded their routes due to the road improvements. In other words, while their operating costs have decreased and the reliability of their service has increased, they are now able to make more trips per day and/or cover a larger area (i.e., expanding their service area). These changes are all indicative of an improving transportation system for the general public in the areas where the improved roads are located.

As transportation becomes more accessible and reliable, there is evidence that jeepney passengers are transporting more commercial goods to and from market. Approximately half of the respondents reported some noticeable increase in the volume of goods being carried by their passengers. Moreover, half of the respondents also stated that more passengers from previously remote or isolated areas are now traveling on their vehicles. This indicates that the road improvements are reaching people who were previously under-served, with the various benefits resulting from the road improvements spreading to more remote or rural communities as well.

As with bus and trucking services, a key indicator of the road improvements contributing to a more efficient transportation system is the substantial increase in competition reported by jeepney operators. Approximately three-fourths of the respondents stated that competition has increase with half

Table 8

ROAD IMPROVEMENTS

JEEPNEY OPERATORS' assessment of the impact of road improvements on the following conditions/changes: (table reports the percentage of respondents' answers by category)

	NONE/LITTLE	SOME	SIGNIFICANT
Increased passenger business	61.4	19.3	10.5
Increased the number of trips per day on established route	47.4	(1 or 2 more) 37.7	(3 or more) 14.9
Decreased travel time on established route	11.4	(10-20 minutes) 57.9	(more than 20 minutes) 30.7
Reduced operations and maintenance costs	25.4	50.0	20.2
Increased reliability of service	38.6	43.0	16.7
Led to expanding service route	46.5	36.0	12.3
Increased volume of commercial goods carried by passengers	46.5	34.2	19.3
Increased number of passengers from rural/remote areas	34.2	40.4	19.3
Led to increased competition	15.8	34.2	50.0

(Note: Do not know" or "Too soon to tell" responses are excluded; therefore, most row totals do not add to 100 percent.)

reporting that this increase has been significant. Field interviews indicated that this increased competition is not solely due to more jeepneys traveling the same route. This has indeed happened; however, competition among jeepney operators is typically regulated by the local jeepney drivers association which controls the number of trips each jeepney driver makes.

Real competition is coming from other service providers. Recall that two-thirds of bus and trucking companies reported that they have expanded their service areas due to the road improvements. This competes directly with jeepneys in many instances. Moreover, because of the road improvements the number of

motorized tricycles have increased, in some cases, substantially. Un-improved roads are often too rough or impassable during bad weather for tricycles. But when smooth, well-drained road surfaces are constructed, transportation by tricycle becomes a less expensive, common mode of travel in rural areas. The lower cost per passenger of tricycles places them in direct competition with jeepneys for passengers who are not traveling longer distances. In fact, the increase in the number of tricycles was cited by more than 20 percent of the respondents as a new source of competition (of course, this was reported by the jeepney drivers as a negative effect of the road).

As with bus and trucking companies, the responses of jeepney operators suggests that the factors that lead to a more efficient transportation system are developing as a consequence of the road improvements. However, the vast majority of respondents - 95 percent - reported that there has been no change, neither an increase nor a decrease, in their fares since the road was improved. This means that cost reductions have not yet been passed on to most jeepney passengers, nor has increased competition from other transportation service providers forced jeepney drivers to do so.

3.2.7 Jeepney Passengers

Table 9 presents the results of interviews with 380 jeepney passengers who travel the improved road sections. Predictably, the number of trips passengers are making per month is increasing. More than 40 percent of passengers reported making three or more additional trips per month because of the road improvements. People are willing to travel more because travel time has been substantially reduced, which corresponds to the reports of jeepney operators. Passengers also reported that travel was now easier, more comfortable and more readily available during bad weather, all of which encourages more frequent travel. However, roughly 20 percent of passengers reported that fares have increased, while a small percentage stated that fares have decreased. Both statements are contrary to claims made by jeepney drivers.

Roughly one-fourth of the passengers interviewed transport goods to market. Of those, more than half reported that they started marketing goods recently because of the road improvements, or have increased the volume of goods marketed and/or the frequency of trips made to sell goods. In short, it appears that road sub-projects are stimulating greater commercial activity in communities serviced by the road, and many of the "micro" entrepreneurs of these communities are benefiting from the improvements.

Table 9

ROAD IMPROVEMENTS

JEEPNEY PASSENGERS' assessment of the impact of road improvements on the following conditions/changes: (table reports the percentage of respondents' answers by category)

	NONE/LITTLE	SOME	SIGNIFICANT
Increased no. of trips per month	14.5	(1-2) 42.1	(3 or more) 43.4
Reduced travel time	3.9	10-20 min 41.6	>20 min. less 54.5
Changes in fares	none 73.2	increase 21.1	decrease 5.8
Transports goods to market	No: 73.7	Yes: 26.3	
Increase in volume or frequency of goods marketed	no increase 45.0	started marketing 29.0	inc. in volume or frequency 26.0
Increased access to the following:			
Medical services	No: 2.1	Yes: 97.9	
Medicines and other necessities	No: 1.1	Yes: 98.9	
Food	No: 1.2	Yes: 98.8	
Household supplies	No: 1.8	Yes: 98.2	
Clothing	No: 0.8	Yes: 99.2	
Schooling for their children	No: 4.5	Yes: 95.5	
School supplies	No: 6.1	Yes: 93.9	

(Note: Do not know" or "Too soon to tell" responses are excluded; therefore, most row totals do not add to 100 percent.)

Road improvements are having a definite impact on the standard of living in communities they service. This is clearly reflected in the greater access to various public services and basic consumer goods reported by jeepney passengers. An overwhelming percentage of respondents stated that the road improvements have given them better access to medical services, medicines and other necessities, food, household supplies, clothing, schooling for their children, and school supplies. As a group, better access to these goods and services constitute an accurate measure of an improving quality of life due to the road improvements.

3.3 Social and Economic Impact of Selected Port Improvements

3.3.1 Local Port Officials

Table 10 presents the response of port officials regarding the effects of improvements to their ports. They report a noticeable increase in the number of small bancas, as well as a modest increase in the number of medium-size bancas now using the port. Medium-size bancas typically are used for inter-island transportation of passengers and goods. A increase in their numbers implies greater availability of longer-distance transportation to and from the port due to the improvements. Port improvements have also contributed to using the port more hours per day and more days per year. This implies that the port improvements permit more continuous use of the facilities despite low tides and inclement weather.

Consistent with greater usage of the port, respondents stated that the number of passengers has increased, in some ports, significantly. Similarly, the volume of commercial goods being transported by bancas is increasing. As more bancas use the port, competition for goods and passengers should increase, perhaps affecting fares. Based on our respondents, it appears that little or no change has occurred in most ports, while some increases are reported elsewhere.

Greater usage of the ports is also reflected in increased fish landings at ports (not all feeder ports, and not all RIF-improved ports, are fish landing sites). This indicates that the port improvements are benefiting small fishermen in the area who use the port as their fish landing site.

The increasing number of bancas using the port, combined with an increasing number of passengers and goods moving through the ports, is generating greater revenues for the local municipalities in charge of port operations. However, these municipalities have not, by and large, increased their usage fees. This most likely is related to uncertainty by local officials about imposing higher fees.

The survey team reported that at Pio Duran port officials told of a major conflict between the municipality and the local Philippine Ports Authority (PPA) over port operations and fee collections. A similar problem was found at Narra port. The conflict stems from the authorities for fee collection specified in the Local Government Code of 1991. Municipalities are restricted to collecting only wharfage fees - i.e., fees imposed on cargo transported through the port. All other fees, such as vessel registration fees or passenger fees, cannot be collected by the municipality.

This is a serious issue because it could undermine adequate maintenance and repairs of the ports. After construction is completed, DPWH turns over the improved facility to the local municipality. Like the roads, the contractor is responsible for maintenance and repairs for one year, after which this becomes the responsibility of the local municipality. If the municipality cannot collect fees sufficient to cover operating costs, maintenance and repairs could suffer. PPA has no

Table 10

PORT IMPROVEMENTS

LOCAL PORT OFFICIALS' assessment of the impact of port improvements on the following conditions/changes: (table reports the percentage of respondents' answers by category)

	NONE/LITTLE	SOME	SIGNIFICANT
Increased the no. of small bancas servicing the port	13.3	40.0	20.0
Increased the no. of medium bancas servicing the port	53.3	33.3	13.3
Increased the no. of hours the port is used daily	0	73.3	26.7
Increased the number of days the port is used annually	33.3	53.3	13.3
Increased the no. of banca passengers	13.3	33.3	53.3
Increased the volume of commercial goods transported by banca	6.7	73.3	20.0
Increase in banca fares	66.7	26.7	0
Increased the volume of fishing landed	20.0	26.7	26.7
Increased port usage fees	86.7	6.7	0
Increased revenues from port usage fees	6.7	66.7	0

(Note: Do not know" or "Too soon to tell" responses are excluded; therefore, most row totals do not add to 100 percent.)

incentive to maintain or repair ports owned by local municipalities. In short, DPWH and PPA, in coordination with the local municipalities, need to reach agreement on revenue generation from port operations to assure adequate budget for proper maintenance and repairs of the facilities.

3.3.2 Business Owners/Operators

Table 11 presents the results from interviews with 114 business owners/operators from the communities where the improved ports are located. The large majority report little or no reduction in

Table 11 PORT IMPROVEMENTS

BUSINESS OWNERS/OPERATORS' assessment of the impact of port improvements on the following conditions/changes: (table reports the percentage of respondents' answers by category)

	NONE/LITTLE	SOME	SIGNIFICANTLY
Reduced transportation costs associated with the business	93.9	3.5	0
Improved supply of goods for sale	56.1	39.5	1.8
Improved access to suppliers or customers	28.1	28.9	7.9
Increased business activity	39.5	57.9	2.6
Led to changes in type of business or goods produced/sold	68.4	28.9	2.6
Encouraged plans to improve or expand business	No: 64.0	Yes: 36.0	
Led to hiring of additional employees	45.6	(1 more) 9.6	(2 or more) 5.3
Led to purchase of new equipment or expansion of business space	51.8	7.0	1.8
Led to increased competition	30.7	(one) 57.0	(2 or more) 10.5

(Note: Do not know" or "Too soon to tell" responses are excluded; therefore, most row totals do not add to 100 percent.)

shipping costs associated with their business. Approximately one-third report that the port improvements have contributed to improving their supply of goods and their access to suppliers and customers. Roughly half of the respondents stated that because of the port improvements, their business activity has increased somewhat. One-third also reported that they have made changes to their business or the types of goods sold or produced. One-third also reported that they plan to make changes of this sort in the near future. None of these changes, however, appear to have resulted yet in increased hiring, the purchase of new equipment or expansion of the business space (many of the surveyed businesses were small, family operated establishments). On the other hand, roughly two-thirds of the respondents stated that they now had at least one or more new competitors, which suggests local business activity is increasing.

3.3.3 Fishermen

A total of 240 fishermen were interviewed for the survey. Of these, only 123 actually used the ports for fish landings which reduced the utility of the responses from the remaining 117 fishermen. Those who do not use the ports stated that their buyers were located elsewhere. Table 12 presents the results from those fishermen who use the ports on at least an occasional basis for fish landings and sales.

Roughly half of the fishermen reported that ^{on} prior to the improvements, they often landed their fish ~~the~~ port, but not all the time. Another 30 percent used the port regularly as their fish landing site. The majority of respondents have increased their use of the port since the improvements have been made. More than 90 percent found the improvements beneficial to their fish landings and sales. More than 80 percent reported that the improvements constitute a major upgrading of the port's utility to them. Three-fourths of the fishermen report at least some increase in the number of days they can use the port and the vast majority - 95 percent - consider the port to now have adequate space for docking and fish landing. Most important, roughly half of the fishermen reported that the improvements in the port facilities are increasing their sales and income.

Table 12

PORT IMPROVEMENTS

FISHERMEN's assessment of the impact of port improvements on the following conditions/changes: (table reports the percentage of respondents' answers by category)

	NONE/LITTLE	SOME	SIGNIFICANT
Frequency of use prior to improvements	(not often) 17.1	(often) 54.5	(regularly) 29.3
Increased use of port	31.7	60.9	7.3
Improved utility for fish landings	6.5	10.6	82.9
Increased the number of days per year port is used	22.8	63.4	13.0
Adequate space at port	No: 4.9	Yes: 95.1	
Increased earnings from sales	48.8	45.5	4.1

(Note: Do not know" or "Too soon to tell" responses are excluded; therefore, most row totals do not add to 100 percent.)

3.3.4 Banca Operators

Table 13 presents the results from interviews with 93 passenger banca operators using RIF-improved ports. Comparable to the reports by local port officials, banca operators observe an increasing number of small and medium-sized bancas using the ports since it was improved. Similarly, they report that the number of passengers and the volume of goods transported by passengers has noticeably increased. One-third of the respondents stated that passenger fares have increased somewhat, with a comparable increase in cargo fares. This suggests that even though the number of bancas using the ports has increased somewhat, commensurate increase in the volume of passenger and cargo traffic seems to be offsetting any increase in competition among banca operators.

Approximately three-fourths of the banca operators are now using the port more hours each day and roughly 40 percent are using the port more days each year as a result of the improvements. More passengers, more goods, longer working hours and more work days per year predictably result in two-thirds of the respondents reporting that their earnings are increasing since the port improvements were made.

