

UNITED STATES GOVERNMENT

# Memorandum

TO : See Distribution

DATE: February 23, 1979

FROM :   
Dennis P. Barrett, Acting Director, USAID Philippines

SUBJECT: Overview of AID Assistance for the Bicol Program

Attached is an overview of AID assistance projects in support of the Government of the Philippines Bicol River Basin Development Program. This is an update of background materials provided to Administrator Gilligan and Assistant Administrator Sullivan during their visit to the Bicol in January 1978.

In addition to serving as a general background paper, the short overview should be useful in answering some of the questions posed in AID/W and those recently addressed to the Mission regarding on-going projects and the advisability of new starts in the Bicol (e.g., see State 023494 and State 41969). Aside from the Bicol Integrated Health and Bicol IAD III, both of which are now in the final Project Paper approval stage, no new AID starts are proposed. For detailed status reports on the first two loan projects, see Manila 03380 (Libmanan IAD I) and Manila 03318 (Bicol Roads).

The overview also includes a summary of the evaluation schedule as agreed to by the GOP and reported in the ABS. All AID-supported Bicol projects currently underway will be evaluated in 1979, beginning with the Libmanan IAD project in late March.

Atch.: As stated.

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Overview of AID Assistance  
BICOL RIVER BASIN DEVELOPMENT PROGRAM

AID Assistance - General

The Bicol River Basin Development Program (BRBDP) being undertaken by the Government of the Philippines (GOP) is a test case in its overall rural development strategy. The innovative, sub-regional integrated area development (IAD) approach includes decentralized planning and implementation of multi-sectoral projects in a defined geographical area of critical need and high growth potential. Equally important to success of the Program has been the development of the organizational structure and institutional capability to achieve an increasing degree of regional and local level coordination of development activities (see attachment 1 for summary background).

AID has played a key supporting role in helping to initiate and sustain the Bicol Program to date. AID assistance includes one completed and one follow-on grant technical assistance project; two sub-loan feasibility studies, including a basin-wide comprehensive water resources development study and the Rinconada IAD III feasibility study; and three on-going Bicol loan assistance projects (see Table 1). As of December 1978, AID loan obligations totalled 17.6 million for the Bicol Program. GOP commitments against loan projects are estimated at \$39.7 million which is an indication of the national priority attributed to the Bicol Program as a test case. Assuming approval and signing of loan agreements for the two loan projects now in the Project Paper stage (i.e., Rinconada/Buhi--Lalo and the Bicol Integrated Health, Nutrition and Population) added to planned grant obligations through FY 1981, the total AID grant and loan contribution to the Bicol Program would be \$29.6 million. The total GOP contribution is estimated at \$58.6 million (in local currency). The combined GOP and AID total is estimated at \$88.2 million in existing and proposed inputs, one-third by AID and two-thirds by the GOP.

Other Donor Support

During the first part of January 1979, the Asian Development Bank sent a three-man project identification ("fact-finding") team to the Bicol. Based on a GOP request and follow-on discussions, the estimate for a possible Bicol loan assistance project is \$25 million in foreign exchange with possible follow-on assistance. The proposed project is a combination of the Naga-Calabanga IAD IV project and major Rinconada IAD III components. It focuses on irrigation, drainage, access roads, and supporting agricultural activities. The target is to negotiate an ADB loan agreement in 1979. An investment grade feasibility study is now in process for the Baliwag-San Vicente IAD V Project. Other donors (particularly IBRD, Japan and Germany) have also expressed interest in supporting the Bicol Program, but until the current ADB initial and possible follow-on assistance is decided over the next year, a request for assistance from a third donor is not likely.

In relation to other donors, USAID has proposed obligations (see Table 1) up through 1981, including a second tranche loan obligation in 1980 and a grant obligation in 1981. Grant expenditures would continue through 1982 and loan draw-down to 1985. The 1979 USAID Mission Country Development Strategy Statement (CDSS) does not propose additional major projects for the Bicol at this time. For this reason, the Mission is encouraging other

Table 1 On-going and Proposed Projects Assisted by AID  
Bicol River Basin Development Program

