RAINFED RESOURCES DEVELOPMENT PROJECT
(492-0366)

PROJECT ASSISTANCE COMPLETION REPORT

PROJECT BACKGROUND

The Rainfed Resources Development Project was authorized on September 8, 1982 with a life-of-project funds amounting to $252,400 in loan funds and $13,174,000 in grant funds over a four year period from date of authorization. The original PACD was September 30, 1989. In May 20, 1987, this was extended to September 30, 1991.

The long term goal of the project was achievement by the rural poor of the highest sustainable productivity of the rainfed and coastal resources upon which they depend for their livelihood. Its purpose was to develop institutional capacities and policy frameworks to support a community-based approach to land and water resource management in settled upland forest, rainfed agricultural areas, and coastal zones. The implementing agencies were the Department of Agriculture (DA), the Department of Environment and Natural Resources (DENR), the Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD) and the Department of Interior and Local Government.

The project was divided into two cycles. Cycle I (1983-1986) was mainly institutional building for resource monitoring, policy analysis and community-based resource management systems. Cycle II (1987-1991) built upon the accomplishments of Cycle I by focusing on the implementation of field/farmer oriented activities to streamline project administrative structure. Under Cycle II, the project was divided into components: Agriculture, Natural Resources, Research and Upland Access.

Activities funded by the project included: technical, assistance/local institutional contracts, commodity procurement, construction, trainings/workshops, research, evaluation and audit. Total loan and grant funding for the project amounted to $18 million. The project was implemented primarily through cash advance system to the implementing agencies through the Department of Budget and Management. Contracts were either host country or AID-direct.

This report is divided into five major sections as follows:

The first four sections discusses the project status, accomplishments and lessons learned by the four RRDP components namely: Research, Agriculture, Natural Resources, Upland Access.

The final section highlights the major development tools developed by the different components that would have continuing relevance to subsequent projects of similar nature.

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RAINFED RESOURCES DEVELOPMENT PROJECT
RESEARCH COMPONENT

A. PROJECT STATUS

1. Physical Status. The project's purpose had been achieved by the PACT. Several technologies were developed to support a community-based approach to land and water resource management. Mechanisms to strengthen technology transfer (seed production, farmer/researcher/extension worker linkages, farmer-to-farmer approach, and applied communication) are being strengthened.

2. Financial Status. As of PACD, the total USAID and GOP obligation for the project was $6.2 million. USAID committed 99% of its obligation while GOP committed 93% of its obligation of $3.3 million (Table 1).

Table 1. Financial Status of RRDP Research Component (in thousand US$)

	Authorized			Committed		
Project Element	USAID	GOP	Total	USAID	GOP	Total
Cycle I	203	354	557	203	354	557
Research	203	354	557	203	354	557
Tech. Assistance	221	0	221	221	0	221
Training	82	0	81	81	0	81
Commodities	455	9	464	451	0	452
Construction/ Support to Station Development	68	220	288	68	220	288
Program Coordination	0	227	277	0	184	184
Total Cycle I	1,029	851	1,888	1,025	758	1,783
Total Cycle II	1,888	2,455	4,343	1,861	2,331	4,192
TOTAL	**2,917**	**3,306**	**6,231**	**2,886**	**3,069**	**5,975**

B. PROJECT ACCOMPLISHMENT

1. Planned and Actual Inputs. A total amount of $1,925 million was initially planned by USAID and the GOP as input to research. This amount included research grants, commodity procurement, training, technical assistance and construction with the GOP sharing 28% of the cost. The actual inputs were $2.9 million for USAID, 60% of which went to research grants and 40% for commodities, training, technical assistance and construction. The GOP provided $3.1 million, 65% of which was alloted for project coordination and support to station development.

Planned and Actual Outputs

Project Purpose Level Indicators (based on project Cycle II objectives)

Planned	Actual
a. Six research programs that will support the priority development areas:	
- Development/ improvement and evaluation of varieties breeds/species for specific needs and environment of rainfed area.	- 2-5 outstanding varieties of white corn, upland rice, indigenous vegetables, legumes and root crops suitable for upland areas selected - upgraded native farm animals such as carabao, pigs, goats
- Improving production through resource assessment and management	- developed technologies that use low cost indigenous fertilizer materials, soil conservation measures, agroforestry production systems, and management of coastal and fishery resources.
- Technology adaptation trials in rainfed agricultural and coastal areas	- 16 trials completed for component testing of varieties (upland rice, corn, legumes, mussels, seaweeds) fertilizer responses, and pest control

	- Technology verification trials in rainfed areas	- 46 trials of improved package of technology for production of upland rice, corn, legumes as well as crop livestock integration completed.
	- Improved handling, processing and utilization of available resources	- developed technologies for village level processing of selected dairy products; processing of fish and seaweeds; use of substitutes for poultry and livestock feeds; low cost equipment for corn culture in upland areas.
	- Assessment and improvement of support services for the development of rainfed areas	- 7 case studies of successful farmer-managed coconut-based farming systems; improved data base for technology delivery systems; impact assessment of rural development program and policies.
b.	Strengthened and improved capability of selected research and teaching institutions to support the research program	- construction of 1 greenhouse, 1 water impounding tank, 5 DA/DENR laboratories and renovation works. - various laboratory and applied communication equipment and furniture, 3 vehicles and spare parts procured and distributed. - trained 527 upland farmers for technology transfer, 305 research managers, 170 communication staff, 560 researchers/extension workers. Twenty one staff of DA, DENR, 6 state colleges/universities and other research centers completed their advanced degrees - 51 publication titles for dissemination of research information.

D. POST-PROJECT MONITORING RESPONSIBILITIES

As the project ended, there were indications that PCARRD will continue using the lessons learned in RRDP in developing new technologies for upland farmers. Rapid rural appraisal using a multi-disciplinary team is now a standard procedure in assessing

the research needs of the area. Inter-agency working groups involve field managers who can provide valuable feedbacks. Farmers' fora are regularly conducted in the regions to disseminate information on technologies.

E. REVIEW OF EVALUATION

The project's mid-term evaluation conducted from March 21 to May 18, 1989 recommended several measures to improve the project's impact on research implementation in rainfed areas. PCARRD had followed most of the recommendations and incorporated some of them in their present operations. The following shows the recommendations and actions taken:

Recommendations	Action Taken
1. Funds Flow/ Micromanagement (#5) Review and streamline procedures for GOP and USAID on project management	Continuing. USAID contracted an auditing firm to review and recommend procedural changes to improve fund utilization. Several recommendations have been implemented. PCARRD waived the requirement for an audited financial report during implementation. The report is required only upon project completion. PCARRD updated the "Auditing Manual for Research" including innovative procedures for more efficient fund utilization. The Commission on Audit (COA) will endorse the manual for compliance by all auditors for relevant agencies. PCARRD conducted in 1989-1990 a series of seminar on financial management for all R&D consortia.

3.	Rate of adoption of new technologies (#6) Implement a research program with USAID funding to determine and find strategies to remove constraints to rapid farmer adoption of new technologies.	**Continuing.** PCARRD coordinated the development of Action Plans to address the problem. Seed supply, applied communication, researcher/extensionist/farmer linkages, and farmer-to-farmer approach to technology transfer are now institutionalized. USAID provided technical assistance to PCARRD to develop a mechanism for technology commercialization.
4.	Research responsiveness (#10) Respond to immediate problems in the field.	**Continuing.** PCARRD printed an Experts Directory and distributed to concerned agencies in some consortia. Technical assistance is provided where the regions do not have the expertise, i.e., gall disease of *Albizzia falcataria* in Mindanao; pest infestation of mangrove trees in Visayas, pest infestation of cashew plantation in Palawan. The information feedback is being strengthened in the research network.
5.	The research process (#11) Determine the adoptive range of technologies developed by instituting computerized data management on-farm trials.	**Continuing.** PCARRD is coordinating with UPLB to analyze data from technology adaptation/verification trials of DA. A shortened technology development process was successfully implemented up to seed production and distribution on indigenous vegetables with the Institute of Plant Breeding.
	Increase cooperation and training with IBSNAT, a project designed to develop the procedure for across site analysis to determine the adaptive range of new technologies.	PCARRD is collaborating with IBSNAT on a limited scale.