Table 13

PORT IMPROVEMENTS

BANCA OPERATORS' assessment of the impact of port improvements on the following conditions/changes: (table reports the percentage of respondents' answers by category)

	NONE/LITTLE	SOME	SIGNIFICANT
Increase in the no. of small bancas servicing the port	20.4	58.1	7.5
Increase in the no. of medium bancas servicing the port	54.8	43.0	0
Increase in the no. of passengers	8.6	66.7	24.7
Increase in passenger fares	No: 65.6	Yes: 31.2	
Increase in the volume of goods carried by passengers	16.1	80.6	3.2
Increase in cargo fares	No: 76.3	Yes: 22.6	
Increase in the number of hours per day they use the port	21.5	54.8	21.5
Increase in the number of days per year they use the port	59.1	25.8	15.1
Increase in earnings	33.3	57.0	9.7

(Note: Do not know" or "Too soon to tell" responses are excluded; therefore, most row totals do not add to 100 percent.)

It also worth noting that 81 respondents (87 percent) identified various benefits resulting from the port improvements. This included the above mentioned increase in passenger traffic and income, safe and convenient docking facilities, new waiting sheds that are especially helpful during bad weather, protection of their bancas by an improved seawall during stormy weather, safe and easier loading of passengers and goods and improved lighting of the docking area. Only 13 (14 percent) respondents cited negative aspects of the port which concerned the size of facility (too small) and the new construction (slippery or inadequate cementing).

3.3.5 Banca Passengers

300 banca passengers were interviewed for the survey. Two-thirds of the respondents reported that they are now traveling more frequently since the port was improved. The large majority of passengers find that transportation at the port has become more available and reliable, reflecting both an increasing number of passenger bancas using the port as well as operating more regularly during inclement weather. Consistent with port officials and banca operators, one-third of the passengers reported some increase in fares. However, these increases do not appear to have affected their travel by banca since most passengers are traveling more frequently.

Among those passengers who transport goods to market by banca, (74 passengers, or 25 percent of the total number interviewed), roughly 20 percent reported that they started doing so since the port was improved, while another 40 percent stated that they have increased the volume of goods they transport. In other words, roughly two-thirds of passengers who transport goods for sale by banca report an increase in their commercial activity since the port improvements were made. Moreover, the large majority of these individuals are now traveling more frequently to market (96 percent) and traveling to new markets (86 percent).

Port improvements, like the road improvements, are having a significant impact on improving access to public services and basic consumer goods. All respondents stated that due to the port improvements and their increased travel, they now have better access to sources of food, clothing and house supplies; medical services, medicines and other basic necessities; and schooling and school supplies for their children.

The large majority of passengers (89.3 percent) cited various benefits resulting from the port improvements. This included waiting sheds offering protection from the weather, improved availability of bancas, greater comfort and ease of travel, adequate access to the port, improved cargo handling at the port, and assorted other aspects related to improved port facilities and operations.

One-third of passengers reported on conditions which they believe detract from the ports' utility. Interestingly, the most frequently cited problem was inadequate roads leading to the port, which is not a deficiency of the port improvements. Other reported problems were the lack of sufficient waiting sheds, seats, rest rooms and lighting; the inadequate size of the port; and various other aspects of port facilities and operations seen as in some way inadequate. With the exception of the roads leading to the port, these negative factors, by large, reduce to wanting even more of what was provided through the upgrading of the port facilities.

Table 14

PORT IMPROVEMENTS

BANCA PASSENGERS' assessment of the impact of port improvements on the following conditions/changes: (table reports the percentage of respondents' answers by category)

	NONE/LITTLE	SOME	SIGNIFICANT
Increased frequency of travel per month	32.7	65.3	2.0
Improved reliability and availability of banca transportation	11.0	80.0	9.0
Improved the safety of banca transportation	8.3	85.3	6.3
Increase in passenger fares	No: 76.3	Yes: 23.0	
Increase in volume of commercial goods transported by banca	36.5	60.8	2.7
Among those transporting goods by banca, travel more frequently	No: 4.1	Yes: 95.9	
Among those transporting goods by banca, travel to new markets	No: 13.5	Yes: 86.5	
Improved access to the following services:			
Food	No: 0	Yes: 100	
Clothing	No: 0	Yes: 100	
House supplies	No: 0	Yes: 100	
Medical Services	No: 0	Yes: 100	
Medicine or other necessities	No: 0	Yes: 100	
Schooling for children	No: 0	Yes: 100	
School supplies	No: 0	Yes: 100	

(Note: Do not know" or "Too soon to tell" responses are excluded; therefore, most row totals do not add to 100 percent.)

3.3 Conclusions

Overall, the survey results show that the RIF-improved roads and ports have a noticeable impact on the economic and social conditions of the communities they service. Roads are producing various benefits for a wide array of business operators, transportation providers, farmers and the general public. The survey indicates that these improvements have stimulated commercial activities consistent with the original development purpose of RIF. Though not to the same degree and in somewhat different ways, the ports are producing comparable impacts on the communities they service. The decided impact these sub-projects are having on improving social conditions is perfectly clear from the responses of more than two thousand respondents.

The survey suggests that the roads are having a somewhat greater impact on commercial activity than the ports. This is not surprising given that the scale and cost of the road sub-projects are many times greater than the investment in port improvements. Moreover, the roads are linking rural economic centers - towns and small cities - to hinterland areas. Many of the ports are a step or two removed from this kind of linkage, giving some very remote areas basic access to such established economic networks. To increase the economic impact of the ports, an alternative approach might have been to select fewer ports to upgrade, but to combine port improvements with re-construction of existing dirt and gravel roads that service the ports.

It is important to keep in mind that these impacts are resulting from projects only recently completed, and in some cases, from projects that are not fully completed. Social and economic conditions do not change suddenly over night, particularly in rural areas where the sub-projects are located. What the survey captures is, in most cases, the emergence of changes in economic and social conditions which in time are likely to become more significant and meaningful to the people they are benefiting. It is equally important to keep in mind who many of these people are: the average rural citizen who traditionally has been the least affected by development. Not only does this fit the objectives of the project, but it also corresponds to one of the most basic objectives of development activities.

SECTION 4. COMMERCIAL AND SOCIAL IMPACT OF RIF SUB-PROJECTS

4.1 Introduction

Section 4 builds upon the analysis of survey results presented in the preceding section to give additional emphasis to important economic and social changes that are occurring as a result of the RIF sub-projects. The focus here is basically on how certain groups (farmers, fishermen, businessmen) are benefiting from the project and what are the broader ramifications of the RIF Project's commercial and social impact. In addition, this section tries to "flesh out" some of the findings from our survey--both by extrapolating from the survey data and by supplementing it with observations made during field trips to individual RIF port and road sub-projects.

4.2 Improvements in Rural Incomes

Road projects generally have a positive impact on farmers' incomes. Among the factors at work are the following: increases in production, increases in prices received, decreases in costs of production, or shifts in production to higher-value crops; each of these may occur individually or in combination with others. The RIF Project appears to be having a positive effect on rural incomes in regard to all four of these income-enhancing factors.

Nearly half of all farmers queried, for example, reported increasing their production because of road improvements; another fifteen percent stated that they plan to increase production soon. One-third of the farmers reported both higher prices for their produce and reduced transport costs. Significantly, more than a third of the farmers claimed that their increased production is in one or more new crops, mainly fruits or vegetables. Interviews with agribusiness owners confirmed this overall increase in the production of new crops reported by farmers.

The dynamic behind this shift to higher-value crops (especially fruits and vegetables) is that when farmers have reliable access to market centers, they are encouraged to undertake and/or expand production of high-value commodities such as fruits and vegetables. In Colorado Barangay, in Agusan del Norte, for example, once the RIF road was upgraded, villagers began growing cabbage and other vegetables for the market. Upgraded roads allow farmers to ship perishables quickly and efficiently to market. With less spoilage and lower handling and transportation costs, farmers find it cost-effective to invest in fertilizer, insecticide, and other inputs necessary to produce these cash crops.

The income benefits of road improvements are not restricted to farmers producing fruits and vegetables. Rice, corn, and coconut farmers are increasingly taking their own palay, maize, and copra to market and selling directly to wholesale buyers, obtaining a higher price than when they previously sold to the middlemen who visited their village. The income gained by these farmers is essentially equivalent to the reduction in transportation costs due to the road improvements.

The growth in farm production due to RIF road improvements discussed above reverberates through the wider rural economy and has a strong effect on agribusiness. Increased production means increased produce for agribusiness owners to buy, store, process, transport, and sell. Others are able to sell farmers more inputs (seeds, insecticides, fertilizer, and farm implements). The expansion and diversification of business reported by more than half of the agribusiness owners is undoubtedly based upon realized or anticipated increases in their income; 13 percent of this new agribusiness investment was claimed by owners to have been major in scope. Also contributing to their incomes is the reduction in transportation costs which many of them reported.

Fishermen are another producer group enjoying increased incomes from RIF sub-projects. About one in four reported that they have increased earnings due to greater usage of the port. Port improvements facilitate both the landing of fish and access to local markets. Improved ports allow landing access during both low and high tides (i.e., fishermen can use the ports more hours per day); they also provide shelter and protection for landing during inclement weather (i.e., fishermen can use the ports more days each year). In both cases, port improvements facilitate fish sales, reduce transport costs and spoilage, and result in higher incomes for fishermen.

Not all fishermen in an area can be expected to benefit immediately from RIF port construction or rehabilitation. Fishermen having access to other markets may not find it advantageous to use the new ports. Others, however, are gradually shifting to the new port facilities, primarily because new buyers (middlemen) are emerging and fishermen can save fuel costs by landing their catch in the new port. This was the situation of certain Leyte fishermen, who are now using the new port at Pinamopon rather than transporting their catch to their old buyers in Karigara Municipality.

Fishermen can also benefit from RIF road improvements. In the important fishing municipalities of Tubay and Jabonga, in Agusan del Norte, for example, upgrading the roads means more middlemen are now available to buy the daily catch throughout the day, resulting in better prices for fishermen. More vehicles are available to transport the fish, cheaper forms of transportation (such as motorized tricycles) can be obtained, and more ice is

present in the market. Fish buyers, thus, enjoy lower transport costs and reduced spoilage, and a portion of these savings are passed on to fishermen in the form of higher prices.

Increases in fishermen's incomes are not due only to higher prices. In some cases the volume of the daily catch may also be increasing. Fishermen on Lake Mainit, Agusan Del Norte, for example, now find it profitable to devote more hours each day to fishing, knowing that because of RIF improvement to the road linking Jabonga with the Maharlika Highway more buyers are available to purchase their fish throughout the day. Fishermen in Tubay also appear to be increasing their catch for this same reason.

4.3 Business Growth and Investment

Road and port improvements financed by the RIF Project support and encourage business and investment in the areas of sub-project influence. Sogod Port in Southern Leyte Province is a good example of the type of strong investment stimulus and support resulting from successful port rehabilitation under the RIF Project.

Sogod is a bustling and progressive market town at the end of the national highway from Tacloban (the road splits at San Isidoro, one spur going to Sogod the other to Maasin, the capital of Southern Leyte). Sogod's interior is rich in abaca and copra; the scenic, fairly well-protected harbor is a fish sanctuary, open to only municipal fishermen. Most of the 35,000 inhabitants are farmers and fishermen; many fishermen engage in farming during the off-season, and many farmers engage in fishing when not actually farming. About 20 percent of the population is involved in commerce. The municipality boasts three hospitals (one government, two private), a state college, and its own radio station. The governor of Southern Leyte also lives here.

Several years ago the town engaged a urban/regional planning consultant to design a master plan for Sogod's development. The plan includes rebuilding the town market (already underway), relocating all government offices outside of the town and allowing the commercial sector to expand into the vacated area, sea wall rehabilitation, and other major investments. Improvement of the port area, undertaken through the RIF Project, is included in the long-range plan.

The main port receives large vessels from Cebu, Surigao, and Manila. Sogod exports copra and abaca (mainly to Cebu) and imports building materials (rebar, cement, etc.) and other goods through this port. RIF port work includes repair and expansion of the main port facility and repair of the fish landing dock. Both structures were damaged by recent typhoons. Rehabilitation

is labor intensive and the local contractor hired a number of Sogod inhabitants for construction work.

RIF port improvements are definitely having a positive impact on investment in the area. Several businessmen are planning to build bonded warehouses along the waterfront to accommodate the anticipated increase in commercial cargo; and a consortium is planning to build a ship to undertake its own transportation. Already new stalls are rising nearby the area where the current market is expanding. A gas station for local fishing vessels is also planned. Finally, an investor from Cebu recently met with local businessmen and landowners to plan abaca plantations in the area.

While not all current and planned investment is directly attributable to the RIF's port improvement, the port undeniably supports, encourages, and sustains these developments; and without the RIF port work this broad investment would have been retarded.

The investment stimulus of RIF port construction and rehabilitation observed at Sogod is confirmed by our overall survey results. Nearly a third of the businessmen responded that because of port improvements they are now selling or producing new items, and nearly 15 percent reported that they have hired additional employees. More than a third stated that because of the increased opportunities resulting from port improvements they plan to expand or improve their businesses. Significantly, more than 60 percent mentioned that because of the port improvements they were now experiencing increased competition from new entrants in their line of business.

Road construction has an equally strong investment impact, both in encouraging new investment and supporting ongoing investments. Tourism becomes an attractive investment once road improvements are made. In Agusan del Norte, for example, a local business group is investing more than P15.0 million in a nature resort at the end of the Tubay-La Fraternidad Road, which was recently upgraded under the RIF Project. The investors stated unequivocally that they would never have undertaken this project if the road had not been improved. Just north of here, Japanese investors are exploring the possibility of developing tourist facilities on the northern flank of Lake Mainit, near Jabonga, no doubt encouraged by RIF's recent paving of the road from the Maharlika Highway to this municipality.