	Duration CYs	AID Obligations FYs	\$ Million <sup>1/</sup>	
			AID	GOP
<u>Grant Technical Assistance Projects</u>				
- Bicol River Basin Development	74-78	74-77	2.2	4.3
- Bicol Integrated Rural Development	78-82	78-81	2.3	8.6
<u>Consulting Services (Sub-Loans)</u>				
- Bicol River Basin Comprehensive Water Resources Development Pre-feasibility Study	75-76	-	0.6	0.4
- Rinconada IAD III Feasibility Study <sup>2/</sup>	77-78	-	0.5	0.5
- Others (to be determined)	80-82	-	-	-
<u>Development Loan Projects</u>				
- Libmanan IAD I	76-80	75	3.5	5.0
- Bicol Secondary and Feeder Roads	77-81	76	10.0	30.0
- Bula IAD II	78-82	78	3.0	3.8
- Rinconada IAD III <sup>2/</sup> Buhi-Lalo Component (Proposed)	79-85	79 (3.5) 80 (1.5) Total	5.0	3.5
- Bicol Integrated Health, Nutrition & Population (Proposed)	79-84	79/80	2.5	2.5
Total			<u>\$29.6</u>	<u>\$58.6</u>

<sup>1/</sup> Feasibility study covered multiple components of Rinconada IAD (also called IDA), only one of which is proposed for funding by AID. Discussions are underway between GOP and ADB for an estimated \$25 million loan in foreign exchange for a combination assistance project which includes Naga-Calabanga IAD IV, and the major components of the Rinconada IAD III (primarily irrigation and drainage) with a total estimated cost of \$50-58 million (1979-85).

<sup>2/</sup> AID dollar obligations are fixed amounts. AID dollar inputs also provide for local cost components under a Fixed Amount Reimbursement (FAR) arrangement. GOP input levels may increase or decrease based on actual costs. GOP funds are appropriated each year.

donor assistance, particularly for major infrastructure projects. This includes priority areas in Albay and Sorsogon provinces as well as in the physical Bicol River Basin located mostly in Camarines Sur.

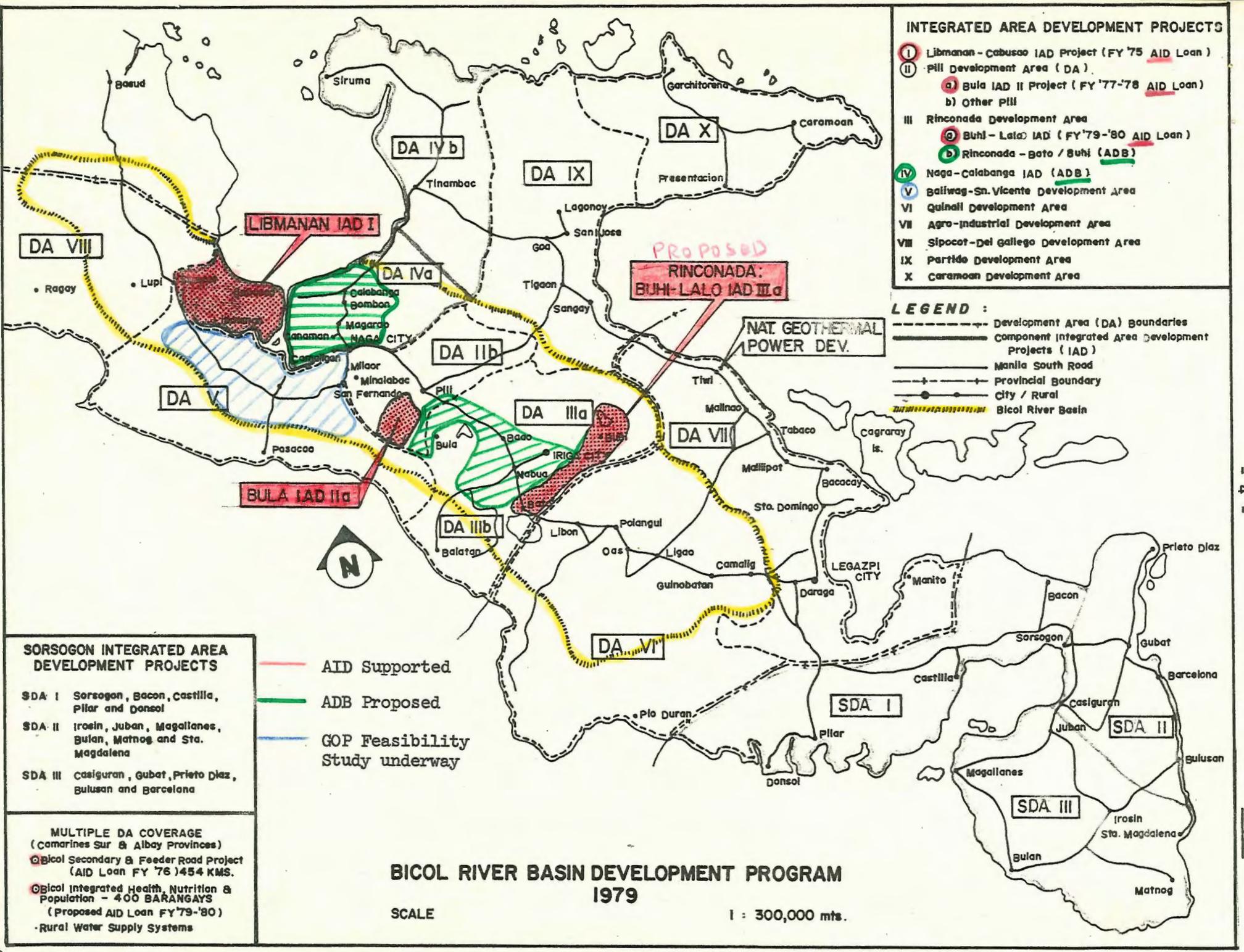
Summary of AID-Supported Projects (See Bicol Program map)