6.	Research project approval (#12) Reduce the number of steps for research grant approval process. Train researchers in project design and implementation so tha higher quality proposal can pass through the system with fewer revisions. Strengthen the regional consortia so that project identification, design and approval can be regionalized.	**Continuing.** PCARRD conducts regular training on project design, proposal preparation, and statistical analysis. USAID provided technical assistance to develop strategies for strengthening regional research management.
7.	The research network (#15) Strengthen all levels of the national Research and Development Network through training, repair and maintenance of stations and equipment and the replacement of needed equipment and facilities.	**Continuing.** PCARRD got support from donors for development communications and information system. The Department of Budget Management provides support to center development and improvement.
8.	Field training (#16) Expand training programs to strengthen all levels of agency staff, farmers/community leaders, researchers in the regions, and contractors. Use consortia resources and involve ATI in preparing courses and in planning and implementing the training program.	**Completed.** Selected consortia, research centers and PCARRD prepared and implemented training modules and technologies and research management techniques.
9.	Communications (#17) Extend the Regional Technology Information System to all regions. Strengthen the applied communication program.	**Continuing.** The information system has been institutionalized in the research network. The applied communication program is being supported by the UNDP.

LESSONS LEARNED

This project introduced two new concepts in development in the Philippines: the "rolling design model" and rainfed upland area development. Lessons learned from the project could guide the design of other projects dealing with research for upland farmers. Among these are the following:

1. "Rolling design" model is difficult to implement in a multi-agency project. The concept of continuing redesign is not appropriate particularly in research programming. Success could be achieved in single-agency projects with only one fund source, defined broad research areas, and fixed funding levels. Use the simplest procedure available.

2. Focusing research to very specific locations of pilot areas will not address the concerns affecting broader upland/rainfed areas.

3. The Rapid Rural Appraisal as a mechanism for identifying research areas is effective for specific locale, but it is an expensive procedure.

4. Requiring untrained extension worker to conduct technology adaptation trials is not a cost efficient strategy for briding the gap between research and extension. The results are highly variable and unreliable due to deficiencies in methodology. Similar trials involving researchers achieve better results.

5. Working within existing systems and structures of the government ensure smooth transition at the end of the project. Innovative strategies on research management piloted by RRDP improved the system. The Integrated Research Task Force and Technical Working Group are effective mechanisms for interagency coordination. Involvement of pilot site managers in the IRTF provided the necessary feedback on research needs.

6. Sharing of funding with the implementing agencies for long term projects is an effective strategy for the institutionalization of projects. The implementing agencies assumes full funding of the projects by the second or third year of implementation.

7 Complementation with other projects promoted fuller utilization of project outputs. An example is the "Corn Research and Outreach Program in Southern Philippines." The Accelerated Agricultural Production Project supported most of the study while RRDP provided the GOP counterpart funds for items not eligible for USAID funding. A number of corn varieties were released by the Philippine Seedboard. RRDP

funded the "Barangay-based Corn Seed Pilot Production Project" which provided adequate supply of good quality seeds thru private sector initiative.

8. Technology transfer can be facilitated by inclusion of a seed/stock multiplication and distribution strategy, demonstration of technologies, and applied communication materials.

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RAINFED RESOURCES DEVELOPMENT PROJECT
Agriculture Component

A. BACKGROUND

Cycle I of the Rainfed Resources Development Project (RRDP) was implemented from 1982 to June 30, 1987. During this period, pilot rainfed-farming systems in at least six sites were implemented under the Department of Agriculture (DA) as a mechanism to 'develop institutional capacities and policy framework for rainfed-farming systems development.' The agricultural elements of Cycle I covered a total USAID objective of $3.011 million consists of $2,894,000 grant and $117,000 loan fund.

Cycle II - Agriculture Component which started on July 1, 1987 to December 31, 1989 was designed to assist the DA prepare and implement an expanded program for market-oriented farming system development. It had a total estimated budget of $8,725,108.96 consisting of $6,294,058.96 USAID grant and $2,431,050 GOP Counterpart.

Cycle II consisted of the three key elements covering 12 regions. These were the Bicol Rainfed Agriculture Development Project (BRADP), Panay Rainfed Agricultural Development Project (PRADP) and 12 micro projects.

Two major strategies, cross cutting these elements were pursued to wit:

-- Community Research and Extension Coordination (CREC); this focused on extension linkages, on-farm testing and dissemination of appropriate management options. RDP established linkages with existing research and extension systems in formulating location specific technologies. The technology recommendations tested and fine tuned with farmers eventually served as the basis for recommended technology packages;

- Community Institution Development Coordination (CIDC); this harnessed indigenous capabilities in setting up self-sustaining rural enterprises to respond to project activities.

B. PROJECT STATUS

1. Physical Status

The project's purpose has been achieved by PACD. An internally generated momentum exists to transform the DA from a commodity oriented agency to a farming systems-oriented institution, capable of designing and managing an expanded rainfed farming systems

programs as well as regional micro-level livelihood projects. Planned physical outputs have been accomplished.

2. Financial Status

Under Cycle I, USAID obligated $3.011 million for the Agriculture element of RRDP. $2.343 million or 78% were expended.

Under Cycle II, USAID obligated $5.635 million of which $3.136 million or 56% was expended. For Cycle I and II, total reported GOP counterpart contribution is $3,935,576 per their December 31, 1989 reports. Table I shows the breakdown of these obligations.

C. ACCOMPLISHMENTS

1. Planned and Actual Inputs

Total USAID obligations for Cycle I is $2,894,000 million grant and $117,000 loan fund.

Under Cycle II $5,635,000 was obligated of which $3,136,000 was expended. In 1989, $3 million was deobligated from the project.

Table 1. RRDP Agriculture Component
Project Financial Status
(in $000)

Components	Cumulative Obligations		Cumulative Commitment	
Cycle I	USAID	GOP	USAID	GOP
Loan	$ 117		$ 117	
Grants	2,894		2,758	
Subtotal	3,011 a/		2,875	
Cycle II				
Training/TA	$ 3,190		$ 865	
Operating Expenses	2,310		443	
Commodities	135		4	
Subtotal	5,635		1,312	
TOTALS	$ 8,646	$10,018	$ 6,012	$3,936

a/ does not include deobligation of $3M.

Using the log frame as basis, the planned and actual outputs are presented below:

2. Planned and Actual Outputs

Planned	Actual
Increased income of 20,000 rainfed farmers/households through application of improve farming technology/rural enterprises.	RRDP reached a total of 29,557 farmers. An evaluation conducted by an external group in October 1989 revealed that: - Farmers' average monthly income increased by 62%; - Crop yields increased within a range of 41% to 71%; and - Farmers' adoption level of recommended technologies was a high 72%.
Farmers groups organized and operated by targetted beneficiaries.	At least 219 farmers organizations with 15,136 members have been catalyzed.
Community nurseries and demonstration farms established.	Two hundred six nurseries were established in 73 municipalities nationwide to support tree components of farming systems. In addition 306 demo farms on sloping agriculture land technology were established in 47 communities nationwide.
Seven market information and development centers established (5 in Bicol and 2 in Panay)	A post harvest and marketing assistance program was designed and operationalized for corn farmers in Albay and Camarines Sur. In addition 27 income-generating micro-enterprises were operationalized in the whole island of Panay and provinces of Antique and Agusan del Norte benefiting approximately 1,000 farmers.
Adequately trained DA staff and extension workers.	A farming system oriented extension model was developed. Approximately 15,000 extensionists and farmers

participated in project sponsored trainings. Forty-two staff and 32 farmer leaders from various regions were beneficiaries of 5 batches of overseas study tours and training in the U.S. and selected Asian countries.

D. POST PROJECT MONITORING RESPONSIBILITIES

While the agriculture component was terminated earlier than its originally planned PACR; the Department of Agriculture had been able to install the necessary operational policy environment as well as modest resources that would allow the continuation of most of the sub-projects started under RRDP. Another USAID supported project, the Accelerated Agricultural Production Project (AAPP) has built on RRDP successes and continued the development of research and extension systems.