Similar investment in tourism can be observed along the newly constructed Mabini Circumferential Road in Batangas Province. Now that this RIF-funded road is nearing completion, a flurry of construction activity has begun. Many of the small local guest houses in this well-known diving and beach resort area are rehabilitating and expanding their facilities to accommodate the

significant increase in local and foreign tourists that has already begun. The number of small restaurants and carinderias in the area is also increasing

Road improvements of course also have a strong positive effect on other types of business investment. Mention was made earlier of the expansion and diversification of business activities by agribusiness owners. Non-agricultural business owners are also investing in the expansion of their businesses. Nearly thirty percent stated that they are now selling or producing new items; another third report that they had to hire one or more additional employees to cope with their increased business. One out of three respondents in areas where road improvements occurred claimed to have purchased at least one piece of equipment or had expanded business space. Finally, 49 percent of these business owners and operators reported that they were planning to invest in additional improvements or expansion to their business.

4.4 The Impact on Employment

The RIF project is generating significant employment. A number of unskilled and semi-skilled rural and market town residents have been employed as day laborers on the construction of road and port sub-projects. Given that many of these projects required more than a year to complete, the amount of employment created is not insignificant. For example, the 11.5 kilometers of road improvements made on the two sections of road connecting Tubay and Jabonga municipalities with the Maharlika Highway, in Agusan del Norte, required hiring about 100 laborers each day--nearly 200 during peak work activities. The daily wage was P75 for unskilled workers and P100 for skilled (carpenters, masons, etc.). Demand for these jobs among the fishermen in Tubay was so great that barangay officials had to organize monthly rotations of villagers in order that everyone would get an equal opportunity to earn this supplementary cash income.

Our survey found that fully one-third of the non-agricultural business owners have hired more workers to cope with their expanded businesses. We can reasonably assume, however, that a good deal of additional employment is being generated because of the RIF Project, especially given the increased production and business activity that many survey interviewees reported.

Increased farm production, for example, demands additional farm labor for planting, weeding, spraying, irrigating, harvesting, packaging, and marketing. It also stimulates job growth within those enterprises selling inputs (improved seed, fertilizer, and insecticide), services (plowing, milling, and processing), and equipment (sprayers, pumps, and tractors) to these farmers.

Growth in the volumes of fish and agricultural products marketed generally means growth in the number of buyers and sellers, both wholesalers and retailers, in the local markets. Investment in the many types of facilities and structures stimulated by improved roads and ports (e.g., warehouses and bodegas, restaurants, hotels, market stalls, and workshops) creates additional jobs in the building materials and construction industry.

More rural folk visiting towns and market centers, of course, will encourage growth in the number of stores, pharmacies, specialty shops, beauty salons, restaurants and cinemas. These new enterprises all need managers, assistants, and laborers to operate them and serve these new customers. Employment generation is especially significant where investment in tourist facilities occurs.

Growth in the transportation sector due to road and port improvements also results in important employment gains. In our survey, vehicle and banca owners and operators, for example, frequently cited an increased number of trips per day, more passengers and greater volumes of goods transported; many also reported they had expanded their services into remote rural areas. This increased traffic requires additional drivers, drivers' assistants, and laborers; and growth in the number of vehicles and bancas means more repair shops, more sales of spare parts, and more gas stations--all creating additional employment.

4.5 Access, Well-Being, and Nation-Building: The Social Impact

While the RIF Project is successfully stimulating investment and economic growth in the rural areas, the powerful and pervasive social impact that this infrastructure development provides is equally apparent.

Survey interviewees were nearly 100 percent unanimous in praising the RIF Project roads and ports for facilitating access to basic necessities and services. Thanks to new and improved transportation links, it is now easier, quicker, and safer for rural villagers to obtain medicine and health services, to send their children to school, and to make market purchases of food, clothing, and household supplies. Respondents also expressed gratitude that these improved transportation links were available throughout the year, rain or shine.

RIF road and port improvements also contribute to rural-urban integration. Villagers and their families, including those from relatively remote areas, now are able to travel to market centers and towns more frequently. They visit museums and historical and scenic sites, attend church, go to the cinema, and view cultural events. They are exposed to modernizing forces and new role

models embodying better health, education, and physical well-being; and they carry these messages of development and progress back to their villages. Importantly, they learn of new ways and life styles and are encouraged to set goals and seek self-improvement. In addition, government officials and representatives can now visit rural areas, monitoring the status and progress of programs and services, addressing problems first-hand, and manifesting concern for the well-being of rural residents. Successful nation-building and development depend upon rural-urban integration, and RIF infrastructure improvements have strengthened this integration.

4.6 Conclusion

By improving physical infrastructure in rural areas, the RIF Project is supporting, stimulating, and sustaining important investment and economic growth. The 14 road and 19 port sub-projects funded under RIF, in general, are opening new opportunities for investment and the development of rural enterprises. The project has greatly improved marketing access and is encouraging increased agricultural production, particularly of cash crops; rural incomes are correspondingly improving. Employment generation is especially noteworthy. Finally, RIF sub-projects have a very positive social impact within their zones of influence.

Unfortunately, rural infrastructure projects, such as RIF, are not in favor with current development thinking in USAID. This is regrettable because such projects, when planned, designed, and implemented carefully (as RIF generally was), can play a major role in a country's overall economic development. The contribution to regional growth of a well-constructed port at reasonable cost, such as the one constructed at Sogod, is significant; it will support, promote, and sustain the growth of that municipality for years to come. The linking of Tubay and Jabonga to the Maharlika Highway makes an equally strong contribution to regional growth in northeastern Mindanao.

Given the tremendous devastation and destruction caused by the many natural disasters which yearly affect the Philippines, continued support of rural infrastructure improvement is critical. Indeed, the country's overall economic development and future well-being depend upon extensive, adequate infrastructure. The RIF Project demonstrates clearly that improvements in rural infrastructure can have a strong commercial and investment impact. The case for continuing donor investment in rural infrastructure is buttressed when the positive social impact and strong employment benefits of these road and port projects are also considered.

SECTION 5: TECHNICAL ASSISTANCE FOR TELECOMMUNICATIONS, NAVAIDS, SCHOOLS AND HOSPITALS, AND THE MT. PINATUBO RECOVERY ACTION PLAN

5.1 Philippine Telecommunications Development

5.1.1 Background: The Telecommunications Sector Prior To Privatization

Previous GOP policies on the telecommunications industry have been characterized as disorderly and slow in development. Four major reasons account for this slow development:

- a. the market is concentrated in the urban areas where household incomes are higher;
- b. insufficient financing prevents both the government and the private sectors from providing service in many unserved or under-served areas;
- c. the government's lack of effective planning and forceful enforcement of regulations; and
- d. the government's crippling bureaucracy.

In 1983, telephone density was 1 telephone per 100 population. Around 70 percent of the total telephones in service are located in Metro Manila where only 13 percent of the country's population reside. In contrast, only 30 percent of the telephones in service are in the rural areas where 87 percent of the population is located.

In order to extend telephone services beyond the urban areas, the Philippine Government charged DOTC with the responsibility for rural telecommunications deployment. With external assistance, the first National Telecommunications Development Plan (NTDP) was prepared and adopted by Philippine government in 1983. The first project under the 1983 Plan was the Japanese funded Rural Telephone Development Plan aimed at providing 19,000 telephone lines in Regions I and II in northern Luzon. This was followed by the National Telephone Program (NTP), a multi-donor funded effort designed to extend telephone services to the remaining Regions III to XII. NTP was divided in three tranches with funding for the program was sourced as follows:

<u>Program</u>	<u>Location</u>	<u>Funding Source</u>
NTP Tranche I-1	Luzon	Japanese
NTP Tranche I-2	Visayas	French
NTP Tranche I-3	Mindanao	Italian

The National Telephone Program became the backbone of government's effort to bring telephone service to the rural areas. Growth in the public telecommunications sector was supported largely by donor loans and grants. However, due to the government's slow absorption rate and its inability to operate and maintain public sector infrastructure effectively, the Philippine government revised its telecommunications policy in October 1990.

The revised NTDP clearly recognizes the private sector as the engine of sectoral growth. The NTDP states:

"The efficient and rapid growth of the telecommunications sector requires the maximization of the role of the private sector, with the Government acting as a facilitator. Accordingly, the Government shall initiate further improvements in the policy and regulatory environment and privatize government telecommunications assets and/or operations as soon as practicable. These steps should encourage private sector investments to flourish, while ensuring that the public interest is protected. The latter objective can be met by an effective regulator, which will ensure that the rates charged for services are reasonable and that services are provided efficiently."

5.1.2 Rural Infrastructure Fund's Telecommunications Technical Assistance

To implement the revised the NTDP, the GOP requested technical assistance from USAID in the telecommunications sector. Originally, the requested assistance entailed a "...comprehensive review of the telecommunications sector, particularly in the following areas: institutional arrangements, rate structure, existing networks. The services will advance the purpose of the RIF Project by assisting the DOTC Secretary in the identification of the reforms needed to improve and expand the construction and maintenance of rural telecommunications facilities through close advisory assistance."

The RIF telecommunications advisor was contracted to "...advise the Secretary on the institutional needs for the whole of the telecommunications industry in the Philippines". However, most of the two-year duty of the advisor was associated with the privatization of government-owned telecommunications assets in Luzon. These assets were covered under the Regional Telecommunications Development Project Phases A & B and the National Telephone Project Tranche I-1 (NTP I-1).

The advisor assisted the DOTC Committee of Privatization by producing the following:

a. Detailed inventory, valuation and determination of the floor price for the privatization of the public sector assets.

A detailed asset valuation was carried out on the RTDP A facilities. At the time the privatization was initiated, RTDP B and NTP I-1 were not yet fully installed and operational. The valuation of these systems were based on the existing installation and supply contracts.

The assessed value of the facilities to be privatized was based on the fair market value of the assets and the net present value of the expected increase in cash flow after privatization. These values were used to establish a "floor price".

b. Financial schemes, including toll revenue sharing, to assure the continued financial viability of the network after privatization.

Because the Japanese OECF objected to privatizing assets which it had funded "financial lease" was selected as the alternative form of agreement. Bidders were required to propose an up-front payment, an annual lease payment for the facilities, and a transfer payment at the end of the lease. Various options and alternative approaches were considered for these schemes. This resulted in setting requirements which minimized interference with the selected operator. This included assuring fair revenue sharing agreements with adjacent operators, including PLDT, which insured full interconnection to the telephone network.

c. Technical, legal and financial Terms of Reference.

To enhance competition, non-franchised bidders were allowed to participate. The condition was that: a winning non-franchised bidder would be awarded an interim "operations and management" contract and upon obtaining a congressional franchise, the contract would be converted into the preferred financial lease agreement. This conditionality turned out to be both advantageous and controversial. The winner of the bid was Digitel, a non-franchised bidder which offered P40 billion, far above the established floor price. The legality of this particular bid condition was challenged in the judicial court and eventually sustained.

Another important bid condition was the formula of accommodating existing small private operators in the service areas being privatized. The bid had to be brought consistent with the policy of having only one operator in each local exchange area. To insure there would be only one operator per local exchange, the bid process provided small operators the "right-of-first-refusal" to acquire the facilities in their respective exchange areas. The government was obligated to directly negotiate with them for these facilities. In case of failure to negotiate agreements

with the existing operators, the selected network operator would be obligated to take over the facilities.

5.1.3 Conclusions: Utility of RIF Technical Assistance

The telecommunications advisor provided useful technical inputs and guidance to DOTC which facilitated its initial privatization efforts. The technical, financial and legal inputs provided by this technical assistance will also facilitate the process of future privatization. The major accomplishment of the RIF assistance was in aiding the DOTC with the first successful public telecommunications asset privatization, which irreversibly committed the Philippine government to a policy of private sector-led telecommunications industry. The Government's deployment of telecommunication systems can only be consistent with the private sector-led development of the telecommunications sector by privatizing those systems as quickly as possible.

Against the backdrop of the 1983 conditions, there is no doubt that there are substantial improvements in the Philippine telecommunications sector policies. However, conflicting vested interests of the various public and private carriers have not allowed much actual progress. Measured against its ASEAN neighbors, the Philippines continues to lag far behind. In 1993, Singapore had 45.4 telephones per 100 population, Brunei 19.6, Malaysia 9.9; while the Philippines had only 1.4.

Cognizant of the inadequacy of telecommunications services in the countryside, the GOP's current approach in addressing the problem has a discernible "schizophrenic" quality to it. While it is to the credit of the current Administration to have effectively de-monopolized the telecommunications industry, it has perhaps headed in a direction disadvantageous to its original objective of increasing rural telecommunications. The present DOTC strategy of dividing the country into 11 service areas and the configuration of those areas may impede telecommunications development in rural areas. The rural service areas are economically too small to provide adequate cross-subsidies and, thus, do not attract the necessary foreign investment which is essential in meeting the Government's targets. The present rush of new telecommunications players to raise investment funds from local public offerings further highlights the problem.

The slow pace of penetration by the private telecommunications sector in the rural areas is used by DOTC to justify its role as a builder of telecommunications infrastructure using donor funding. This occurs despite the abysmal performance of the Telecommunications Office, the operating entity of DOTC, in deploying, operating and maintaining networks. DOTC has not found a way to pass this funding directly to private carriers. Instead, it uses a Build-and-Transfer scheme which deploys systems using donor funding with the intention of transferring

the assets to the private sector through the process of privatization.