The following briefly describes the background and status of the completed, on-going and proposed Bicol projects supported by AID.

Grant Bicol River Basin Development Project (1974-78) - The joint objective was the establishment and institutional development of the broader GOP Bicol River Basin Development Program. AID inputs included technical assistance in planning, preliminary technical and socio-economic studies, initial loan project development, third country training and commodity procurement. In addition to the first two Bicol development loan projects, the early Bicol Program helped to induce or facilitate additional GOP and other investments in the Bicol (e.g., rural electrification, roads, ag research complex, drainage, national railroad improvement, etc.). A joint, in-depth Bicol evaluation in June 1977 (Arthur Mosher, AID team leader) critically examined and described the status of the Bicol Program; the joint objectives of the early Bicol Program and AID support were clearly achieved.

Grant Bicol Integrated Rural Development (Support) Project (1978-82) - The joint objective is to support the expanded and accelerated GOP Bicol Development Program. AID inputs are primarily in the form of technical assistance: (1) to support GOP line agency implementation and BRBDPO/USAID monitoring of on-going Bicol projects assisted by AID loans, and to coordinate other AID-supported (Mission and AID/W funded) projects in the Bicol, (2) to promote accelerated private sector investment in agribusiness and small-scale rural industry, (3) to identify, design, support feasibility analysis and package additional component projects for other external donor funding, (4) to support adequate impact evaluation of component projects and of the overall GOP Bicol Program, and (5) to facilitate spin-off and spread effects from the Bicol Program. The coverage is now a three-province area of 2.3 million people, but with concentration in the more densely populated Bicol River Basin core area in support of on-going AID loans. An in-depth joint evaluation of this support project and the larger Bicol program is scheduled for May-June 1979. (See Evaluation Schedule, Attachment 2)

Libmanan IAD I Project (loan assistance 1976-80) - This project provides for the construction of a 4,000-hectare irrigation and drainage system plus flood control, salt water intrusion protection facilities, and farm access roads in an economically depressed, but high growth potential area in the lower Bicol River Basin. Supporting institutional and agricultural components are built into the project and post-project operation. The lead implementing agency is the National Irrigation Administration. As in all Bicol component projects, the Bicol Program Office has overall coordinating and monitoring responsibilities. Other technical line agencies are involved in institutional and agricultural support components. Direct beneficiaries are 2,500 small-scale farm households. Another 10,000 households in the two major towns will be indirect beneficiaries of flood protection and secondary economic activity. As of February 1979, approximately 70% of the construction work had been completed, including major work on the pump



**INTEGRATED AREA DEVELOPMENT PROJECTS**

- I Libmanan - Cabusao IAD Project (FY '75 AID Loan)
- II Pili Development Area (DA)
  - a) Bula IAD II Project (FY '77-'78 AID Loan)
  - b) Other Pili
- III Rinconada Development Area
  - a) Buhí - Lalo IAD (FY '79-'80 AID Loan)
  - b) Rinconada - Bato / Buhí (ADB)
- IV Naga-Calabanga IAD (ADB)
- V Baliwag-Sn. Vicente Development Area
- VI Quinal Development Area
- VII Agro-industrial Development Area
- VIII Sipcot-Del Gallego Development Area
- IX Partido Development Area
- X Caramoan Development Area