A National Research and Extension Agenda (NAREA) which is strongly small farming systems oriented and market-driven has been installed. Earlier mistakes in Farming Systems Research (FSR) (such as confusing it with cropping system research) have been rectified and FSR's methodologies have been finetuned and communicated to project staff.

Decentralized planning at the provincial levels particularly for micro-project design and development has been incorporated in regular operating procedures. Staff training continues.

Project interventions continue to be maintained both by farmers organizations and regular DA staff working under a new policy environment.

E. REVIEW OF EVALUATION

The project's mid-term evaluation conducted in May 1989 recommended several measures which seeks to hasten the diffusion processes of appropriate technologies, improve the flow of funds down to the field level, streamline the contracting process, and expand the development efforts in the rainfed areas.

Recommendation	Action
1. General Assessment - RRDP successes to be replicated in larger rainfed areas not yet being developed.	**Done.** The DA has established a National Research and Extension Agency (NAREA) which translates project experiences into programmatic action in 12 regions.

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2. Community-Based Development - The team strongly endorses the community approaches that have evolved through DA and DENR special projects and supports the current efforts being made to install this approach to all development operations of the two departments.	**Done.** The decentralization of DA's planning and program development is underway and fully evident in at least 5 administrative regions. Implementing guidelines for devolution of powers to LGUs under the LGC is also underway.
3. Decentralization - The Team strongly endorses the decentralization of planning and program development, funds management, and personnel control now underway in the two Departments. The Team further recommends that USAID assure that financial support is not a limiting factor in the process.	**Done.** The decentralization of DA's planning and program development is underway and fully evident in at least 5 administrative regions. Implementing guidelines for devolution of powers to LGUs under the LGC is also underway.
4. Micro-Projects. DA should use the micro-project model, to the extent it is applicable, in expanding RRDP area coverage and in the design of new projects.	**Done.** The microproject approach is now fully used in at least 4 major ongoing donor assisted project in Northern Luzon, Antique and Southern Mindanao.
5. Funds Flow/Micro-Management - That both GOP and USAID consider the funds flow problem to be of crising proportions and a corresponding effort to be expended in finding a solution or solutions. It is further recommended that ONRAD carefully review its RRDP management procedures and identify all of the reviews, checks, approvals and other direct involvements in project implementation. This list should then be reviewed with GOP counterparts to identify those that can be eliminated.	**Done.** RRDP pioneered in the decentralized fund scheme. Under this scheme, funds were directly released from the Department of Budget and Management (DBM) to the provinces to assure more efficient use of funds. Moreover, the project initiated the training of accountants/bookkeepers to open and maintain a complete set of books of accounts in their respective provinces.
6. Rate of adoption of new technologies - PCARRD should organize and implement a	See PCARRD action.

research program with DA, the SCUs and others as appropriate. Research and Extension System (NAREA). Likewise, supporting research-constraints that prevent rapid farmer adoption of new and more productive technologies. USAID should make special funding available if necessary. Having identified the constraints, project intervention should focus on the removal of these constraints so rapid farmer adoption will ensue and program impact on increasing income and reducing environmental degradation in the upland can improve significantly.

7. Contracting - The Team concurs that DENR has little choice but to use contracting procedures for "reforestation" and "agroforestry". However, the Team recommends that the potential administrative simplicities of the contracting procedure be analyzed by DENR in terms of the present contracting procedures and that these procedures be simplified to the maximum extent possible. It is further recommended that the provisions for community contracting be adjusted by DENR to favor community involvement in reforestation work.

The project design for the recommended new initiative should incorporate the simplest financial management procedures available to both governments.

See DENR action.

8. Marketing Assistance - The design of projects by USAID/GOP for the rainfed resources must not only include intervention for increasing production but also market assistance that will insure a ready market for

Done. The DA has incorporated a strong market orientation in its current programs for rainfed areas.

new products. This means an added component on marketing that can (1) create new markets to expand existing market capacity and (2) guide the increase in new products so that the existing market demands are not unduly exceeded.

9. The Denuded Hillsides - Recommended expansion from now through the PACD should include more emphasis on denuded hillsides. This will assist both DA and DENR to prepare for more extensive programs in denuded areas.

Done. DA regional offices in prodimantly hilly areas such as CAR and Region 7 have totally revised their lowland commodity orientation and shifted to hilly farming systems orientation.

The Team recommends that USAID and GOP plan a new rainfed uplands initiative of sufficient magnitude to have a significant impact on the environment and on poor farm families, concentrating on homogenous sites that represent the largest problems in the rainfed uplands.

The Team recommends concentration on the large tracts of denuded sloping land. The technologies required to improve these areas are perennial crops, dominated by fruit trees, and other financially viable crops that bind the soil.

The benefits from stabilizing upland slopes go to upland farmers and to others down the slope requiring that society share the cost of treatment and make credit available to finance the planting of perennial crops.

10. Research Responsiveness - PCARRD should take the responsibility of seeing that

See PCARRD action.

all field staff are aware of its capability to send experts to the field to identify problems and to make recommendations on short notice.

11. Research Project Approvals - Reduce the number of approvals for GIA proposals at both the national and regional level. Train researchers in project design and implementation so that higher quality proposal can pass through the system with fewer revisions.

The long term goal should be to strengthen the regional consortia, including RIARS and ERDB which contain 78% of the FTE researchers, so that most of the GIA identification, design and approval can be regionalized. A further goal is to increase the regional capability to maintain their own stable of experts so that PCARRDs commodity team can be requested as a last resort.

See PCARRD action.

12. Mapping - Supply the Bureaus of Land and Operations and the NAMRIA with additional hardware, software, communications links to provide on-the-ground mapping and title information to the PENRO and CENRO levels to facilitate their community based resource development work.

See DENR action.

13. Staffing Intensity - The Team believes that the DENR Secretariat should reassess manpower utilization in the department. Large numbers of very low paying, entry level jobs can be exchanged for fewer, better trained staff to

See DENR action.

fill the CENRO vacancies and begin to provide staff specialists at the regional and provincial levels. To make up for manpower deficiency at the grassroots, the Team further recommends that DENR proceed with the contracting machinery identified and tested during the RRDP fully recognizing the serious problems that may be encountered. In the short-term , use of contracting implies additional technical staff (as recommended above), simple completion standards that can be monitored and evaluated, streamlined procedures, and modification of the three-year time frame. It is further recommended that use of those non-DENR persons who are experienced in community development by contractors should be encouraged.

14. The Research Network - USAID-GOP should provide additional research funding through transfer of under-utilized Project funds.

The Team recommends that all levels of National Research and Development Network (NRDN) be strengthened as required. This includes the regional consortia memebers. Strengthening would include both degree and non-degree training at all levels, repair and maintenance of stations and equipment, and the replacement of needed equipment and facilities. The Team further recommends that this strengthening involve long term funding by the GOP, USAID and other donors.

See PCARRD action.

15. Field Training - The Team recommends expansion of the current training program to

Done. Training programs have been expanded considerably through the Agricultural

strengthen all levels of agency staff -- FOT, SFT, CENTRO, MAO, PENRO, PAO, RIARS/PTVT, et. al.; farmers/community leaders; researchers in the regions; and the contractors proposed to be involved in program expansion for both DENR and DA. The Team further recommends that the strengths of the consortia be more fully utilized in this training program and that the ATI become more involved in preparing courses and in planning and implementing the training program.	Training Institute and through special training programs under donor assisted projects.
16. <u>Communications</u> - The Team recommends that the Agricultural and Resources Regional Technology Information System (ARRTIS), which monitors technology flow and develops a data base on research projects be extended to all regions. The Regional Applied Communications (RACO) program by PCARRD, which packages technology for distribution to farmers should be strengthened by PCARRD.	See PCARRD action.
17. <u>Coastal Zone</u> - The planning and management of the coastal zone be unified.	**Done.** The DA and DENR have recently entered into a memorandum of agreement to integrate the respective agency's efforts on coastal resources management particularly in the areas of land classification and land use administration.