In short, though RIF technical assistance for privatization of assets in the telecommunications sector produced useful outputs, the utility of these products is diminished by current strategies being pursued to develop the sector.

5.2 Air Navigational Equipment

5.2.1 Improved Safety and Airport Operations

RIF funded the procurement, installation and associated training of users of air navigational equipment (NAVAIDS) at 25 airports located throughout the country. Table 2 presents the airports which received this equipment and types installed at each location. The NAVAIDS component was implemented in two phases. The smaller first phase provided equipment for 13 airports at a cost of \$4.3 million. This phase progressed relatively quickly and smoothly, and led to a request from DOTC for a larger second phase of NAVAIDS. The second phase provided equipment to 18 airports (six were part of the first phase) at a cost of \$10.6 million. The second phase has been more difficult to implement because, unlike the first phase, civil works are required so that ground obstructions do not interfere with the operations of the second phase equipment. Installation of second phase equipment is still underway at five airports.

As Table 2 shows, NAVAIDS were installed across the entire range of airports, from the largest facilities (i.e., Manila, Cebu, Davao and Cagayan de Oro); to middle-sized airports (e.g., Iloilo, Bacolod and Zamboanga); to smaller provincial airports (e.g., Puerto Princesa, Basco and Alabat). In general, the evaluation found that NAVAIDS has a more discernible effect on the airport operations and the users of air freight at the smaller airports. On the other hand, the state-of-the-art equipment NAVAIDS provided was uniformly reported as contributing to flight safety and improved air traffic control. This held regardless of the size of airport or whether NAVAIDS was providing new equipment the airport previously lacked or was replacing aging equipment in operation at the facility.

Philippines Airlines (PAL) pilots flying to the airports which received NAVAIDS reported that the equipment improved safety and operations. PAL's Flight Operations Manager confirmed that over the past several months, there have been no reported failure of the equipment installed to date - i.e., no lack of serviceability or outages - at the airports receiving NAVAIDS. This is resulting in fewer delays and fewer flight cancellations due to navigational equipment problems. This is a purely technical assessment by individuals who routinely use this equipment;

passengers are generally unaware of improved safety or better air traffic control due to the NAVAIDS.

To verify this for even a sample of NAVAIDS airports was not possible; the data are not compiled systematically, but rather exist in literally thousands of individual flight reports for just one airport. Moreover, there is no reason to doubt the technical assessment made by PAL pilots and other technical staff who use the equipment regularly - it has been a definite benefit to operations. Information from two very different airports which received NAVAIDS - Puerto Princesa and Cebu - shows how such operational improvements produce tangible benefits in the local economy consist with RIF's development purpose.

5.2.2 Puerto Princesa

Flight operations at Puerto Princesa Airport have improved significantly due to NAVAIDS. As a small provincial airport, PAL was using a Fokker 50 turbo prop for its flights. After the NAVAIDS were installed, PAL upgraded its service with daily Boeing 737 flights which are dependent on VOR equipment. This increased seating capacity from 50 to 140 seats per flight. The VOR is also reported by airport officials as resulting in fewer cancellations due to bad weather, though the daily number of regularly scheduled flights has not increased. PAL flights are also able to land at night which was not permitted in the past. These changes have considerable importance in light of Puerto Princesa being the main airport for the Palawan tourist industry.

General aviation (small planes) makes on average 15 daily flights to and from the airport. Pacific Air is the only small airline currently operating in Palawan, but several other small airlines are planning to provide service as a direct result of the NAVAIDS equipment. Bristol and Lewis helicopter service to the off-shore Palawan gas fields has benefitted from the VOR. They are now able to make flights during bad weather due to the VOR, which facilitates field exploration work.

The NAVAIDS have unquestionably aided the tourist industry. City and Provincial Tourism Offices reported a major increase in the number of tourists coming to Palawan over the past three years. Estimates for the first nine months of 1994 already exceed the 1993 total, with the peak season just ahead. To a lesser extent, improved PAL service has benefitted local shippers of fresh fish. PAL flights regularly carry fresh fish shipments of tuna and lapu-lapu in 45 kilo, styrofoam lined ice boxes. There more than 70 fish shippers operating out of Puerto Princesa at present.

Though improved PAL service is certainly important to tourism and air freight, the decline of peace and order problems in the country was cited by tourism officials as the major factor accounting for this increase. Moreover, PAL's service was

reported by tourists as well as local fish shippers as inadequate due to too few flights and too little cargo space.

In summary, upgrading Puerto Princesa's airport was unquestionably a sound decision; however, the impact of this improvement suffers from PAL's inadequate service between Puerto Princesa and Manila. The current limitations of PAL service impedes the development of the eco-tourist industry in Palawan - a major foreign exchange earner - as well as expanding shipments of fresh fish to Manila and on to Japan. An additional daily flight, at least during the peak of the tourist season, would reduce the uncertainty of travel to and from Palawan, as well as expand air freight capacity needed by local shippers.

5.2.3 Mactan Airport

RIF's NAVAIDS component has provided an Instrument Landing System for one of the two runways at Mactan airport (The Japanese provided the other system). In addition to the equipment, staff training, a vehicle and hand-held radios were part of the NAVAIDS package. RIF's assistance, however, is only one part of the much larger expansion of Mactan as the country's second international airport. With considerable assistance from the Japanese, the airport's facilities have been greatly expanded to handle international flights. State-of-the-art avionics are a critical element of this expansion.

Silk Air, Cathay Pacific and Singapore International Airlines have regular direct flights to Cebu. Airport expansion now permits landing of Boeing 747s which are now used by long distance carriers to and from Mactan. Other international carriers are also considering the possibility of establishing direct flights. Asiana, EVA and Air Brunei, who have obtained landing rights, have recently reviewed the facilities at Mactan. Airport officials foresee direct trans-Pacific flights by U.S. and other carriers as inevitable.

A key factor for airlines exploring the possibility of Mactan as a new route is the type of navigational instrumentation available at the airport. ILS is a standard requirement of international carriers, making RIF's assistance a very timely and useful addition to the airport's expansion.

Upgrading Mactan for direct international flights is supported by the fact that the Visayas and Mindanao are the final destinations for approximately 70% of international travelers to the Philippines. Avoiding the costs and time requirements of passing through Manila for these travelers is highly desirable. For example, Japanese travelers willingly pay an additional \$200 for direct flights to Mactan to avoid an overnight stay in Manila. International express delivery companies, such as DHL, are also considering using Mactan as a regional center for their services.

The expansion of Mactan airport is a critical element of the development of Cebu as a leading export manufacturing base in the Philippines. The Export Processing Zone in Cebu has been the first and most successful undertaking of this sort to date with more than 180 factories operating in the zone. Development of a second zone is already underway and new investors are constructing facilities even before the basic infrastructure is finished. Mactan's expanded facilities and air freight services complements the comparable development of Cebu's port facilities. The result will be an integrated, international direct shipping capability for the region.

The most important feature of the RIF ILS is its reliability and accuracy. Previously, landing signals were known to be unreliable on the approach to the runway. Pilots routinely reported that they received inaccurate flight angle instructions during their approach. Incredibly, pilots were instructed to ignore sudden shifts in navigational instructions which occurred during the approach. With the new ILS, these complaints have been virtually eliminated. Officials believe that the reliability of the new ILS will become a selling point for the airport to attract service providers as well as new investors to the area.

Because the new ILS has only been operational since August 1994, airport officials reported that it is still too soon to notice any significant impact of the new system on air freight operations. On the other hand, airport officials agreed that in time, more reliable air service will benefit shipments from the region and Mindanao dependent on reliable delivery of perishable products, such as fresh tuna to Japanese markets. Moreover, shippers operating out of Mactan would very much prefer to have direct flights to foreign markets as opposed to transshipping through Manila.

The improvement of passenger services, however, is already evident. Cebu typically experiences bad weather causing disruption of air services, on average, about ten days per year. Flight disruptions were far more frequently caused by equipment failures. Such failures resulted in flights being re-routed to Iloilo or Tacloban. With the new equipment, re-routing flights now occurs infrequently.

5.2.4 Conclusions

Puerta Princesa and Mactan airports suggest that NAVAIDS have an important impact on the local economy as well as on flight operations. This impact seems to occur more quickly, or is more readily discernible, the operations of smaller airports than larger airports. Installing NAVAIDS in an airport which previously did not have this type of equipment, such as Puerta Princesa, is a significant upgrading of facilities. It leads to

major changes in flight services and operations, including safety and reliability. In turn, this opens up possibilities for local business and industries.

NAVAIDS at a large airport, like Mactan, which already has similar but aging equipment, is none the less important. Mactan Airport illustrates how NAVAIDS can be a critical element in a larger development plan by attracting new carriers to the airport with all the implications this has for commercial and industrial development in the region. In both cases, the NAVAIDS were clearly beneficial which is indicative of what has happened in the other RIF-assisted airports.

5.3 RIF Schools and Hospitals

The damage to infrastructure caused by the Mt. Pinatubo eruption in 1990 and the lahar flows that followed was truly staggering. Roads, bridges, buildings, irrigation systems, water and sanitation systems, electricity and telephone systems were damaged or destroyed in the most severely affected Provinces of Pampanga, Zambales, Tarlac and Bataan.

The ash fall from the eruption was a major cause of damage to buildings which was substantial in the affected areas. The ash collected on the roofs of buildings, sometimes as much as a meter deep. The ash then absorbed following rains, creating a load which could not be borne by many buildings. Numerous school buildings, particularly older structures, became unusable.

In response to GOP requests for assistance, USAID agreed to make \$8.76 million available from RIF budget for school and hospital construction. Funding permitted the construction of 12 school buildings (two sites received more than one new building) identified by DPWH as priority locations. Two new hospital buildings were built in the two major cities in the affected area - Angeles and Olongapo - to help cope with the increased demand for health services in the affected areas by replacing existing hospital building damaged by Mt. Pinatubo.

It should be noted that USAID had built many schools and several hospitals in these same provinces under various projects funded by Economic Support Funds Program over the preceding decade. The school design from the ESF Program was well proven - none has ever been damaged by a typhoon - and had been used extensively throughout the country with great success.

The evaluation team was instructed to assess the results of this construction on a qualitative basis. To gain some insight into the actual or potential importance of these buildings to the community, three schools and the two hospitals were visited. The following reports on what we learned about these facilities.

5.3.1 Pagalanggang Elementary School

Pagalanggang Elementary School provides public education for grades 1 through 6 in a poor, rural area of Bataan Province. Many of the parents whose children attend the school are tenant farmers or sugar cane workers, placing them among some of the poorest in the rural poor population. The poverty of these people is reflected in the need to collect the annual P60 per student school fee from many families on an installment basis over the school year. This fee is a particular burden for those who have several children enrolled at Pagcalanggang Elementary School.

The old school building was seriously damaged by the Mt. Pinatubo eruption in 1991. It was subsequently condemned after the completion of the new USAID/RIF-funded building in 1992. However, between the time of the eruption and the completion of the new building, classes had to be conducted in the less damaged portions of the old school and in the school yard when weather permitted.

School teachers report that the new building is highly valued by the students, their parents and by the community at large. The community has never had a school building of the size and quality like the one constructed by the RIF project. Perhaps the clearest testimony to the importance of the building to the community is the fact that teachers have observed an increase in enrollment at the school over the past two years. Students from more distant barangays willingly travel several kilometers to and from school each day - a significant distance for children from ages 6 to 12 - to attend classes here.

5.3.2 Angeles City High School

The RIF school building is considered by the students to be the most desirable facility at the high school. It was reported that the students feel proud to have such a building in comparison to other local high schools. Attending classes in the RIF building is similarly viewed as prestigious. In fact, the RIF building serves as the high school's science building. The school's brightest students are enrolled in these classes, in effect, rewarding those students whose performance is superior.

5.3.3 Angeles City Central School

The roofs and gutters of existing school buildings were seriously damaged by the ash from the Mt. Pinatubo eruption. The RIF building has directly improved the facilities and facilitated the expansion of the curriculum. Prior to the new building, the school offered a special program of instruction for "gifted" students, i.e., those with superior learning capabilities, covering grades 4 through 6. Starting in 1994, the "gifted"

program, as well as special classes for blind and autistic children, were relocated to the RIF building. This allowed the school to expand the "gifted" program to cover all elementary grades - 1 through 6. It should be noted that the "gifted" program includes students from poor as well as rich families. The reputation of the "gifted" program is now so well established that students are transferring from private schools to the public school to be selected for it.

A new library and an audio-visual room have been established as well. The teacher in charge of the "gifted" program assured us that the new RIF school building has made a truly significant contribution to improving the quality of education that can now be offered. The value parents attribute to the building is reflected in their willingness to install security bars on the school windows and to purchase electric fans for the class rooms. Parents also raised funds to provide an air conditioner for the Audio Visual Room, while the School Board purchased a TV and VCR. The building is also used for various community meetings, including the PTA, and by other local government agencies for special purposes.

5.3.4 Olongapo City General Hospital

RIF is funding the construction of a new building which will replace the existing 150 bed hospital damaged by Mt. Pinatubo with a new facility. The new building will also contain an operating room and a delivery room. The hospital currently services about 600 patients per month in addition to 25-30 outpatients per day. The new facility will expand service capabilities significantly. As a public hospital, no patient is turned away even if all beds are occupied - they make space in the corridors if the family can provide a bed. This includes patients who are not residents of Olongapo City, e.g., patients from Zambales and Bataan Provinces come to the hospital because of poor provincial health services.