**LEGEND :**

- - - - - Development Area (DA) boundaries
- - - - - Component Integrated Area Development Projects (IAD)
- Manila South Road
- - - - - Provincial Boundary
- - - - - City / Rural
- ~~~~~ Bicol River Basin

**SORSOGON INTEGRATED AREA DEVELOPMENT PROJECTS**

- SDA I Sorsogon, Bacon, Castilla, Pilar and Gonzol
- SDA II Irosin, Juban, Magallanes, Bulan, Matnog and Sta. Magdalena
- SDA III Casiguran, Gubat, Prieto Diaz, Bulusan and Barcelona

- AID Supported
- ADB Proposed
- GOP Feasibility Study underway

- MULTIPLE DA COVERAGE**  
(Camarines Sur & Albay Provinces)
- Bicol Secondary & Feeder Road Project (AID Loan FY '76) 1454 KMS.
  - Bicol Integrated Health, Nutrition & Population - 400 BARANGAYS (Proposed AID Loan FY '79-'80)
  - Rural Water Supply Systems

**BICOL RIVER BASIN DEVELOPMENT PROGRAM**  
1979  
SCALE 1 : 300,000 mts.

system, main canals and laterals, irrigation terminal facilities, drainage, and flood protection dikes. Terminal facilities and drainage involve primarily labor-intensive construction. The four large electric pumps (U.S.) are being installed. Supporting activities to organize irrigators' associations and farmers' groups for water management and improved production training are underway. Extension and applied research activities are ongoing. Targeted land reform activities are virtually completed.

The project is expected to achieve its development objectives even though implementation was delayed due to start-up problems and poor weather. Although most physical work should be completed by the end of the current dry season, June 1979, it was necessary to extend the project for one additional dry season. As of December 1978, accrued expenditures against the AID loan were estimated at 76%. The loan contribution, other than pumps and equipment costs, however, cannot be drawn down until physical facilities are completed and the system is operational in order to meet AID fixed amount reimbursement requirements.

Experience from the design and implementation of the Libmanan IAD Project has been important in the design of the Bula IAD II and the Buhi-Lalo Project. Many of the trained personnel are expected to be assigned to Buhi-Lalo as work is completed at Libmanan.

The next evaluation is scheduled in March-April 1979 together with the Bula IAD evaluation. A final project evaluation is scheduled in March 1980. An additional impact evaluation is proposed in 1981 or 1982 after the irrigation system is fully operational.

Bicol Secondary and Feeder Roads Project (loan assistance 1977-81) - This project provides for the rehabilitation and improvement of 191 km. of secondary roads and 241 km. of feeder roads within the Bicol River Basin. Fourteen separate road and bridge sub-project systems are being constructed by the GOP through 25 separate construction contracts over a four-year period (1978-81). USAID inputs include \$3 million in maintenance equipment and \$0.2 million for U.S. road maintenance consultancy. Effective maintenance of all existing and project roads in the provinces of Camarines Sur and Albay is as important as new construction. The remaining \$6.8 million from AID provides for part of the local currency costs for engineering design and construction using fixed amount reimbursement procedures. The Ministry of Public Highways is the lead implementing agency. The Bicol Program Office provides overall coordination.