E. LESSONS LEARNED

1. DA Capability in Planning

Although indicative plans are prepared at the central or regional level, the micro plans developed by field technicians at the barangay and/or municipal level should become the basis for provincial and regional plans.

Along this line is the constant refining and development of tools and techniques for micro planning. Two of these tools were the Rapid Community Appraisal for Planning (RCAP), and Intervention Designing. However, these tools still have to be improved and constantly updated.

The multi-disciplinary approach in farming systems should start with the planning of site level activities particularly community planning. Multi-disciplinarity in planning should not only mean the composition of the field operating teams (FOTs) but also the interoffice commitment within the outside the DA structure.

Another aspect to be looked at is the capability of the provincial and regional offices to consolidate all micro plans into one coherent program based on its research and extensive agenda.

2. Credit Support

The Department of Agriculture started RRDP with a strictly "no-dole-out" policy. However, as the activities were implemented, it became apparent that field operations personnel could not gather enough support or cooperators without offering material assistance. These materials included seeds/planting materials, fertilizers and chemicals.

The training strategy adopted by RRDP again clearly shows the importance of material support. As part of the training, farmers were provided with materials for a hands-on exercise either in their own farms or in a communal undertaking such as artificial reefs or barangay nurseries.

The evaluation conducted by an external institution reported training as a primary reason why farmers adopted technologies promoted by the project. This could be partly due to the materials provided as part of the training courses the farmers attended.

3. Marketing Support

The experience of RRDP in Bicol with its Corn Postharvest and Marketing Assistance Program showed what the DA as lead agency can put up a system to address the farmers' urgent marketing needs. The major impact of the program was that it made local prices compete with Manila prices to the benefit of the small farmers.

Establishing linkages with other institutions and to provide support to the project usually takes time because of some "cultural adjustments" that must be made between project implementing units and the institutions concerned. This usually happens when an agreement is made with a non-government organization whose operations are not used to the delays in a bureaucracy such as the DA.

4. Expanding the Micro-Projects

Although micro-projects have made considerable impact in introducing innovations in rainfed areas particularly in developing livelihood projects, improvements are still needed in areas like product development, quality control; and market exploration to ensure their long-term viability in a competitive environment.

A major consideration is expanding the micro-project concept by emphasizing a market-led approach and not focusing mainly on demo type production. This can be done by concentrating more on the identification of reliable and profitable market outlets (local and foreign), providing technical assistance in product development and quality control to add value to farmers' produce, sustaining commercial and regular volume of produce, and providing a stimulating business environment for farmer entrepreneurs. Moreover, rural enterprise should engage groups of communities instead of individual farmers when setting up business ventures. This will hasten wide scale development.

5. **Other Lessons Learned**

- Decentralized and participative planning helps accurately identify actual development needs and priorities.
- There is a need to focus on a single problem/profitable activity for efficiency and optimum use of project resources.
- Farmer-to-farmer training is effective as a strategy for technology diffusion on a larger scale.
- Measures/policies against the sudden withdrawal of foreign assistance are necessary, especially in cases where commitments have already been made.
- Organizing farmer-clientele into functional associations serves as an effective medium for delivery/acquisition of basic services, ultimately, for the end goal of developing self-reliant people.

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RAINFED RESOURCES DEVELOPMENT PROJECT
NATURAL RESOURCES COMPONENT

A. BACKGROUND

Under Cycle 1, which was implemented from 1982 to 1987, four (4) pilot agroforestry projects were implemented by the DENR as a mechanism to "develop institutional capacities and policy frameworks" for community-based resource management. Cycle I had a total budget of $3,013,000 broken down to $1,298,000 as USAID Grant, $50,000 as USAID Loan and $1,665 GOP Counterpart.

Cycle II which started on 1988, was designed to assist the DENR design and implement an expanded community based program for agroforestry and contract reforestation. It had a total budget of $8,038 (as amended) broken down to $5,964 USAID Grant and $2,074 GOP Counterpart.

The RRDP Cycle II consisted of the following components:

- Agroforestry Development (17 sites)
- Contract Reforestation (5 sites)
- Production Nurseries, Clonal Seed Orchard and Species Trial (7 sites)
- Institutional Development
- Technical Assistance

Three major strategies, cross cutting these components were pursued to wit:

- Technology Development;
- Community-Based Organizational Development; and
- Institutional development in project management, including planning, operations; and logistics, contract management, beneficiary training and monitoring and evaluation.

B. PROJECT STATUS

1. Physical Status. The project's purpose have been achieved by PACD. An internally generated momentum exists to transform the DENR from a regulatory agency to a developmental institution, capable of designing and managing an expanded community-based agroforestry and contract reforestation programs. Decentralization has been effected and NGOs/PVOs have actively participated in the rehabilitation of degraded uplands. At least 85% of planned physical targets has been achieved.

2. Financial Status. As of PACD, a total of $7,064,000 and $50,000 have been drawn from the USAID Grant and Loan Proceeds respectively for project Cycle I and II. A total of $4,161,000 have been disbursed from the Philippine Government Counterpart as of November 1991 for the nine (9) years project implementation (See Table I).

Overall, the average fund utilization rate of the participating NGOs and private firms is roughly 85% of actual releases while DENR-administered projects utilized 81%.

The balance of about 15% corresponds to the final billings which has yet to be submitted to USAID for payment. Remaining unliquidated balance of by-administration projects amount to the accruals and the last quarter obligations.

C. PROJECT ACCOMPLISHMENTS

1. Planned and Actual Inputs. USAID obligated a total amount of $1,298,000 Grant and $50,000 loan proceeds as actual input of USAID to the project under Cycle I. GOP on the otherhand, has allocated a total of $1,392 million or P12,211,000 to support operating cost. Under Cycle II, USAID obligated $5,716,000 with a GOP counterpart of $2,074,000.

Using the log frame as basis, the following is a list of planned and actual outputs

2. Planned and Actual Outputs

Planned	Actua
a. 20 Agroforestry projects (3,000 farmers have developed 5,000 has under sound agroforestry techniques). Note: fourteen (14) new agroforestry projects and continue development at six (6) sites already started in Cycle 1.	o Implemented 16 agroforestry projects which included 12 new sites and consolidation activities for a Cycle 1 sites. Six of the sites were awarded to Non-Government Organization (NGOs) while the rest of these projects were directly implemented by DENR. o Two projects were cancelled due to mismanagement while two projects were not authorized due to unavoidable administrative delays. o At least 2,220 upland families adopted appropriate upland technologies to develop 3,517.12 hectares of agroforestry areas. o Mobilized at least 400 farmer fishermen develop 239.62 hectares mangrove areas and participated in the installation of 53 clusters of artificial reefs. o Issued 705 CSC for upland farmers and 258 Mangrove Stewardship Contracts for fishermen participants in the coastal mangrove areas: o Infrastructure facilities: - constructed 165 kilometers of graded trails. - constructed 14 units multipurpose buildings.

b. Five (5) reforestation contracts (2,500 hectares developed under sound reforestation techniques.	o Five reforestation projects were awarded to three "non profit" and two "for profit" to the Non-Government Organizations (NGOs). A total of 1,497 hectares were reforested or equivalent to at least 86% (out of 1,738 has) awarded to five contractors per revised plan broken down according to approach as follows: - Conventional Reforestation - 997 has - Assisted Natural Regeneration - 318 has - Agroforestry - 182 has o Constructed and rehabilitated about 71.42 kilometers
c. Seven (7) species trials seed orchards and nurseries	o Operationalized regional clonal nurseries and species trials in 7 sites. o Produced one (1) Nursery manual based on the experience of the project staff in the seven sites.
d. At least 10 NGOs effectively implementing agroforestry reforestation/ nursery activities under DENR supervision.	o Mobilized the implementation of 12 contracted projects with non-government organization (NGOs); 5 agroforestry projects, 1 mangrove rehabilitation, 5 reforestation projects, and 1 clonal nursery and species trials located in 7 regional sites.