Public health facilities service the poorest segments of the population. This is reflected in the fact that only 70 percent of the hospital's patients pay for the services they receive. Many patients pay for medicine which generates some income for the hospital. However, payment for X-rays and laboratory work is dependent on the patients ability to pay. The hospital collects enough in fees to cover operating expenses of about P3 million annually, but the city has to subsidize the salaries of the staff (about \$10 million annually). The hospital administrator plans to increase fees, but this will not be sufficient to cover all costs. A source of revenue for the hospital is its 28 private rooms which cost P400/day which is cheaper than the private hospitals. More private rooms could help them financially.

The initial design process apparently failed to obtain sufficient input from the chief medical officers and from the Department of Health (DOH). DPWH presented hospital officials with finished plans for approval. Those who reviewed the plans were not experienced at reading blueprints and were unaware of the design problems which followed. For example, the operating room's lights need to be mounted on stronger support beams, the X-ray Room's doors are too narrow, and electrical wiring needs to be modified. These changes are needed to obtain a DOH license. At present, the hospital only has a temporary license to operate the new facilities. Officials expect that the cost of remedying these problems will not be too expensive.

A major problem the hospital confronts is a lack of sufficient equipment for the new facility. They plan to move their present equipment into the new building, but this will not be adequate. Similarly, additional staff are needed, but this depends on the city increasing its annual budget for the hospital. Until sufficient equipment and staff are provided, the utility of this sub-project will remain diminished.

5.3.5 Angeles City Emergency Hospital

Like the Olongapo City Hospital, Angeles' hospital is a public facility. The majority of its patients are very poor and cannot afford to pay for all services received. The Hospital is currently servicing approximately 7,000 in-patients annually and as many as 200 outpatients daily. The city must subsidize the operations and salaries of the hospital. There are no immediate plans to increase patient fees. However, the new facilities are expected to increase the number of patients who are better able to pay for services. They also reported that MEDICARE fees have helped to increase hospital revenues. They are already planning to expand the new facility to add eight private rooms (to generate revenue) and a 16 bed ward.

Demand for health services has increased substantially since the Mt. Pinatubo eruption, overwhelming existing facilities which hospital officials described as inadequate. To respond to this increased demand, the city had been renting facilities at the cost of P480,000 annually. Completion of new facility in the next few months will, therefore, result in a direct savings.

The Hospital Administrator reported that the new building will be a major advance from substandard to first-class facilities. The operating room complex, in particular, will greatly improve in the quality of treatment. The construction of the new building has boosted staff morale. The hospital will also receive donated (i.e., used) equipment through the World Medical Relief Program (U.S. based). The hospital administrator is concerned, however, that used equipment has greater repair costs which could actually make this a more expensive in the long run than it appears.

5.3.6 Conclusions

The schools are a runaway success - a proven school design that produces a high quality structure and is much appreciated by the local community. The schools serve a sound development purpose while promoting goodwill between the U.S. and Philippines.

The development impact of the hospitals is a more questionable proposition. Demand for health care services understandably increased in the aftermath of Pinatubo and continue to the present. Replacing damaged hospital buildings to maintain current operations, as well as to meet an increasing demand for medical treatment, certainly benefits the residents of those two cities and adjacent communities. However, using RIF funding for the construction of new city hospitals to meet the need for rural health care, however, may not have been the best solution.

For example, for the cost of these two facilities - \$4.28 million - many rural health care units at the municipal level could have been constructed providing health services in the rural areas where they are also much needed. Rural health units are at the front line of health care delivery in the Philippines. They provide the bulk of the basic services needed in rural areas, keeping people from seeking services from already over-burdened hospitals. Moreover, it is likely that considerably more people would have access to such health units than to two city hospitals if they had been built. Equipment requirements for rural health units are also much simpler and easier to meet. In contrast, both city hospitals confront equipment deficiencies - no equipment in one and old equipment in the other. This will reduce the facilities' effectiveness until equipment constraints are resolved. Given the rural focus of RIF, in retrospect, it would have been preferable to build rural health facilities than two expensive city hospitals.

5.4 Mt. Pinatubo Recovery Action Plan

5.4.1 Development of the Recovery Action Plan (RAP)

USAID was one of the first donors to provide assistance in the aftermath of the Mt. Pinatubo eruption which was the second largest volcanic eruption in this century. It is estimated that some seven cubic kilometers of materials were expelled by the eruption. Given the density of the population and general level of economic development in the area affected by the eruption, Mt. Pinatubo is probably one of the most costly volcanic eruption of the century.

The major problem the country now faces is the annual run-off of pyroclastic materials, lahar, deposited on the sides of the mountain. Annual rains carry the lahar into the eight principal river basins surrounding Pinatubo. Initial lahar flows had devastating effects, over-running river drainages and inundating extensive areas. Numerous communities have been totally destroyed and major damage has been caused to infrastructure in the affected areas, including the facilities at the former Clark Air Base. Many towns and extensive agricultural land are, for all intents and purposes, uninhabitable and unusable for the foreseeable future. Losses of this nature continue. In September 1994, a sudden bursting of lahar "lakes" on Mt. Pinatubo resulted in loss of life and property in the surrounding lowlands. Moreover, predicting the occurrence and severity of the lahar flows is very difficult; and total containment is simply not possible. Worse yet, significant lahar flows are expected to occur for another five to ten years.

To assist planning of effective civil works to reduce the severity of future damage from lahar, USAID funded the development of a comprehensive engineering framework by the U.S. Army Corps of Engineers (USACE), drawing on their long experience with the aftermath of the Mt. Saint Helens eruption in Washington State. The Recovery Action Plan (RAP) framework is directed toward protecting existing valuable agriculture lands, communities and infrastructure in the affected areas through the construction of levees and other civil works. Certain areas which have already suffered extensive damage have been designated as catchments for annual lahar flows to minimize future losses.

A four person USACE team made a site reconnaissance visit in September 1991 which produced recommendations for emergency measures. Due to U.S. bureaucratic requirements, USACE's work on the project began in late August 1992. To develop the framework, USACE collected a wide array of data on hydrologic and geologic conditions; rainfall and climatic conditions; lahar flows and sedimentation; and economic, environment social conditions and other related factors. Aerial photography and digitalized mapping were conducted. These data were then used to develop a planning tool to clarify the costs and benefits of engineering alternatives to respond to future lahar flows. An interim report was issued in January 1993 which made specific recommendations. However, this approach was subsequently modified to presenting options to the GOP which it could use to decide which civil works to undertake (including no action) in light of its political, social and financial considerations. The final RAP report was issued in March 1994, 18 months after work commenced.

RAP was not intended as a multi-year operational plan specifying which engineering actions needed to be taken on a year-by-year basis. (On the other hand, given the conditions prevailing in 1992, it was clear what the best initial engineering works should

be.) Rather, RAP is a dynamic, analytic planning tool which needs to be updated periodically as conditions in the affected change. That is, as conditions change, the engineering alternatives correspondingly change; similarly, civil works undertaken in one year would affect which alternatives needed to be considered in following years. Major events, such as the secondary eruptions of 1992 and 1993, can radically alter which alternatives were most effective. Systematic monitoring to track key factors, such as rainfall and lahar movements, is needed to update the framework. Such data would also improve prediction of the timing and magnitude of annual flows. Given the difficulty of predicting the severity of future lahar flows, this type of responsive planning tool seemed appropriate and useful. In its first iteration presented in the March 1994 report, the RAP helped to clarify the magnitude of the problem and what actions should or should not be undertaken.

Affected communities did participate in the development of the RAP. A total of 14 scoping sessions were held which were attended by roughly 200 participants per session. Participants represented a broad cross-section of the community - farmers, fisherman, NGO representatives and local government officials. These sessions reportedly provided useful input for refining the RAP. The RAP was also extensively discussed at the Multi-sectoral Consultative Meeting held in July 1994 at Subic Base. This broadened awareness of the RAP as part of the GOP's response to the Mt. Pinatubo eruption

5.4.2 Implementation

The Mt. Pinatubo Commission (MPC), which replaced the earlier Mt. Pinatubo Task Force, is a multi-departmental body headed by the Secretary for Social Welfare and Development. DPWH is a key member of the MPC. The MPC submitted to the President an integrated plan for responding to the Mt. Pinatubo disaster which incorporates the RAP as the central engineering guide for infrastructure works. The GOP authorized P10 billion over the 1993-95 fiscal years for its overall response to the disaster in the affected areas. P5 billion was allocated for infrastructure to reduce damage from future lahar flows. However, DPWH is not in a position to act unilaterally. Complicating the situation, the GOP's response to Mt. Pinatubo has been characterized as suffering from a lack of institutional coordination.

RAP's initial output and identification of alternatives reportedly influenced decisions concerning civil works constructed in 1993 and 1994. The alternatives identified in the RAP also proved effective in regard to the lahar flows in September 1994. Much of the lahar was contained by levees DPWH constructed, although, the unwillingness of landowners to sell their land resulted in an incomplete system with major gaps through which the lahar escaped, inundating surrounding areas.

The RAP has facilitated assistance from other donors (e.g., World Bank, the ADB, JICA, the Dutch, the Swiss, the Germans and the Danish) who have used it as a basic reference. Numerous meetings have been held with these donors to discuss the RAP with respect to areas where donors could provide assistance. The World Bank will make a \$2 million loan to do emergency work and develop more detailed plans for three river basins. A \$200 million loan is anticipated to carry out those plans - \$75 million for emergency work and \$125 million for long-term construction work. The ADB is considering a loan for three other river basins, with JICA planning assistance for the remaining two basins.

However, DPWH officials reported that the RAP has far less utility for them than they had expected. The basic problem appears to be that DPWH is more interested in having operational plans based on prevailing conditions, as opposed to an engineering framework which needs to be updated periodically. As an implementing agency, it must justify why specific alternatives are the best choices and, therefore, why substantial investments should be made in those civil works. The analytic requirements for actually using the RAP framework for this purpose is reported by DPWH officials to be beyond their capabilities. Furthermore, the extensive monitoring system needed to support the framework does not exist which further decreases RAP's utility over time. DPWH officials also noted that the final 1994 RAP report was based on data collected in 1992 and 1993. Consequently, they view the RAP as a "plan" which is now almost two years out of date. A serious deficiency of the RAP from DPWH's perspective is the absence of data related to the major changes resulting from the September 1993 secondary explosion of Pinatubo. This event produced significant changes in the flow of lahar in two adjacent river basins.

It is clear that in comparison to what was originally envisioned for the RAP, actual implementation and use of the framework has suffered from the GOP's lack of institutional capabilities and coordination and a lack of financial resources. No single unit has responsibility for carrying out the plan; and organizations which should be cooperating - e.g., DPWH, PHILVOCS, PAGASA - do not. At present, the Project Management Office for RIF in the DPWH has been assigned this responsibility along with its other functions. The PMO lacks both staff and resources to perform this role effectively. Moreover, due to financial and institutional constraints, the GOP's response to the lahar flows has been somewhat ad hoc, as opposed to implementing the RAP as a guiding, coordinating framework for responding to the problem. The pace of activities seems to increase only when the situation becomes critical. Without the RAP monitoring system in place, there is no capacity to predict major lahar flows, undercutting the establishment of even a rudimentary early warning system (a fact which exacerbated the damage done by the 1994 lahar outbreak).

Contrary to normal USAID practices in providing technical assistance, only a limited effort was made to strengthen DPWH's capacity for using the framework independent of USACE advisors. Moreover, except for visits to collect needed data, USACE prepared the RAP largely at its offices in Portland, Oregon. They did not have a long-term presence in country. Instead, LBII was sub-contracted to serve as a liaison between DPWH and USACE and carry out activities which would typically be performed by long-term advisors who are actually providing the technical assistance. From DPWH's perspective, this arrangement has resulted in "no technology transfer occurring" (their exact words). Given the continuing problems DPWH faces in responding to the annual lahar flows, to say nothing of the political pressure from various quarters, DPWH officials argue that additional assistance is needed to update the RAP "plan", factoring in changes in conditions since the RAP was originally developed. However, no additional funds are available from USAID for this purpose.

At the time of this evaluation, USACE is delivering the data needed for the framework and explaining the use of its computer programs to potential users. USAID recognizes that there is little hope of DPWH effectively utilizing the framework as initially envisioned. In an attempt to get some additional mileage out of USACE's work, USAID plans to distribute the framework data and programs to other GOP agencies (e.g., The National Hydrological Center at the University of the Philippines, PHILVOCS) and other donors (e.g., the Japanese, World Bank consultants) in the hope that the RAP data and models will be of use to them.

5.4.3 Conclusions

The \$6 million spent on the Mt. Pinatubo Recovery Action Plan is the definite nadir among the various activities funded through RIF. The evaluation was able to find little, if any, meaningful impact resulting from this work. Worse yet, what utility the RAP may have had initially, continues to diminish with time. Disseminating the data and programs associated with the framework seems a desperate effort to salvage something from this sorry state of affairs.

This unfortunate outcome appears to have resulted from very different perspectives on what was needed between the consultant, USACE, and the client, DPWH. USACE, with USAID concurrence, took the "intellectual highroad" in developing a sophisticated planning tool reflecting the dynamic nature of the situation created by Pinatubo. What this overlooks is the institutional requirements to use such a product and the lack of that capacity in DPWH. In contrast, DPWH is little interested in an analytic framework they cannot use. Rather, DPWH is looking for an

operational plan, based on analysis but done by specialists in the field. The very choice of words DPWH uses to describe RAP as "a plan which is two years out of date" reflects this perfectly. They view the RAP as a plan, not a framework (the use of the term plan by USACE was ill-chosen). USACE clearly stated that the RAP is not intended to "...recommend that a specific alternative be implemented for a particular river basin." But that is precisely what DPWH is expecting from this assistance. Clearly, there was not a meeting of the minds here. Given the current institutional problems surrounding the GOP's response to Mt. Pinatubo, the RAP is essentially dead on arrival.