This project increases the road density in the Bicol River Basin area by approximately 50% (from 0.29 to 0.59 km. per square kilometer of arable land). It is projected that average transport costs will be reduced by 42% for cargo and 40% for passengers, and that travel time will be reduced by 55% because of improved roads. The roads generally traverse intensively cultivated lands, serve small-scale farmers and connect relatively isolated communities with existing highways and market centers. The road project is integrated into the larger Bicol Program and specifically provides secondary and feeder road access to and within the Libmanan IAD I Project, Bula IAD II Project and the proposed Buhi-Lalo Project in Rinconada IAD III. These

connect with farm access roads on main canals and laterals to be constructed in the IAD projects. The Bicol roads project map shows the location of the 14 sub-project systems. (See Attachment 3)

As of February 1979, the Bicol Roads Project is approximately 18% completed. Notice to proceed has been issued on 18 of 25 construction contracts for road and bridge segments. Construction is underway on 12 segments. Seven contracts are now in the bidding, award or approval process and are targeted to begin during the current dry season. Efforts are being made to accelerate the contract approval and review process which has delayed scheduled construction. A U.S. contract for road maintenance management will be completed in December 1979, and \$3 million in equipment to be procured from the U.S. should be advertised by April 1979. Major portions of the AID loan will be drawn down in 1980 and 1981 as useable road sub-projects are completed. With multiple contractors, the proposed 1981 project completion date is still realistic. The next evaluation is scheduled in July 1979.

Bicol IAD II (Bula-Minalabac - 1978-82). This project is basically a combination land consolidation and irrigation project covering 2,300 hectares in the middle Bicol Basin. The project also includes construction of community buildings, improved water supply facilities, organization of farmer associations and cooperatives, land consolidation and redistribution, and training of project area residents in agriculture, health and other community activities. It is the most functionally integrated of Bicol component projects to date. Irrigation water for three quarters of the project will be pumped from the Bicol River and one quarter from ground water sources. The Ministry of Agrarian Reform is the lead implementing agency. The Bicol Program Office is the coordinating agency and ten other line agencies are actively involved in the institutional, agricultural and community support activities. There are 1230 small-scale farm family beneficiaries (aver. 1.2 ha./family).

As of February 1979, approximately 5% of the total project was completed. Contracts have been let for final A&E design and continuation of construction on Phase I. Much of the training has been successfully carried out. Land consolidation procedures have been completed. The lengthy GOP contracting process from advertizing to final approvals and national level review has delayed engineering design and construction. One alternative being considered is temporarily shifting more of the contracting functions from the Bicol region to Manila.

Bicol Integrated Health, Nutrition and Population Project (1979-84). This project designed by the GOP was provisionally approved by USAID/Philippines in early February 1979. It is awaiting the final project request from the GOP, and AID funding. The project initiates an essential social services component to balance the broader GOP Bicol Program, which is currently heavily oriented towards physical infrastructure. The project deploys 400 Barangay Health Aides, funds environmental sanitation improvements (household water, waste disposal and drainage), and strengthens Ministry of Health management and inter-agency coordination. There will be an estimated 400,000 targeted beneficiaries in 400 barangays which make up about one-third of the rural barangays of Albay and Camarines Sur provinces. The Ministry of Health is the lead implementing agency. Both the ministry and local governments have placed a high priority on implementation of this project. The design specifically addresses the replicability question and embodies a significant attempt to mobilize local resources and maximize local government and beneficiary participation.