3. Project Purpose Level Indicators

Planned	Actual
a. Presence of effective field and farmer-oriented resource management programs at DENR (Central and Regional Office)	o The DENR has launched a people oriented Forestry Program under the 25 year Forestry Master Plan. The program includes a nationwide upgrading of the ISF program based on RRDP learnings; a Community Based Forestry Management Program (which allows smallhold, sustainable management of residual forests) and community based contract reforestation program (which provides for contract reforestation cum utilization by organized upland farmers. o Key trained staff at Regional and provincial and district levels in Regions 5, 7 and 8 are operationalizing an upgrading of the regular ISF program using lessons learned from RRDP. o Technological innovations were developed and most have been adopted in farmer fields. These include soil and water conservation; soil fertility enhancement, livestock integration, intensive homelot gardening. In addition, social technologies that enhance the delivery of these technologies were developed. These include rapid rural systems appraisal, key farmer problem analysis, and farmer based extension systems. These technical innovations and social tools have been documented in RRDP publications.

b. Presence of PVOs and Private Contractors who are competent to implement agroforestry and contract reforestation.	There are presently 600 development and environmental Non-Governmental Organization and Private Volunteer Organization that are accredited at the Department of Environment and Natural Resources (DENR). Ten were the original RRDP-NR Component Contractors that implemented its various projects in agroforestry, contract reforestation and clonal nurseries. Likewise, another 10 were formed by former Project staff and farmers which are now engaged as DENR contractors for community based Resource Management Projects.
c. Policy issues which hamper implementation progress identified and addressed	Policy issues relevant to project administration (e.g., fundflows); and limitations of tenure instruments were identified. Ad-hoc measures to release fund flow problems were developed (e.g., direct fund flows from DBM to provincial DENR offices). However, these were only able to partly solve the problem. Issues related to tenure limitations and natural forest management were crystallized but not resolved due to project design limitations. NRMP seeks to resolve some of these issues under its policy reform component.

D. POST-PROJECT MONITORING RESPONSIBILITIES

Fifteen months prior to PACD, the DENR has devised appropriate phasing-out mechanisms along with the NGO/PVO contractors and farmer leaders to ensure the sustainability of all development efforts in the project sites. Likewise, arrangements were made for the expansion of these efforts to adjacent upland/coastal areas.

RRDP agroforestry projects have been designated by the DENR as Integrated Social Forestry Program (ISFP) model sites. This classification enables the farmer/fishermen beneficiaries to avail of budgetary support provided under the regular ISFP program. The concerned Social Forestry Division of the DENR Region, PENRO or CENRO that exercises jurisdiction over the area where the respective projects are located shall continue to carry on the monitoring role they have been performing before the RRDP's PACD.

A substantial portion of former RRDP staff have been absorbed in key DENR positions. Two are now Regional Technical Directors while at least five have assumed key provincial positions. Majority have combined forces with their former farmer cooperators and have formed strong local NGOs. At least ten such groups have been formed. Practically, all have been awarded with various DENR such as contract reforestation, and community forest management.

Under the new local government code, administration of ISF activities will be transferred to the local governments. The Regional DENR offices will maintain technical supervision.

E. REVIEW OF EVALUATION

The project's mid-term evaluation conducted in May 1989 recommended several measures which seeks to hasten the diffusion processes of appropriate technologies, improve the flow of funds down to the field level, streamline the contracting process, and expand the developmental efforts in other ecologically degraded upland areas.

Recommendations	Action
1. General Assessment - RRDP successes to be replicated in larger rainfed areas not yet being developed.	**Done.** Under the recently approved Forestry Master Plan, a people oriented Forestry Program calls for upgading of the current ISF program to incorporate lessons learned under RRDP and other programs. Implementing guidelines (DAO 97) are in place. Model ISF sites are being established in each district office following RRDP lessons.

Recommendations	Action
1. Community Based Development - Install community based approaches in all developmental efforts of DENR and DA	Done for DENR. The 25 year Forestry Master Plan calls for a community based approach not only under ISF but also under reforestation, management of residual forest and protection of old growth forest.
3. Decentralization - Decentralize planning and program development, funds management and personnel control.	Done. Executive Order No. 192 had devolved these basic functions to the DENR Regional Office, Provincial Environment and Natural Resources Office (PENRO) and to the Community Environment and Natural Resources Office (CENRO). The Local Government Code has likewise called for the transfer of some of the DENR's function including ISF to the Local Government Units. Implementing guidelines are being finalized.
5. Fund Flows/Micro Management - Streamline funds flow for timely implementation of developmental activities and significant achievement of objectives and goals.	Done. DENR adapted the Modified Common Fund Disbursement Scheme, established a financial facility at the PENRO level, instituted the conditional payment scheme for contracted project and installed revolving fund at the project sites. AID sponsored a special study by the SGV analyzing actual fund flows. The study's recommendation led to the adaption of several GOP measures as described above.

Recommendations	Action
6. Rate of adoption of new technologies. PCARRD to organize and implement research program with DA, SCUs and DENR to determine actual constraints and identify appropriate intervention to improve farmer adaption of new and more productive technologies.	Please see PCARRD action.
7. Contracting - simplify contracting process considering the following: a. DENR to adjust provisions for community contracting to favor community involvement in reforestation work b. Incorporate in the project design for new initiative, the simplest financial management procedures	Done. Both AID and DENR devised ad hoc procedures for streamlining the contracting process. This included AIDs prior approval of "model contracts" and short lists of candidate contractors as basis for fast-tracking the contract approval process.
8. Marketing Assistance - Marketing assistance must be included in the project.	Done. RRDP project sites have organized marketing cooperatives; operational linkages have been established with concerned government and NGO/PVOs which includes the Department of Trade and Industry (DTI), Department of Agriculture (DA), National Food Authority (NFA). DENR successfully negotiated a new credit window for the Integrated Social Forestry by the Land Bank of the Philippines (LBP).

9. <u>The Denuded Hillsides</u>. Emphasis of development prior to PACD should be on denuded hillsides for short; and a new initiative in rainfed areas concentrating on homogenous sites (for long term)	Done. This emphasis is now reflected in the 25 year Master Plan. Please see report under Research Component.
10. Research Responsiveness - Responsiveness of researches to actual field needs.	Please see PCARRD report.
11. Research Process - PCARRD to improve the research process by: a. Instituting a computerized data management for on-farm trials to analyze data across sites. b. Increase cooperation and training with the International Benchmark Soils Network for Agrotechnology Transfer (IBSNAT).	c/o PCARRD
12. Facilitate research project approvals by: a. Training of researchers in project design and implementation to produce high quality proposals (short term); b. Strengthening of the Regional Consortia including ERDB; c. Approval could be regionalized.	c/o PCARRD

Recommendations	Action
13. Mapping - Increase logistical support to Land Management Bureau (LMB) and National Mapping Resource Information Agency (NAMRIA).	**Done.** Logistical support for mapping has been provided by various DENR Programs which includes: the Comprehensive Agrarian Reform Program (CARP), National Resources Management and Development Program (AIDAB), Palawan Integrated Area Development Project 1 & 2 (ADB), Remote Sensing Project (AIDAB).
14. Staff Intensity - Reassessment of the Department's manpower utilization: - to proceed with the contracting machinery identified and tested during the RRDP; and - use of non-DENR person who are experienced in community development	**Done.** DENR has been availing of the services of NGOs/PVOs and in the implementation of many of its CBRM Programs. An NGO desk exists in each DENR Regional Office to network with local NGOs.
15. The Research Network - strengthen the National Research and Development Network (NRDN) and also the Regional consortia members.	
16. Field Training - intensify the current training program utilizing the consortia members to strengthen all levels of Agency staff (from PENRO down to farmers level), including NGOs involved in the program implementation.	**Done.** Consortia have been tapped to train DENR Personnel. Under an extensive 3 year Training Program. RRDP site staff and farmer trainors are employed in teaching other farmer appropriate upland development technologies.