In summary, though the technical soundness of the RAP is not at issue, the utility of the RAP appears to be marginal at best and diminishing over time. In retrospect, \$6 million of U.S. taxpayer money could have been far better spent on building more schools, roads and ports consistent with RIF's initial development purpose.

Annex 1: Impact Evaluation Questions from the Impact Evaluation
Scope of Work
(note: the complete scope of work is available from USAID/Philippines'
OIED)

C. Guide Questions

In evaluating the economic and social impacts of the Project, the evaluation team will be guided by the following illustrative questions for each major type of subproject.

1. Roads/Ports (Transportation Economist and Civil Engineer)

- Have the new/improved roads and ports caused changes in vehicle operating costs in the affected areas?
- Has travel time been reduced in the affected areas?
- Has availability of transportation increased (i.e., frequency of travel, passage during rainy season)?
- Has agricultural production and/or profit margins of farmers increased due to the more efficient transportation system in the subproject sites?
- Have business activities/sales increased in establishments along the road or in the vicinity of the ports?
- Because of the improved roads and ports, have passenger fares and freight costs been reduced?
- For the roads, have average daily traffic counts (ADTC) increased significantly since the subproject was completed? (Compare baseline ADTC in the FS to end-of-subproject data.) Can this increase be attributed to the improved road conditions?
- For the ports, have annual tonnage of goods (ATG) handled increased significantly since the subproject was completed? (Compare baseline ATG in the FS to end-of-subproject data.) Can this increase be attributed to the improved ports?
- Were there any environmental issues identified in the individual FS (i.e., soil erosion for the roads) and were mitigating measures recommended? If so, were these issues resolved and/or mitigating measures implemented in an effective manner?

- 64'

2. Air Navigational Aids (Transportation Economist and Civil Engineer)

- Has there been a reduction in air transportation accidents in affected airport routes over the Project period, i.e., the last four years? If so, can this reduction be attributed to the installation of air navigational aids under the Project?
- Has there been any real or perceived improvement in airline flight scheduling as a result of the provision of the navigational aids and communications equipment? If so, has this improvement in airline flight scheduling translated to more movement of passengers and goods in affected airport routes? Did it have any effect on employment in the area, and on the local airline industry?
- Has the provision of the air navigational aids raised the safety and operating conditions of the recipient airports to ICAO standards? If so, did this improvement result in increased international as well as domestic tourists and business travelers? Has business activities increased in the affected area?

3. Schools/Hospitals (Area Development Specialist and Team Leader)

- Are the schools being used and adequately maintained?
- Are there teachers assigned to the schools? Are there adequate furnishings and supplies?
- Is the school absorbing the students displaced by the Mt. Pinatubo eruption? Are they accommodating the same number of students that the replaced building was accommodating?
- Are the new facilities of better design/quality than the buildings they replaced?
- Are the students enrolled from those families affected by the Mt. Pinatubo eruption?
- Do the residents perceive any improvements in the quality of education available due to the school?

What are the anticipated benefits from the hospitals that are currently under construction? How will the subprojects impact on the economic and social conditions in the Mt. Pinatubo area?

4. Mt. Pinatubo Recovery Action Plan (RAP) (Area Dev't. Specialist and Team Leader)

- Is the RAP an implementable document? Does it address all requirements of DPWH and concerns of USAID and other donors? Does it incorporate to the maximum extent the latest changes in the urban and river patterns in the Mt. Pinatubo area?
- Has there been adequate effort to market the RAP for use of other donors? Has it generated interest and intent from various donors to invest in infrastructure projects for the area?
- What are the anticipated benefits from the RAP? Was the cost involved in preparing the RAP (approximately \$6M) worth the expected benefits?
- Has the RAP been presented to the DPWH, the Mt. Pinatubo Commission, and other government offices involved, and what is their role in terms of ensuring that the RAP is utilized? How effective have these offices been so far?
- How are the residents of the Mt. Pinatubo-affected area expected to benefit from the RAP? Are the residents aware of the work on the RAP and if so, how do they perceive its usefulness?

5. Technical Assistance to the Telecommunications Sector (Telecommunications Specialist)

- What were the studies completed under the RIF Project for the telecommunications sector? How were these studies used? How did these contribute to policy changes in the sector?
- What were the major policy changes during the project period for the telecommunications sector?
- How effective was the high-level advisory consultant that was funded for the DOTC in terms of making the sector more open to competition and private sector participation?

- To what extent can the recent policy changes in the telecommunications sector be attributed to the TA provided under the project?
- Have the policy changes actually resulted in tangible benefits such as increased telephone density in the country, better quality and more reliable service, lower costs to consumers, faster connecting time, etc.? Have these benefits translated to social benefits in terms of: improved farmers' and traders' access to price information; reduction in transportation expenditures in rural areas as better communication facilities substitute for transportation; improved communications with areas characterized by poor transportation systems, and other benefits expected in the Project Paper?

6. Overall Project Impact (Team Leader and Area Dev't Specialist)

- What evidence is there that the RIF subprojects have encouraged growth in business activity in rural areas? Has the country shown signs of economic recovery since the project was started in 1988? To what extent can the economic improvements be attributed to the RIF Project?
- As a result of the RIF activities in the rural areas, is there now a closer balance in infrastructure investments between the rural and urban areas? What evidence is there to show that existing infrastructure is now being utilized to the maximum as a result of the Project activities?
- On the overall, did the RIF Project have any impact on the environment? If so, in what ways? If there are negative impacts, how do these offset the Project's economic and social impact?
- Which type of infrastructure subprojects tended to produce significant economic and social benefits? What factors account for this? Which type produced only marginal or no measurable benefits? What accounted for this? Which subproject type is more likely to continue to produce a sustained impact?
- Was there adequate publicity for the project activities? Is there evidence to show that the level of publicity helped make the general public

aware of the RIF Project and USAID programs as a whole? If so, how did this publicity enhance the impact of the RIF Project?

- Given the priorities of the GOP and USAID's evolving development strategy during the project period (1989-1994), were the types of activities undertaken the best types to fund within the context of the RIF Project's "umbrella" concept? What alternative infrastructure and TA activities could have been funded that would have had a greater impact on the country's development?

Annex 2 PEOPLE INTERVIEWED AND REFERENCES

People Interviewed

- DPWH

- Mr. Florante Soriquez, RIF Project Director
- Mr. Paster Tabale, Assist. RIF Project Director
- Mr. Ramon Cacatian
- Mr. Ramon Velasquez

- DOTC/ATO

- Mr. Edmundo M. Odulio, Assistant Area Manager for Operations, Airways Navigation Service, Mactan Airport
- Mr. Nemesio Yncierto, Airways Navigation Service, Mactan Airport
- Mr. Julie Galicia, Officer in Charge, Puerta Princesa Airport

- Philippines Airlines

- Mr. Rolando Mendoza, Flight Operations Manager, Manila
- Mr. Claro, PAL Flight Operations Manager, Mactan
- Mr. Manny Lazaro, PAL Cargo Operations, Mactan
- Capt. Florendo C. Aquino, Deputy Chief Pilot
- Captain Momorado, A-300 pilot
- Flight Crew of A-300 PR457, Nov.7, 1994

- Mactan Airport

- Captain Antonio Uppus, Mactan Airport Manager

- Mount Pinatubo Commission:

- Mr. Sebastian Santiago, Special Advisor to the Director
- Mr. Lazaro, Resettlement Coordination

- Schools and Hospitals

- Emmuel E. Ramos, Hospital Administrator, Olongapo City General Hospital
- Mrs. Elvira L. Marquez, Officer in Charge, Angeles City High School
- Mrs. Leticia Z. Gallo, Special Education Coordinator, Angeles City Central School

- Puerto Princessa City

- Ms. Maricel Rios, Provincial Tourism Officer
- Ms. Maria Corazon Timones, City Tourism Officer
- Ms. Marilou Falcon, City Tourism Officer
- Mr. Robles, General Manager, Philippine Ports Authority (PPA)
- Mrs. Belinda M. Palayon, Finance Officer, PPA
- Mr. Jemuel Apellido, Statistician, PPA

- Lt. Christopher Caunan, Philippine Coast Guard
- Mr. Clem Labrador, Provincial Planning and Development Office

- Narra City

- Mr. Clarito Dimaala, Mayor
- Mr. Jose Gabriel, Municipal Engineer
- Mr. Reu Peneyra, Municipal Agricultural Officer
Department of Agriculture Municipal Office
- Mr. Franklin Sitchon, PNAC-IMS (Palawan National Agricultural College, Institute of Marine Sciences) Marine and Processing Training Center
- Mrs. Dimaala, Treasurer, San Isidro Porterage, Arrastre and Stevedoring Services, Inc.

- Southern Leyte

- Mr. Lim A. Youn, Mayor of Sogod Municipality
- Mr. L.B. Go, President, L.B. Go Construction Co.
- Mr. Gil Fernandez, Deputy Project Manager, DPWH, Tacloban

- Agusan del Norte

- Eng. Arthur L. Ong OH, President, Concepcion Basic Builders, Inc.
- Mr. Aliore Page, Barangay Captain, La Fraternidad, Tubay
- Mr. Ronnie Famador, Investor, 176XCabadbarMunicipalita

- Economic Development Foundation Survey Field Supervisors

- Ms. Myrna Ticzon
- Ms. Auring Mauricio
- Ms. Daisy Casas
- Ms. Carol Lagadon
- Ms. Rosario Mustaza

- Louis Berger International, Inc.

- Mr. David Wallace, LBII Project Manager
- Mr. Jan Stofkoper, RAP Liaison
- Mr. Noel Mediran, Assistant Project Manager

- USAID/Philippines

- Mr. John Starnes, RIF Project Officer
- Mr. Manny Miciano, RIF Project Manager
- Mr. Sal Umiten, RIF Engineer

References

Audit of USAID/Philippines' Rural Infrastructure Fund Project, October 10, 1991, Regional Inspector General for Audit, Singapore.

Audit of USAID/Philippines' Management of USAID-funded Construction, May 31, 1994, Regional Inspector General for Audit, Singapore.

Feasibility and Environmental Impact Studies Prepared for DPWH by Louis Berger International, Inc. and TCGI Engineers for the following RIF Sub-project:

- Santa Fe - Rosales Road
- Baco - Puerto Galera Road
- Batangas - Lobo Road
- Mabini Circumferential Road
- Estancia-Ajuy and Wharf Roads
- Kalibo Highway 1a
- Balasan - Carles Road
- Tubay-Jabonga/Lake Mainit Road
- Pandan Port
- Bula Port
- Pio Duran Port
- Santa Rosa Port
- San Jose Port
- Babak Port

Mt. Pinatubo Recovery Action Plan, Long Term Report, U.S. Army Corps of engineers, March 1994.

Rural Infrastructure Fund Project Paper, USAID/Philippines, Septemebr 1987.

San Isidro Portorage, Arrastre and Stevedoring Services, Inc., Narra Palawan.

A. Findings -- The RIF in Macro Perspective**1. The Rationale for the RIF Project**

At the time of Project inception, the magnitude of the problem that the RIF sought to address was in crisis proportions.

The share of public sector investment in Philippine GNP was halved from 7.0 percent in 1982 to 3.6 percent in 1985. Over this short period of time, as GNP fell in real terms, this meant a decline in public investment expenditures by 64.6 percent. Transport infrastructure in particular was heavily affected, as investment spending in this sector fell by 74.4 percent.

Maintenance and operating expenditures began to decline even ahead of public investment, leading not only to the deterioration of the existing economic and social infrastructure but also to failure in the delivery of basic social services to the people. Real spending on maintenance of transport facilities in 1985 was only 54.6 percent of the 1982 level. The deterioration of rural infrastructure was particularly acute, as political expediency necessitated the concentration of attention and resources to urban areas.

The new government that assumed office in 1986, however, experienced difficulties in getting a sustained public investment program going, as, in addition to resource constraints, all major projects were subjected to a thorough review, and procedural bottlenecks arose. The share of public investment in GNP continued to decline to 3.0 percent in 1986 and 2.5 percent in 1987. Thus, despite the economy's gradual recovery, public investment constituted a drag, both for lack of funds and for failure to move projects.

The RIF's ex ante response, as expressed in the Project Paper, reflected a keen appreciation of the problems faced by the economy at the early years of the new administration. The economic subsectors identified in the Project Paper were (and continue to be) priority areas essential to rural development. The focus on rehabilitation, upgrading, and maintenance of rural transport infrastructure would not only be quick-gestating and cost-effective; it would also be riding on benefits to observed normal traffic. The "umbrella" mode of financing would not only be sensitive to priorities defined by the recipient, it would also "allow the demonstration of absorptive capacity in each subsector institution before final allocations of budgets are made." In short, the RIF, ex ante, was a perfect match to the problems faced by the country at the time.

2. Subproject Selection Criteria for the RIF

The roads and ports subprojects to be financed by the RIF were identified from a long list submitted by the NEDA and DPWH. To expedite project implementation, only those subprojects with completed feasibility studies were included in the list. The list was supposed to come from the Medium-Term Public Invest Program (MTPIP).