Rinconada IAD III (Buhi-Lalo - 1979-85). This project provides for the development and regulation of water from Lake Buhi for assured, dry season gravity irrigation water for 8,000 hectares in the Rinconada-Buhi area. A left bank connector canal will be constructed to expand the Lalo irrigation system to 2,700 hectare with new and rehabilitated irrigation and drainage facilities. There are an estimated 2,450 small-scale farm family beneficiaries (aver. 1.1 ha/family) in this system. The existing Barit irrigation system requires dry-season water for an additional 600 has. which can be supplied by storage and regulation of Lake Buhi. A proposed GOP (and ADB) project will further rehabilitate or construct new irrigation facilities in the Rinconada area to utilize the Buhi water supply (est. 5,800 hectares). Improved water management, farmer organizations and farm family training activities are also supported under the project. Another component is the agro-forestation of 1,350 hectares on the Lake Buhi upland watershed by 900 small-scale farm families and reforestation of 800 hectares of denuded public forest lands. The objective is to assist poor upland farmers increase their productivity and to protect the watershed and water source.

A basin level pre-feasibility study and the Rinconada IAD III feasibility study, both funded in part by USAID feasibility study sub-loans, confirmed the feasibility of developing lake water supplies and expanding/rehabilitating gravity irrigation systems. The study provided preliminary engineering and cost data. The project paper is being reviewed by both USAID and the GOP and after approval will be submitted to AID/W in early April 1979. Loan signing is targeted for August 1979.

Other AID-Supported Projects - Being multisectoral in scope, the GOP Bicol River Basin Development Program focuses on the coordinated planning leading to funding of major IAD projects. IAD projects are based on the water resources potential in a specific area. Exceptions have been rural roads and social services projects which are better coordinated at the provincial or sub-regional level. Implementation and post-project operation is the responsibility of the concerned national line agency but decentralized to their regional level office to the degree feasible. When national programs or projects are already in place, the Bicol Program functions to support and coordinate with them. This is true for AID-assisted projects such as Rural Electrification, Provincial Development and PDAP Rural Roads, Rural Service Centers (3 cities in Bicol), Agrarian Reform, Cooperative Marketing, Integrated Agricultural Production and Marketing, Small Farmer Systems, Real Property Tax Administration, plus Population, Health and Nutrition project activities. The selection of the Bicol location as one of the four original sites for the Agricultural Research loan project (Bicol Soil and Water Research Complex) for example, was planned as part of the Bicol Program. Bicol Program surveys and evaluations will also attempt to measure the impact of other AID-supported projects as they relate to sub-regional development.

Bicol River Basin Development Program (BRBDP)

The Bicol Region