Recommendations	Action
17. Communications - more involvement of Agricultural Training Institute in the preparation, planning and implementation of the training program: - extent to all regions the services of the Agricultural Technology Information System (ARRTIS); and - PCARRD to strengthen the Regional Applied Communications (RACO) program	c/o DA and PCARRD.
18. Coastal Zone - unify the planning and management of the coastal zone.	The DENR and DA have recently entered into a memorandum of agreement to integrate their respective agency's efforts in coastal resources management particularly in the areas of land classification and land use administration.

F. LESSONS LEARNED

RRDP-NR project staff and consultants have documented many lessons learned in project design and implementation. Not all of these lessons are new and dramatic but they provide additional confirmation to many hypotheses in community-based rural development. The following are excerpts of the long list of lessons learned that the project has generated and documented.

Project Development and Administration

Site Selection -- In a country where development resources are limited, project site selection is an extremely sensitive issue that is influenced not only by technical but by political realities as well. To ensure sound project site selection, project designers must see to it that both technocrats and political decision makers agree on a clearly defined selection criteria.

Project Staff Selection -- Key to successful staff selection would be the formation of a screening committee for the selection of the Project Manager and staff and a concise criteria formulated and understood before the selection committee meets to discuss and choose candidates. A mandatory probationary period of six months to observe the personnel under field conditions would be useful before permanent appointment.

Accountability -- Project site staff must no longer be accountable alone to their project superiors but to the community as well. Transparency in financial transactions is a key not only for harmonious staff-farmer relations but for organization building.

Project staff residency -- Full time residency of project staff, at least for the first 3 years in the project, would be crucial to project success.

Fund flows -- Given chronic budgetary delays, the project should install coping mechanisms such as revolving funds for both staff and farmer organizations in case there are delayed release of funds to stimulate community participation.

Farmer and Community Mobilization

Situation analysis -- Formal socio-economic surveys which are often costly, and delayed do not appear to be very effective tools for the scale of operations of the project's basic implementing units (2 to 3 communities). A very promising alternative would be the use of locally developed Rapid Rural Systems Analysis and other diagnostic tools such as the Key Farmer Problem Diagnosis technique which lend to participatory situation analysis.

Step-wise approach to technology transfer -- It is best to promote not a "package" of technology but a "process" of participative identification, testing and adoption of technologies.

Farmer-based extension systems -- Farmers teaching other farmers through such events as cross visits are better forms of technology transfer than the traditional technician-farmer approach. Care must be exercised, however, in the selection of farmer trainors. This includes a prior, project staff-community understanding on the criteria for selecting farmer trainors.

Community organizing -- Traditional approaches such as "information campaigns" and "election of officers" on "day one" of project implementation are definitely "passe." A more effective approach would be to start on a low key, and build on existing organizations such as small land preparation workshops groups. Formal organizations culminating from this approach would be more enduring.

Capital build up -- For long term sustainability, opportunities for local capital build must be encouraged. Off farm activities such as reforestation, trail construction and water supply development may be contracted to local community organizations within the project community. These farmer organizations may retain part of individual incomes as community savings. Under RRDP, many of these organizations have been able to use their savings for such investments as a small rattan processing shop, an electric connection, purchase of draft animals and small emergency loans for participating farmers.

Upland technologies

Appropriate technology in the uplands must be resource-based. They should provide immediate returns to the farmers and promote soil, water and nutrient conservation and enrichment. These technologies are:

a. Soil-Water Conservation and Soil Fertility Enhancement (SWC plus animal manure input, animals plus multi-purpose hedgerows, SWC plus limited amounts of inorganic fertilizer and lime, crop rotation).

b. Multi-story cropping

c. Livestock integration

d. Communal reforestation

e. Nursery development

f. Upland aquaculture

g. Mangrove rehabilitation and mariculture, artificial reefs and their protection.

Some successful mechanisms promote the spread or expansion of appropriate and sustainable upland technologies include:

a. Use of on-farm and farmer-run trials and demonstrations.

b. Use of cross-farm visits.

c. Provision of key starter materials such as planting materials and tools, etc.

d. Training held by farmers with other farmers and credible staff.

e. Provision of work animals.

f. Forest development activities done simultaneously with protection.

Land tenure administration

Land tenure without the necessary support services such as planting materials and technical guidance does not lead to the desired stewardship behavior contemplated by stewardship contracts. A related observation is that de-jure tenure security is not an absolute prerequisite for farmers to start investing on sound land use practices provided that simple support services such as tools and planting materials (draft animals in some places) are provided and project staff are credible.

Many of the reported constraints to the issuance to legal instruments are administrative in nature and within the control of the executive branch of government. Lateral solution to land conflicts and pseudo-tenancies are possible and may be a feasible alternative to long and costly court battles. The government, however, must provide for mechanisms to promote this kind of approach.

Reforestation

For more sustainable reforestation projects, follow the laws of nature. RRDP has developed a technique for this purpose. Called "Assisted Natural Regeneration", the technique deviates from traditional reforestation approaches which involves the planting of climax/exotic species on the first year of the reforestation operations. Under ANR, natural plant succession is observed. Naturally occuring plant species are encouraged to grow and serve as "nurse trees" that provide better microenvironments for the more exotic reforestation species. ANR saves on costs and reduces the vulnerability of plantations to fire.

Table I. RAINFED RESOURCES DEVELOPMENT PROJECT
PROJECT FINANCIAL STATUS

CYCLE I	Cumulative Obligations USAID	GOP	Cumulative Commitment USAID	GOP
Grant	1,298		1,291	
Loan	50		50	
Subtotal	1,348	1,395	1,341	1,405
CYCLE II				
I. Agroforestry	1,511	1,287	1,510	1,151
II. Contract Refo.	1,378	273	1,378	216
III. Reg'l, Clonal Nursery	266	43	266	30
IV. Inst'l. Devt.	66	1,125	66	1,359
V. Tech. Assis.	2,495	-	2,467	-
Sub-Total	5,716	2,074	5.687	2,756
TOTAL	7,064	3,469	7,028	4,161

RAINFED RESOURCES DEVELOPMENT PROJECT
Upland Access Component

I. BACKGROUND

The Upland Access Component (UAC) was conceived in response to GOP's request for assistance in the development of new methods of providing access to the upland barangays (villages). The need for access in the upland barangays was identified in the CDSS as a key constraint to development and a primary cause of poverty. This was subsequently confirmed by a need assessment team in 1983 which reported that: (1) approximately 40 percent of all upland barangays were not accessible by wheeled vehicle; (2) the level and extent of poverty were among the highest. Mean income was only 25 to 50 percent of the national average for rural areas with as much as 58 percent of the income derived from wage labor and not from agricultural production; (3) the lack of access to market was a major constraint. Transport costs were as much as 100 percent higher than the lowlands; and (4) schooling seldom exceeded the primary levels.

The decision to pilot test new construction approaches was due to recognition of the special social and environmental concerns of the upland areas and the financial constraints of both the local and national governments.

Community based labor-intensive construction was deemed relevant due to: (1) the need to support GOP's policy to reduce the foreign exchange costs of construction, (2) the need to increase rural employment, and (3) the very positive results of a USAID financed ILO pilot work in 9 provinces which confirmed that labor-based/equipment-supported (LB/ES) methods were technically and economically viable alternatives to equipment-based (EB) methods without sacrificing quality of the completed work, consequently, foreign exchange costs were reduced by a minimum of 29 percent, and the employment potential of LB/ES was 4 to 5 times higher than EB methods.

A. PROJECT DESCRIPTION

The Upland access Component (UAC/RRDP) was viewed as a logical extension and/or link to the rural roads program (RRP) which USAID assisted since 1975. Consistent with the planning system established in the RRP which drew heavily on the provincial capabilities, the UAC approach combined community participation in planning and implementation. Initially, the project was limited to minor roads, foottrails and footbridges. However, owing to the bad condition of provincial roads leading to the minor roads and difficulty in identifying minor roads for inclusion in the project, rehabilitation of provincial roads was included.