What, then, is the substance of the MTPIP process? At the local level, capital projects are identified and programmed by the LGUs following the hierarchy from barangay to municipality to province, or barangay to chartered city, in consultation with the local offices of the line agencies. Only those projects that are not proposed to be funded purely from LGU fund sources are passed on to the higher level. At each stage in the process, the higher levels of local government may add to or delete from the list, as they may identify additional projects within their jurisdiction or consolidate lower level projects into a package that could avail of scale economies. They may also be applying a different set of criteria and value weights from those used by the lower level LGUs.

The long list is then presented to and endorsed by the Regional Development Council (RDC). The RDC in turn forms a Regional Development Investment Program (RDIP) with the long list as its starting point. The RDIP is drawn in consultation with members of Congress, line agencies, and the private sector (including NGOs). The selection and ranking of projects for inclusion in the RDIP involve the application of a system of scoring across several criteria, whose weights are determined by consensus among the RDC members. The projects contained in the RDIP are then further classified into those for implementation by the LGUs and those for implementation by the line agencies. The latter are submitted to the Agency Regional Offices (AROs, now field offices for the departments that have devolved their functions), which in turn refer the projects to the Agency Central Offices (ACOs) for inclusion in their respective investment programs.

A parallel process of project planning and development is conducted by the Agency Central Offices for projects that are inter-regional or nationwide in scope. Region-based project proposals by the ACOs are developed in consultation with and are endorsed by the RDCs. As with the RDIPs, a scoring system is used in the selection and ranking of the proposed projects by the ACOs in coordination with the RDCs. The final outcome is a list of priority projects constituting the Agency Investment Program (AIP), now called the Priority Subsector Activities (PSA) list.

Programs and projects from the RDIPs and the AIPs which are expected to be funded by the National Government or from Official Development Assistance sources are then submitted to the NEDA

Secretariat, where the proposals are reviewed for consistency with the overall thrust of the Plan, and where domestic and external resource constraints are considered. The process of selection and ranking from the RDIPs and AIPs once again goes through a scoring exercise. At critical stages in the process, public consultations through regional, aerial (for Luzon, Visayas, and Mindanao), and national conferences are scheduled to inform the general public and to discuss financing strategies for the programs and projects. The area-wide consultations have recently been expanded to comprise framework plans for the island groups.

It often happens, however, that a local government unit finds that the approved projects in its locality are not those that are high in its priority list. It would thus be instructive to review the selection criteria of both NEDA and DPWH to see to what extent these criteria address economic efficiency and equity concerns.

a. The DPWH Infrastructure Fund Allocation Scheme

Since at least 1982, the DPWH has been using a systematized fund allocation process for its annual infrastructure program across regions and project types that looks simple and easy to understand. For the first step in the process, "The needs per project category are determined based on sector surveys." These "needs" appear to have been based on certain standards which should perhaps be presented more explicitly. For example, the statement that "of the 26,000-km national roads, only 80 percent is all-weather and only 45 percent is paved" implies that the "need" is for all national roads to be paved (or at least all-weather).

In the second step, "The total infrastructure investment ceiling for the country is obtained from fiscal authorities." The statement connotes that the agency would not lift a finger for a bigger budget and would just sit passively even if it thought the "needs" to be acute. If this is a wrong impression, the phrasing of Step 2 should be made to reflect whatever inter-active processes transpire at the Development Budget Coordinating Committee (DBCC) meetings on the infrastructure budget.

"The total national infrastructure funds are apportioned among project categories in proportion to cost of needs" in the third step. This procedure implicitly assumes that benefits across project categories are proportionate to costs (i.e., the BCR is the same across project categories), which is probably an unreasonable assumption. As a first pass in the allocation process, project types with higher BCRs should be favored.

Finally, "For each project category, the total national funds are allocated among the regions based on socio-economic

factors (e.g., area, population, production, existing infrastructure, poverty incidence, etc.)." Since 1989, the spatial allocation has been extended to the provincial and city/municipality levels as well. The allocation criteria are: (a) equal share per administrative unit, 20 percent; (b) population, 30 percent; and (c) "scarcity of infrastructure" index, 50 percent.

For each project category and for each level of local government, a different type of scarcity of infrastructure index is adopted. With the provincial allocation of the roads budget, for example, factors entering the index computation are road density, land area, length of unpaved roads, Gross Regional Domestic Product, average annual family income, and population unserved or underserved with potable water supply for the province relative to the region, including the "implementation difficulty factor" for the province based on terrain and accessibility. While the 20-30-50 rule seems simple enough, the scarcity of infrastructure index carrying the 50 percent weight is not as easy to follow.

It should also be mentioned that within a given area and subsector, the proposed projects are still subjected to detailed evaluation. With roads again as an example, projects with a net present value (NPV) that is negative or a benefit-cost ratio (BCR) of less than unity at a 15 percent discount rate are automatically set aside. The NPV, however, is not based strictly on the conventional approach. Benefits are weighted to favor poorer beneficiary areas or families. In Department Order No. 17, Series 1982, three income classes are considered, with the highest income class given a weight of unity and the lowest income class given a weight equal to ratio of the national mean income to the class's mean income. This invariably results in a modified NPV that is at least as high as the conventional one.

Projects with a first-year benefit-to-discounted-cost ratio (FYBCR) of less than 10 percent are also automatically set aside. The latter rule has to do with the optimum timing issue: projects which may have a high BCR may nevertheless need to be postponed if the first-year benefit to be lost with postponement is less than the gain in terms of annual interest cost saving on the capital to be sunk in. The problem is why the hurdle rate for the FYBCR is only 10 percent when the social opportunity cost of capital is taken to be 15 percent.

In addition, project "merit ratings" are computed, whereby the economic feasibility indicators are given only a 60 percent weight; a "social development" indicator (qualitatively described as the "degree of contribution of the project to the improvement of health, education, safety, and security" is given a 25 percent weight, and an "induced employment indicator" referring to the "degree of employment generating capacity" of the project gets a

15 percent weight. The last two criteria for the project merit ratings can easily be used unscrupulously to push up a pet project or pull down one that is not to the rater's liking.

While the procedure is highly transparent and appears objective, a substantial amount of value judgment may enter in the choice both of indicators and of weights. With a small group deciding on the weights, what usually happens is that, after a given iteration, if the allocative outcome does not look "proper" in the group's judgment, the initial weights are changed until a more agreeable outcome from the group's viewpoint is reached. In other words, there is often already a desired outcome suggested by intuition, and the scoring process becomes a validation of this decision.

Fortunately, in spite of the above comments, within a given region, it seems that the DPWH allows a province to trade, say, a road budget for a port budget, as long as the original allocation to the region as a whole for roads and for ports is maintained. The system would be even more flexible and more responsive to local needs (short of full decentralization) if the Regional Development Council could reallocate across project categories, e.g., if it could use its ports budget for roads instead.

b. The NEDA/PIS Investment Programming System

Since the mid-1980s, the NEDA Public Investments Staff and the NEDA regional offices have been active in working out methods of project ranking for investment programming at their respective levels. The approaches that have been used are basically similar to each other in that the criteria, sub-criteria, and relative value weights are identified via a modified Delphi technique and project proposals are scored with respect to the degree by which they meet the criteria (see Appendix A for the NEDA criteria).

One difference lies in the people consulted for the value weights; at the regional level, the RDC members are surveyed together with the members of the sectoral committees, while at the national level (NEDA/PIS), the survey respondents are NEDA Board members, Project Facilitation Committee action officers, the NEDA regional directors, and the Regional Development Council chairmen and co-chairmen. Perhaps because the people consulted at the various levels (as well as the interests they represent) are different, the concerns, the criteria, and their relative value weights also turn out to be different across the various levels. The approach also applies a statistical test to check if the responses come close to a consensus.

c. Summary of Methodological Problems and Issues

The exposition of the NEDA and DPWH approaches to investment programming presented above touched on several issues that are summarized here. A detailed discussion is given in Appendix B.

The first problem encountered at all levels is that the scoring system sometimes yields a project ranking that runs counter to heuristic perceptions. A project that is intuitively appealing may nevertheless get a low score. Social projects in particular face this situation. The usual response is to play around with the weights, which erodes the integrity of the whole scoring process. This problem stems partly from the fact that the weighting system implicitly assumes a linear preference function, when the decision makers may in fact be expressing a diminishing marginal utility for certain criteria, in which case nonlinear weighting may be more appropriate.

A second problem has to do with seemingly inconsistent preferences across hierarchies of decision making. Priorities at the national level may be very different from those at the local level. The textbook solution is to apply the principle of subsidiarity, whereby the decision is left to the lowest level as long as there are no major externalities involved. In practice, this would mean more devolution of responsibilities and resources to the local levels.

There is also the need to institute "red flags." In the NEDA system, even a project with negative NPV at the social discount rate may still end up high in the priority list, as economic feasibility gets less than 5 percent weight. For the DPWH system, fortunately, such a project gets screened out at the feasibility stage, although the DPWH system modifies the NPV to include income distribution weights.

3. Subproject Evaluation Techniques

Despite the misgivings of the NEDA and DPWH processes underlying the initial list submitted for RIF financing, the subprojects drawn from the list were subjected anyway to feasibility updating, so that the RIF subprojects went through standard economic efficiency criteria. Project communications show that, in at least one case (the Sta. Fe-Imugan road), the DPWH request to have a subproject with less than 15 percent economic internal rate of return (EIRR) was turned down. It is nevertheless useful to review the evaluation methodologies used by the Consultants who prepared the feasibility study updating.

The FS Consultants on the whole followed a conservative approach, taking care not to overstate subproject benefits. With roads, for any given subproject, the analysis was conducted by homogeneous traffic section. A review of the feasibility study

for one subproject (Sta. Fe-Rosales Road), however, showed what may be some slips in the methodology.

For this particular subproject, nine homogeneous sections were identified and an economic of each was conducted. Of the nine sections, only last four (from Tayug to Carmen) showed EIRRs exceeding 15 percent. Nevertheless, in the recommendation, the Consultants aggregated two unfeasible sections with the other four to form the Sta. Maria-Carmen "segment," which had a 31.5 percent EIRR. But the two unfeasible sections had EIRRs of only 4.0 percent and 0.8 percent, by the study's own calculations.

The other issue has to do with optimum timing. The study does not apply the "first-year benefit-to-discounted-cost" rule, and recommends immediate implementation once the NPV (at a 15 percent cost of capital) is positive. Standard transport project evaluation techniques suggest that, even if a project yields positive NPV if initiated now, it may still pay to postpone the project if the FYBCR is less than the social discount rate; i.e., postponement may yield an even higher NPV, if benefits grow over time and are independent of when the project is started. The DPWH, as seen earlier, uses the FYBCR as a standard investment criterion.

It will also be noticed that for most of the sections analyzed, the net cash flows have several changes in sign over the life of the project (from negative at initiation due to the investment cost, to positive as benefits accrue, to negative again as major road repairs are undertaken with the project). These changes in sign may lead to multiple EIRRs, in which case the use of the EIRR as an investment criterion breaks down. The study, however, is careful enough to report NPVs at the social discount rate, and a check of the road sections with such a pattern of net cash flows changing in sign showed no multiple IRRs (at least within the relevant range).

4. Impact on Poverty Alleviation and Rural Recovery

The RIF, particularly its roads and ports components, is noteworthy in its rural orientation the spread of its area coverage. Almost every road or port subproject is located in a different province, and none is in Metro Manila. From the point of view of equity promotion and poverty alleviation, such a geographical spread is desirable, given the wide disparities in poverty incidence, incomes, and employment opportunities across the country. Proponents of a growth pole approach may argue that scarce public funds may just get dissipated in areas with little growth potential. But in the Philippine case, as the RIF Project Paper notes, the economic crisis of the mid-1980s led to such low levels of public investment, especially in the countryside, that there would certainly be no lack of economically viable public investment opportunities in the regions outside Metro Manila. In

other words, the tradeoff between equity and efficiency would not have been binding at this time.

How do the RIF investments in roads and ports measure against the objective of poverty alleviation? Indicators of poverty incidence for the Philippines are available only down to the provincial level. Using these provincial data for 1991, one finds that for the road subprojects, 83 percent of the funds were allocated to provinces with poverty incidence above the national level. For the ports, the corresponding figure is an even higher 85 percent. If the whole provincial population could be taken as the ultimate beneficiaries of the RIF Project, 89 percent of the road beneficiaries and 80 percent of the port beneficiaries live in provinces with poverty incidence above the national average.

In buying from a basket of projects, there is of course the risk that leftover, economically unviable projects may get bought by other buyers, or that such projects may get started anyway from the seller's own funds. The review of the investment programming procedures of the NEDA and DPWH presented earlier shows that this risk is minimized. The correlations across regions between poverty incidence in 1985 and the proposed public investment spending per capita in different project categories (as contained in the MTPIP for 1988-1992) also show a positive association in favor of more equity. The correlation coefficient was 0.24 for roads and 0.37 for ports. In short, projects not bought by the RIF from the MTPIP were still poverty alleviating.

B. Findings -- Micro Dimensions of Project Impact

1. The Road Subprojects

The general nature of the road subprojects included in the RIF is that of rehabilitation, upgrading, and maintenance of existing facilities. The benefits that one would expect shall therefore be accruing mainly to "normal" traffic, in terms of savings in vehicle operating costs and passenger time costs. In fact, the Consultants for the feasibility studies adopted the conservative stance of estimating only the benefits to normal traffic in those cases where the road network being evaluated already has an established clientele (i.e., the annual average daily traffic or AADT is already high). These savings are of course expected to translate eventually into lower passenger and cargo fares which help stimulate the local economy.