The Bicol Region consists of 6 provinces (2 of them separate islands) at the southeastern tip of Luzon. It comprises 8% (3.5 million) of the total Philippine population and 6% of its total land mass. It is characterized by:

- a declining per capita income, already at \$172 (in 1974) one of the lowest among the 12 Philippine regions and only 49% of the national average
- a serious maldistribution of income, with the poorer half of the people surviving on \$45 per capita in 1974
- the lowest share among regions of employment and production in large, modern manufacturing establishments, in proportion to population
- a lack of employment opportunities, resulting in high rates of under-employment and outmigration to Manila (1.1%)
- high rates of malnutrition, morbidity and mortality (78% of preschoolers malnourished, of which 5.5% are serious 3rd degree cases)

Development Constraints

The chief obstacles to more rapid development have been:

- physical isolation due to neglected transportation infrastructure
- poor communication facilities
- hostile physical environment (particularly typhoon and flooding)
- inefficient production, storage and marketing technology
- capital scarcity
- inequitable land tenure arrangements
- rapid rate of crude population growth (3.3% annually before migration)
- poverty and technological ignorance about health and nutrition
- ineffective government institutions and low revenue collection

GOP Development Strategy

Pursuant to a national strategy of rural mobilization and development, the Bicol Program is an innovative effort to prioritize and reduce these constraints in a phased, coordinated, decentralized manner:

- The BRBDP institution is itself designed to improve the effectiveness of government entities to plan and implement development programs and projects. Its Integrated Area Development approach focuses on a delineated area of recognized socio-economic need with high growth potential to maximize benefits. It directs an integrated, cross-sectoral, interagency planning process to ensure coordination. It decentralizes project planning and management to maximize local government and popular participation.
- Basic infrastructure development demands high priority to reduce costs of other activities and to best utilize natural resources: drainage and flood control, irrigation facilities, watershed protection, roads, bridges, port facilities, the railroad, geothermal power and rural electrification, intra-regional telecommunications.
- Land reform is designed to reduce income inequality.
- Agricultural development - IAD component projects focus on full development of water resources and provide supporting programs to increase productivity of small-scale farmers; upland watershed development expands the focus to include conservation of natural resources.
- Integrated health, nutrition and population. This project will train and help rural residents to improve environmental sanitation, reduce morbidity, malnutrition and population growth.
- The promotion of private sector investment is designed to expand productive and employment-generating capital assets and to stimulate technological improvements.

Evaluation Schedule 1978-1982<sup>1/</sup>  
Bicol River Basin Development Program

<u>Program/Project</u>	<u>78</u>	<u>79</u>	<u>80</u>	<u>81</u>	<u>82</u>
Overall Bicol Program & Bicol Integrated Rural Development (grant) <sup>2/</sup>	-	May-June	-	May-June	-
Libmanan-Cabusao Integrated Area Development (Bicol IAD I) <sup>3/</sup>	April	March	March	-	-
Bicol Integrated Area Development II (Bula) <sup>4/</sup>	-	April	April	April	April
Bicol Integrated Area Development III (Rinconada) <sup>5/</sup>	-	-	May	May	May
Bicol Secondary and Feeder Roads <sup>6/</sup>	July	July	July	July	-