1. Project Goals and Subgoals

The goal of this component was essentially the same as the RRDP which was "Achievement by the rural poor of the higher sustainable productivity from the rainfed and coastal resources upon which they depend for their livelihood". The subgoals included the following:

a. to improve access for upland residents to the nearest marketing center, usually the poblacion, to enable them to purchase improved agricultural inputs and market increased agricultural production.

b. to increase rural employment and improve access to other government and non-government services.

2. Project Purpose

The purpose of UAC was to test the feasibility of addressing the upland access constraints by strengthening provincial capabilities to assist rural barangays plan and undertake the construction and maintenance of upland minor roads, trails, and footbridges using labor-based/equipment-supported (LB/ES) technology.

3. Expected Outputs

a. train selected members of 6 to 9 provincial engineering offices of 6 to 9 provinces in the planning and implementation of community managed small-scale rural infrastructure projects utilizing the LB/ES technology.

b. develop manuals and other documents detailing processes, procedures, and/or systems for national replication.

c. augment the provincial construction and maintenance equipment pool with small spread of equipment and handtools particularly suited for the support of LB/ES construction.

d. construct approximately 150 km. of upland minor roads, 150 km. of graded trails and 30 footbridges.

e. develop a maintenance plan which places primary responsibility on the community.

f. develop an environmental action plan.

4. Strategy

The design of UAC incorporated the following approaches:

a. a participatory and responsive approach, rathen than an approach which involves long-range planning and development of multi-year workplans and targets.

Projects were undertaken only when specific assistance requests were made and agreement to active community participation was made.

b. the use of engineering design standards that allowed improved access by upland residents but minimized the exploitation by lowlanders: i.e., roadwith limited to 3 meters surface to allow only light vehicles but not by heavy trucks.

c. extensive participation of the concerned barangay residents in the actual construction and follow-on maintenance operations.

d. a plan which provides additional technical assistance resources at the local level during implementation for community/social preparation, organization and management.

e. short-term technical assistance at the inception of the project to review design, develop a maintenance framework and environmental protection measures, develop a system for monitoring their implementation, and review financial flow procedures.

B. ORGANIZATIONAL ARRANGEMENTS

As conceived, the Rural Roads Program (RRP) Office of the DLG was identified as the implementing unit. But GOP instead requested that the project be placed under the Barangay Roads Development Program (BRDP).

A project management unit (PMU) was established in BRDP/DLG which coordinated the planning, training, management and monitoring of all activities. The unit was initially assisted by two ILO advisors, one for training and one for project management and two local advisors, an engineer and a social science specialist. After a year, only the local advisors remained to assist the PMU.

In line with DLG's decentralization program, increased responsibility was given both to the agency's regional engineers and the provincial office with the DLG's Local Government Officer (LGO III) in the municipality acting as the local project facilitator. The arrangement for the LGO III's to act as facilitator. The arrangement for the LGO III's to act as facilitator did not work well owing to the inability of the LGO III's to devote fulltime during construction, thus the project shifted to a community-based facilitator.

At the provincial level, direct responsibility for project identification was given to the provincial planning and development office (PPDO) while the design and construction management was

given to the provincial engineers office (PEO). An upland ad-hoc committee chaired by the Provincial Governor and composed of the various government offices involved particularly the PPDO, PEO, Provincial Treasurer, and Provincial Auditor was created.

C. IMPLEMENTATION PROCEDURES

The Upland Access Component was undertaken over a period of five years and six months starting in September 24, 1984. The initial 20 months of the project was focused on developing an acceptable minor road design standard, an environmental action plan, establishing systems and procedures in project identification, project management, financial management and monitoring, and training of several provincial engineer's office staff on the various mechanics of labor-based road construction. Actual road construction started only in 1986 with some disruptions due to change in DLG management resulting from the general change in the government.

A summary of the basic implementation procedures established includes the following (see flowchart No. 1 for more details):

a. Provinces submit to UAU/DLG a list of proposed subproject.

b. UAU/DLG staff together with PPDO and PEO staff undertake a joint evaluation of the proposed subproject to determine compliance with selection criteria established for project selection and technical feasibility as well as community acceptability.

c. If the subproject meets the selection criteria, the PEO conducts a detailed engineering survey while the PPDO undertakes a barangay survey and a community meeting to explain the project rationale and the mechanics of implementation.

d. PEO prepares detailed plans and cost estimates including the barangay resolution committing community participation and right-of-way donation.

e. UAU/DLG reviews plans and cost estimates and forward the same to USAID for concurrence. In cases where major revisions are necessary in either the plans and/or cost estimates, documents are returned to the province for correction. The corrected documents are resubmitted to UAU/DLG and USAID.

f. Subprojects with USAID concurrence are returned to the province. Provinces start construction upon receipt of 50 percent cash advance or upon receipt of notice to proceed.

g. All construction activities are undertaken by administration utilizing the community workers under a pakyaw system.

D. FUNDING OF UAC

The original agreement authorized $3.0M USAID contribution of which $2.4M were loan funds and $1.1M GOP contribution. The loan portion was subsequently changed to grant funds and only $2.818M was obligated. The budget composition of the USAID grant to the UAC was as follows:

Elements	Amount ($000)
Technical Assistance	$ 348
Training	45
Construction Equipment	571
Construction Cost	1,693
Handtools	110
Evaluation	50
Total	$2,818

1. Funding Mechanism

All construction activities were financed through the Percentage Payment Agreement (PPA) signed by the LGU, UAU/DLG and USAID. The PPA explicitly detailed construction cost by item category as direct construction cost, indirect construction cost and maintenance cost. Under direct construction cost, were: labor, materials, petroleum, oil and lubricant (POL), contingency and project preparation/pre-construction survey. Indirect costs included staff salary, supplies and materials, POL and per diem.

In the earlier PPAs, USAID grant funds were used to finance 75 percent of the direct cost only whereas DLG provided 20 percent and the community shared 5 percent in the form of free labor. Indirect costs were shouldered by DLG and LGU. Maintenance cost equivalent to 3 year equivalent maintenance kilometer cost (EMK) was shouldered by the LGU. The EMK is an amount determined by the Department of Public Works and Highways (DPWH) periodocally as necessary for maintenance of various road types in the country.

Confusion on eligible items under the direct cost became a problem so the sharing system was revised under a 70-20-10 arrangement. This arrangement implied that except for the maintenance cost, which was to be funded exclusively by the LGU, all other costs would be financed 70 percent by USAID, 20 percent by UAU/DLG and 10 percent by the LGU. Barangay contribution in terms of free labor was no longer required.

E. **USAID RESPONSIBILITY**

USAID represented by the Rural Development Division, Office of Rural and Agricultural Development (RDD/ORAD) worked with UAU/DLG and the LGU's to institutionalize the LB/ES technology. This involved day-to-day interaction with UAU/DLG to develop training and administrative procedures. The system provided opportunity for monitoring the subproject to the level satisfactory to both LGU and USAID.

The field engineers in the Office of Capital Projects (OCP) provided engineering expertise which inclused review of subproject plans and cost estimates as well as the monitoring of subproject construction.

II. Project Accomplishment

A. Physical Accomplishment as of March 31, 1990 Activity Completion Date (ACD)

Type	Planned	Subprojects Accomplishment[1] No.	Length
- Minor Road	150 Km	17	73.14 Km.
- Foottrails	150 Km	10	16.81 Km
- Footbridge	30 Units	2	250 LM
- River Crossing	-	1	60 LM
- Provincial Road Rehab	-	12	64.114 Km

Recognizing that the planned physical targets cannot be accomplished due to: (a) difficulty in selecting desirable minor road and foottrail subprojects, (b) the complexity of footbridge design and construction, and (c) the sorry condition of most of the provincial road system, redirection was made in 1987 to include provincial road rehabilitation. This explains the difference between the planned targets and the accomplishment of the component project.

B. **Financial Accomplishment**

As of the ACD, the total commitment was $2.735 million of the $2.818 million obligated representing 97 percent of the obligated budget.

Details of project expenditures by line item are shown below:

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[1]exclude 3 minor road subprojects with a total length of 17.3 km that were not completed by ACD.