Given the time and other resource constraints facing this present impact evaluation effort, no actual traffic count for the subprojects could be conducted. Instead, a rapid appraisal technique was used: a survey of key informants and beneficiary groups was conducted to get indications of the nature of project benefits. For the road subprojects, eight sites were covered, and the people surveyed included local officials, operators of

business establishments, public transport passengers, operators and drivers of buses, trucks, and jeepneys, farmers, and agribusiness dealers and traders. A detailed description of the survey results is given in a separate section. The discussion that follows covers only some highlights of the survey.

The survey results generally reflected a highly favorable view of the subproject roads from all categories of respondents. Of the eight sites covered, the cases where some dissatisfaction was aired were two of the three subprojects where construction is still on-going: Puerto Galera-Baco and Mabini Circumferential (the third yet to be completed being Batangas-Lobo). Passengers using these two roads, when asked the open-ended questions on other effects the improved road has had on their business, cited fewer positive effects than passengers using the other subproject roads. For Puerto Galera-Baco, the dusty road condition was high in the complaint list of both passengers and farmers.

Although the Feasibility Studies downplayed (for the sake of conservatism in the benefit estimates, not realism) the traffic generation and developmental effects of the road improvements, the overall picture that emerges from the survey is one where the subprojects have increased local mobility and helped stimulate more competition in the local economy.

The responses are perhaps more a reflection of the people's perceptions of before-and-after conditions rather than without-and-with the project. In other words, the growth in competition may be due to other factors as well, such as growth in incomes and population in the influence areas which would have happened even without the road improvements. Recent macro policy changes like liberalization in trade, banking, and transport (as in the grant of franchises) have certainly contributed to the more competitive environment cited by the respondents. But increased economic activity in the local economy, even if exogenous and not entirely entirely to the project, may even mean greater project benefits, in the sense that "normal" traffic is growing, to which full road user cost savings may be attributed.

But while the survey respondents observed that there is now more competition in transport services as well, very few of them acknowledged any drop in transport fares (with positive responses coming from the subprojects outside Luzon). This response is probably the outcome of money illusion; although fares may have remained the same or even increased in nominal terms, their real value may have dropped with inflation.

Another positive contribution of the road subprojects is in the social sphere. Practically all the respondents readily acknowledged easier access to basic social services, especially health, with the project. More trips taken afford increased mobility; the reduction in travel time represents more time to

allocate to leisure as well as market work. It is often said that passenger time costs are low anyway in rural areas; but for the beneficiaries concerned, time savings may constitute a huge chunk of their full incomes if they rely on earnings from work as their main source of their low incomes.

The long-run sustainability of project benefits depends much of course on sustained growth in the economy, especially the rural sector, given that the roads component of the RIF financed mainly the rehabilitation, upgrading, and improvement of existing roads. Present prospects for the Philippine economy appear to be bright; the most recent official figures show a robust GNP growth rate of 5.9 percent from the third quarter of 1993 to the third quarter of 1994, with agriculture leading the other domestic sectors at 9.0 percent. Macro policies that have been put in place in recent years, in an environment of deregulation, freer trade, and liberalization, augur well for sustained economic growth in the medium term.

The moves toward decentralization and devolution started by the Aquino administration have not only infused more public funds going to the regions outside Metro Manila, but also increased local control over the use of such funds. Liberalization in the telecommunications industry is also helping foster regional growth; the exporter from Mindanao need not fly over to Manila to do business with the trading company. The provision of energy and other infrastructure facilities (roads, ports, airports) is at present delayed by budgetary constraints, but schemes for more private participation in such investments are being explored. In those cases where private investors can capture the returns on their investments, such as power generation and water supply, further deregulation and decentralization of decision-making (in the award of franchises, for example) is called for.

While the pace of urbanization will continue to be strong, its character will be changing. In the 1970s and the 1980s, the rate of urbanization far outpaced the rate of industrialization, with a strong flow of rural migrants to the cities, particularly Metro Manila. As industry gets more dispersed, a greater part of urbanization would come from the sprawl of economic activity as previously rural areas become urbanized. Rural-urban migration will be to regional and sub-regional centers. While Metro Manila will continue to grow in absolute population, there may even be a net outmigration from the metropolis. All these developments point to the sustainability the economic impact of the RIF.

A member of the Impact Evaluation Team visited the Sta. Fe-Imugan project road, from Carmen to San Nicolas in Pangasinan, to validate the survey findings. The vibrancy of the local economy is felt as one passes through the busy poblacions and observes the colorful flowers and stones lining the road. As typical of the Philippine countryside, newly harvested palay is being dried

along the project road, and power tillers pulling mini-trailers (called "tutubi" or dragonflies) loaded with farm produce drive in a leisurely pace. Vehicle traffic is moderate, allowing a cruising speed for cars at 80 kilometers per hour in-between the poblacions.

2. The Municipal Ports Subprojects

The survey covered six port subprojects spanning the whole country: Pandan in Ilocos Norte, Bulan in Sorsogon, Pio Duran in Albay, Sta. Rosa in Cebu, San Jose in Surigao del Norte, and Babak in Davao del Norte. On the whole, the responses are highly favorable, as in the road subprojects. Traffic has increased after the project; again, one cannot infer offhand whether this increase is without-and-with or simply before-and-after the project. It is also difficult to infer if the increased use (assuming that it is generated traffic) is due to trips induced by the convenience offered the improvement or trips diverted from other transport modes. (In the latter case, there would be some benefits associated with the decongestion of alternative modes.)

Some benefits cited by passengers in the open-ended questions include waiting sheds, more reliable banca service, improved road access to the port (in Sta. Rosa and Babak), and the use of the port for recreation. With the port, the bancas now operate for more hours during the day and more days during the year. The port also serves as storm cover and protection from big waves.

The survey reveals that while the first three serve as fish ports, the last three are used mainly for passengers and cargo. In the latter case, the main reason cited by the fishermen for not using the facilities is that they bring their catch somewhere else where the brokers and buyers are located; in other words, there is a competing landing site. Only in the San Jose Port did fishermen (four of the 40 surveyed) complain about the fees being charged, suggesting that the other ports surveyed do not impose significant landing fees at all (or have not raised user fees substantially even with the port improvements). This finding has important implications on project sustainability, as the local government units are expected to take care of the maintenance of the port facilities.

There was also one case, Pio Duran, where local government officials cited disputes with the Philippine Ports Authority (PPA) over port jurisdiction. This issue is likely to arise in the ports as well, as the PPA considers it part of its mandate to exercise jurisdiction over all ports in the country, public or private. Clear policy guidelines have to be formulated to settle the issue definitively.

In addition to the survey of the six projects, the port of Narra in Palawan was also visited to serve as a separate case study (see Appendix C for a more detailed discussion of the findings). A story somewhat different from the broad survey findings emerges. The Feasibility Study for this port observed heavier vessel traffic than what was gleaned from the field visit. In the 1990 survey for the Feasibility Study, that four or five inter-island cargo vessels (batil) per week were reported to be using the port, together with a barge that would visit once a month. During the site visit, however, a representative of the arrastre service operator said that only one boat calls on the port once a month for the National Food Authority (NFA), with inbound cargo of 30,000 bags (50 kg. per bag) of fertilizer and outbound cargo of 16,000 sacks of rice.

If the information is correct, then what may have happened was that with the improvement of the national road network from Puerto Princesa going south and passing through Narra, the other cargo traffic coming from and going to Puerto Princesa got diverted from the port to the road. Travel time overland is only two hours, while sea travel takes three-and-a-half to four hours.

Another factor that may have diverted the traffic is the high arrastre and stevedoring charge by the private operator, which is claimed by the informant to be P3.00 per kilo. At Puerto Princesa, PPA wharfage fees amount to only P0.034 per kilo for imports and P0.017 per kilo for exports. The informant said that of the arrastre revenues, 10 percent is remitted to the PPA, three percent to the municipal government, 75 percent is paid out as salaries and wages to the stevedores, and the balance of 12 percent is retained as the net earnings of the company. The stevedores work for some two days unloading and loading the cargo, earning P125 a day for their effort. The informant also mentioned that William Lines is thinking of making shipcalls at the port, and negotiations are going on with the arrastre firm.

The use of the port by the NFA is a welcome development that was not foreseen in the Feasibility Study. Narra has three warehouses being used as buying stations by the NFA, serving the town itself together with the neighboring areas. However, if the report is correct that NFA pays P3.00 per kilo to the arrastre firm, then it is condoning monopoly pricing by the firm, and is in effect helping inhibit further growth in usage of the port facilities.

Other users of the port include the municipal fishermen in the area, but they unload their catch at the breakwater which has been provided with steps by the project. The fishermen do not use the wharf which is too high for their bancas, especially during low tide.

The Narra port thus appears to have much revenue potential for commercial uses, serving as an alternative transport mode for the agricultural exports and imports of Southern Palawan. The area also has rich potentials for ecotourism such as diving, with its coral resources. But for these potentials to be realized, the municipal government shall have to be more aggressive in its marketing efforts. This observation probably holds as well for most other feeder ports around the country.

C. Conclusions and Recommendations

By way of summary, the following conclusions may be drawn from this economic impact analysis of the RIF Project:

1. The Project sought to address a very pressing need of the Philippine economy at that time: the rehabilitation, upgrading, and maintenance of rural infrastructures which were neglected during the crisis years. The "umbrella" mode of financing showed sensitivity to priorities as defined by the recipient.
2. The process of choosing the subprojects to be financed by the RIF, especially for roads and ports, was highly transparent and based on applications of methodologies for project ranking which took into account both economic efficiency and equity objectives.
3. While a review of these investment programming systems (of DPWH and NEDA) would show that improvements could be introduced, on the whole there were sufficient safeguards to ensure that the subprojects to be financed were economically sound.
4. The Consultants contracted to do the feasibility studies for the subprojects employed sound methodologies that followed the basic principles of project analysis and adopted a conservative stance in their estimation of benefits. Communications between the FS Consultants and USAID also reflected the latter's strict concern for economic viability and cost effectiveness. However, a few slippages apparently remained, such as on the issue of optimum timing of the transport investments.
5. That the subprojects were at the same time promotive of regional dispersal and equity objectives is attested to by the wide scope of their geographical coverage and the fact that more than 80 percent of subproject funds were spent in provinces with poverty incidence higher than the national average.
6. The risk that subprojects found to be economically unviable and therefore not financed by the RIF may still get to enter the GOP's public investment program is toned down by the observation that in the public investment program itself, a pro-equity bias emerges, as projected roads and ports investments per capita

across regions correlate positively with poverty incidence.

7. On the micro dimensions of the RIF, the survey findings suggest that the subprojects have helped foster increased economic activity and more competition in the local economy. Even if the heightened competitive environment were exogenous and not attributable to the Project, its very presence nevertheless enhances the sustainability of project benefits, as the nature of the RIF (financing mainly rehabilitation and improvement of rural infrastructures) places the bulk of expected benefits on the level of "normal traffic" in the use of the facilities.

8. Current economic performance and GOP policies in place (such as deregulation, liberalization, and devolution) suggest that sustainable growth is at hand; as mentioned above, the higher this growth is that is exogenous to the Project, the more favorable the chances are of sustainability of the Project's positive impact.

9. With the ports subprojects, however, certain issues have to be resolved, and the following recommendations are offered:

(a) disputes between the PPA and local government units on who has jurisdiction over the ports can be settled only with a clearly defined policy statement from higher authority;

(b) the granting of franchises for arrastre services should see to it that monopoly pricing is not practiced, so that the efficient use of the port facilities is ensured (the President himself has just ordered the PPA to liberalize the award of such franchises through non-exclusive contracts by public bidding and the inclusion of cooperatives among the qualified bidders);

(c) technical assistance on port operations, marketing, and financial management may have to be extended to the local governments (a simple manual may suffice for the smaller ports); and

(d) financial cost recovery, to cover at least the port maintenance and operating expenses, has to be given proper attention, if only to prevent the untimely deterioration of the facilities (which gave rise to the rationale for the RIF to begin with).

Appendix A

CRITERIA AND WEIGHTS FOR PRIORITIZATION OF MTPIP PROJECTS

	WEIGHTS
A. ECONOMIC DESIRABILITY	26%
1. Economic profitability (EIRR or BCR)	17%
2. Employment generation	16%
3. Rural sector diversification	10%
4. Net foreign exchange generation	10%
5. Sectoral impact (production level, growth rate, productivity)	10%
6. Increased incomes of target clientele	13%
7. Forward and backward linkages	7%
8. Environmental and ecological balance	10%
9. Appropriate technology promotion	7%
B. PROJECT COST AND FINANCING	17%
1. Revenue generating capability	28%
2. Small budgetary counterpart	23%
3. Cost effectiveness	30%
4. High potential for grant financing	19%
C. SOCIAL DESIRABILITY	24%
1. Target clientele from socioeconomically depressed and priority groups	16%
2. Popular grassroots participation	11%
3. Local institution-building support	10%
4. Improvement in community services	11%
5. Human resources development	12%
6. Peace and order, industrial peace	10%
7. Basic needs fulfillment	12%
8. Equitable wealth and income distribution	12%
9. More stable demographic conditions	6%
D. REGIONAL GROWTH AND DISPERSAL	19%
1. Support to regional development thrusts	26%
2. Regional dispersal and parity	22%
3. Reduction in intra-regional disparity	17%
4. Promotion of regional cohesiveness	17%
5. Absorptive capacity of region	18%
E. INSTITUTIONAL CONSIDERATIONS	14%
1. Agency's absorptive capacity	28%
2. Agency with appropriate mandate	25%
3. Appropriate institutional arrangements	23%
4. Linkages with private sector involvement	24%

Source: NEDA Public Investment Staff.

86