Bicol Integrated Health, Nutrition and Population	-	-	Jan.	Jan.	Jan.

- 1/ U.S. evaluation team members will normally be funded from the Bicol IRD grant project and/or assigned from USAID/Manila. The same U.S. team members may be assigned to one or more annual evaluations. The BREDPO, the lead implementing agency, NEDA (Region V), and special team members will be designated by the GOP. Joint members will be designated no later than 30 days before an established evaluation start date. Evaluations must be conducted as scheduled (to begin first work day of month listed if not otherwise specified) to allow for timely GOP and USAID/Manila review and approval of each Project Evaluation Summary (PES). The PES format is available at BREDPO and USAID. PES reports must arrive in AID/W within 30 days after month listed above.
- 2/ The joint biennial evaluations of the Bicol Program and the prior Bicol grant project were conducted June/July 1975 and July/August 1977. The follow-on Bicol grant agreement (IRD) was signed March 1978.
- 3/ A March 1977 joint evaluation (operational assessment) and a special September 1977 joint evaluation were combined for the 1977 Project Evaluation Summary (PES) submitted to AID/W.
- 4/ Loan signed January 1978. A follow-on amendment is to be signed by August 1978.
- 5/ A proposed loan project in FY 1979 with possible follow-on obligation in FY 1980.
- 6/ The 1977 evaluation was limited to an in-house assessment of the implementing organization and A&E design work; construction started January 1978; first regular evaluation to be conducted in July 1978.

Concurrence:

GOP Project Manager

C. Villacorta, IRD \_\_\_\_\_  
 R. Caceres, Libmanan \_\_\_\_\_  
 C. de la Cruz, Bula \_\_\_\_\_  
 C. Villacorta, Rinconada \_\_\_\_\_  
 F. de Leon, Bicol Roads \_\_\_\_\_  
 Dr. Santiago, Bicol Health \_\_\_\_\_

USAID Project Officers:

D. Wadley \_\_\_\_\_  
 D. Smith \_\_\_\_\_  
 R. Bird \_\_\_\_\_  
 R. Bird \_\_\_\_\_  
 R. Bird \_\_\_\_\_  
 Dr. Van der Vlugt \_\_\_\_\_

Approval:

Atty. Pejo, Program Director, BREDPO

W. Mulcahy, PO/Evaluation Officer

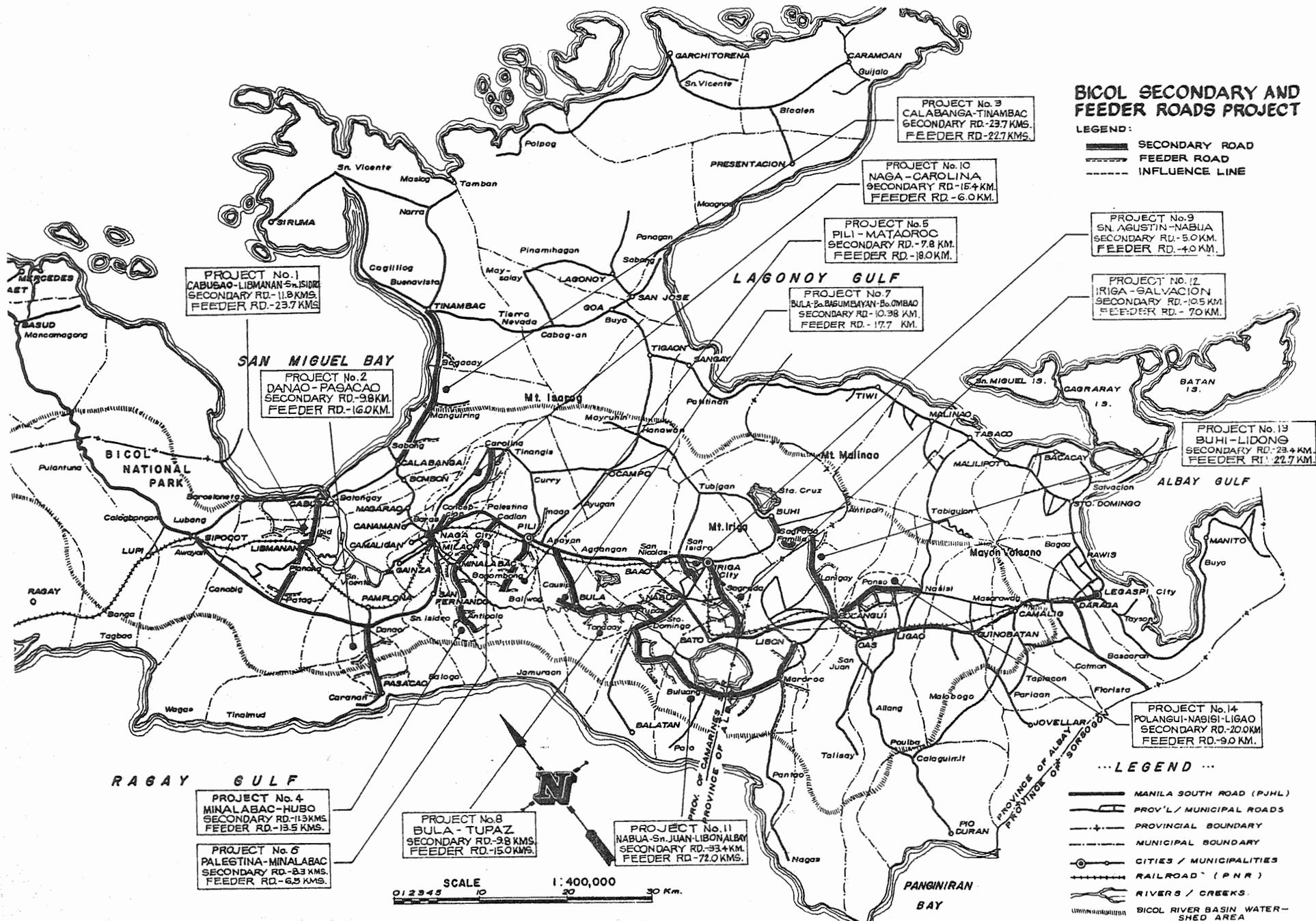
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Date

\_\_\_\_\_  
May 10, 1978  
Date

# BICOL SECONDARY AND FEEDER ROADS PROJECT

## LEGEND:

- SECONDARY ROAD
- FEEDER ROAD
- INFLUENCE LINE



PROJECT No. 1  
CABUSAO-LIBMANAN-SANSIDOR  
SECONDARY RD.-11.8 KMS.  
FEEDER RD.-23.7 KMS.

PROJECT No. 2  
DANAO-PAGACAO  
SECONDARY RD.-98 KM.  
FEEDER RD.-160 KM.

PROJECT No. 4  
MINALABAC-HUBO  
SECONDARY RD.-11.3 KMS.  
FEEDER RD.-13.5 KMS.

PROJECT No. 6  
PALESTINA-MINALABAC  
SECONDARY RD.-8.3 KMS.  
FEEDER RD.-6.5 KMS.

PROJECT No. 8  
BULA-TUPAZ  
SECONDARY RD.-98 KMS.  
FEEDER RD.-150 KMS.

PROJECT No. 11  
NABUA-Sn. JUAN-LIBONALBAY  
SECONDARY RD.-93.4 KM.  
FEEDER RD.-72.0 KMS.

PROJECT No. 3  
CALABANGA-TINAMBAC  
SECONDARY RD.-23.7 KMS.  
FEEDER RD.-22.7 KMS.

PROJECT No. 10  
NAGA-CAROLINA  
SECONDARY RD.-15.4 KM.  
FEEDER RD.-6.0 KM.

PROJECT No. 5  
PILI-MATAOROC  
SECONDARY RD.-7.8 KM.  
FEEDER RD.-18.0 KM.

PROJECT No. 7  
BULA-BASUMBAYAN-BOOMBAD  
SECONDARY RD.-10.38 KM.  
FEEDER RD.-17.7 KM.

PROJECT No. 9  
SN. AGUSTIN-NABUA  
SECONDARY RD.-5.0 KM.  
FEEDER RD.-4.0 KM.

PROJECT No. 12  
IRIGA-SALVACION  
SECONDARY RD.-10.5 KM.  
FEEDER RD.-7.0 KM.

PROJECT No. 13  
BUHI-LIDONG  
SECONDARY RD.-23.4 KM.  
FEEDER RD.-22.7 KM.

PROJECT No. 14  
POLANGUI-NABIGI-LIGAO  
SECONDARY RD.-20.0 KM.  
FEEDER RD.-9.0 KM.

## ...LEGEND...

- MANILA SOUTH ROAD (PJHL)
- PROV'L / MUNICIPAL ROADS
- PROVINCIAL BOUNDARY
- MUNICIPAL BOUNDARY
- CITIES / MUNICIPALITIES
- RAILROAD (PNR)
- RIVERS / CREEKS
- BICOL RIVER BASIN WATER-SHED AREA

SCALE 1:400,000  
0 10 20 30 Km.