Budget Line Item ($000)	USAID					GOP	
	Obligation	Cum Earmrk	Cum Commt	Cum Disbrmt	Cum Expdtr	DLG	LGU
Technical Assistance	339	339	339	315	333	-	-
Training	45	45	45	45	45	45	-
Const. Equipment	571	571	560	453	558	-	-
Const. Cost	1693	1672	1623	945	1619	364	1191 [2]
Handtools	110	110	108	104	103	30	-
Evaluation	50	50	50	46	46	-	-
Total	2818	2797	2735	1907	2704	439	119
Percentage of Obl	100	99	97	68	97		

C. Institutional Accomplishment

1. The project has established a system for the identification, design and constructin of upland access projects by labor-based methods that is unique to the Philippines[3]

2. The preparation and publication of 6 handbooks covering:
   - Planning and Implementation procedures
   - Prefeasibility Assessment and EnvironmentalAssessment
   - Accounting, Budgeting and Cost Standard
   - Pakyaw Contract Procedures
   - Lengthman Maintenance system
   - Community Participation Process

3. The conduct of seminar and training courses covering the following:
   - Orientation of senior provincial officials
   - Framework planning
   - Socio-economic survey
   - Sub-project surveying, planning and programming
   - Site supervisor
   - Facilitators and Community participation
   - Environmental Assessment

4. Commodity Assistance - Mayor commodities provided included: 15 agricultural tractors, 24 side-dumping trailers, various handtools, 50 125-CC motorcycles, one PC/AT and printer, 2 IBM typewriters, and 1 photocopier.

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[2]excludes the 3-year maintenance fund

[3]Redirection of the UAP/RRDP, USAID, Sept. 4, 1989.

The tractors, trailers, motorcycles and handtools were all given to the participating provinces.

III. The UAC, an assessment

A. General

The project provided an opportunity to pilot test the LB/ES technology in a greater number of provinces under varied terrain and soil conditions. It also offered an opportunity to observe the profound effects of pakyaw construction in various areas as well as the impact created by new road construction.

Increased mobility, increased area of cultivation, decreased transportion cost and travel time as well as indications of in-migration to the service areas and general satisfaction of pakyaw workers in the method of construction and payment.

B. Specific

This section is an analysis of the project vis-a-vis its objectives.

1. The Project Goal

a. Statement of the Project Goal - "Achievement by the rural poor of the highest sustainable productivity from the rainfed and coastal resources upon which they depend for their livelihood"[4].

b. Analysis - Although long-term positive changes in agriculture cannot yet be conclusively determined from the limited field survey and the limited time since the projects were completed, available survey showed that mark changes have occured which have bearing on the long-term potential of the benefitted areas. Among the benefits observed were: "increased farm hectarage, increased farm production, and sales and openings if new farms"[5]

2. The project subgoal

a. Statement of Subgoal

ii. "To improve access for upland residents to the nearest market center, usually the poblacion so they can purchase improved agricultural inputs and market increased agricultural production on a more equitable basis than

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[4]Project Paper Supplement, UAC/RRDP, USAID.

[5]Upland Access Evaluation and Follow-on Options, 1989, USAID

now exist with lowland residents".[6]

iii. "To increase rural employment and improve access to other government and non-government services".[7]

b. Assessment

The 1989 evaluation showed significant increases in the frequency of travel by the inhabitants due to the entry of passenger vehicles in the area as well as on increased frequency of visits by extension workers. Travel time by residents to the poblacion have been reduced considerably from 25 to 50 percent and transportation fares have been reduced from 72 to 100 percent. The same evaluation noted that for minor roads, approximately 3,000 person-days of employment per kilometer was generated during the construction period. Employment generation for foottrails during construction was 2,000 person-days per kilometer and 4,000 person-days per kilometer for provincial road rehabilitation. While the figure represents part-time employment, labor generation potential of LB/ES can be invisioned.

3. The Project Purpose

a. Statement of Project Purpose

"To test the feasibility of addressing upland access constraints by strengthening provincial capabilities to assist rural barangays plan and undertake the construction and maintenance of upland minor roads, trails and footbridges using labor-based/equipment-supported technology".

b. Assessment

The fact that a number of projects were constructed using the LB/ES technology is proof of the capabilities of the pilot provinces to respond to the project purpose. Despite the learning curve being slow in the first year of the construction period, provinces that completed their first LB/ES project began to implement three subprojects simultaneously. A case is the province of Benguet, which did not have any previous experience with foreign assisted projects. After completing its first LB/ES project, the people of the province realized that the system was very appropriate to its environment and that the road constructed through LB/ES was of equal quality to the EB method. Thus, construction move at a faster rate and Benguet became the

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[6]Project paper supplement, Upland Access Component/RRDP

[7]Op. Cit

model province for the project. These developments led both the 1987 and 1989 evaluators to conclude that indeed viability of LB/es road construction has been successfully demonstrated.

C. Assessment of UAC/RRDP Weaknesses

1. Institutional

Though the viability of LB/ES methods have been demonstrated and that the project has produced a substantial number of site supervisors trained in this technology, the following institutional weaknesses were apparent:

a. Lack of appointment security of implementing unit staff - UAP/DLG staff were all hired annually under contractual terms, thus the staff often experienced periods of low morale due to anxiety in their employment status particularly during the first month of the incoming year. The condition was further exacerbated by senior staff changes that occured in DLG as a result of the changes in the government.

b. Lack of assertion by UAP/DLG staff - Because all the technical staff were young compared to their provincial counterparts, particularly provincial engineers, almost all were reluctant to provide the technical guidance required to the LGUs. This responsibility was passed on to the local advisors.

c. Low interest for LB/ES in the LGUs - Because of the relatively small size of LB/ES project in the pilot provinces coupled with the large numbers of administrative requirements, provinces with other infrastructure projects funded by other donors tended in the beginning to give little attention to the project. In addition, except for four provinces, the other pilot provinces have not adopted the LB/ES technology in pursuing their locally funded infrastructure projects.

d. Low demonstration effect - The number of pilot provinces may have been too many to create an impact for demonstration purposes. In addition, the number of subprojects for each province was not only limited but dispersed to provide additional demonstration effect.

e. Administrative support services need to be improved although system for LB/ES has been established, the following administrative requirements need to be simplified to respond better to the LB/ES system: (1) procedures for estimating construction costs should be simplified to approximate ball park figures rather than very detailed and time consuming, (2) GOP

requirements for payment of pakyaw workers should be simplified to enable to pakyaw workers to draw timely compensation at certain periods of their pakyaw contract. The simplified procedure and decreasing the number of documents as well as signatories for labor payment.

2. **Monitoring**

Because of the great distances between the provinces and Manila, and the inability of UAP staff to travel to the provinces regularly, monitoring reports were often late. There is a need to develop a system whereby reports will be received on a timely basis for management to respond immediately to implementation problems.

3. **Long-term maintenance of minor roads and foottrails**

Though the project was able to arrange a three year maintenance fund for minor roads, concern has been raised about what will happen after this 3-year period, considering that funds for barangay road maintenance are under the control of DPWH. In addition, since there is no regular fund that can be tapped for maintenance of foottrails, concern has been raised on who will maintain the trails.

4. **The Percentage Payment Agreement (PPA)**

The PPA provided advance funds to LGUs, however, it is a cumbersome system of project financing since GOP fund transfer are slow. In addition, the PPA requires heavy management responsibility to liquidate advances. The PPA likewise did not put pressure on LGUs to complete projects within the programmed construction period.

IV. Review of Past Evaluation

A. Redirection of the Upland Access Component, RRDP, September, 1987

This evaluation was conducted to examine and evaluate the project status, effectiveness of implementation, the labor-based capacity that has been created, the community participation aspect and to determine the viability of including rehabilitation of provincial roads. The study concluded that:

- UAC will achieve all its non-physical outputs, plus its purpose and subgoals.
- The project is generating part-time employment at an average of 4,000 person-days per kilometer, as compared to 485 person-days for equipment-based project and that the work is going to upland residents who are largely unemployed or underemployed.

- The project has been successful in community organization as evidenced by worker satisfaction and the fact that actual

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productivity is substantially exceeding the norm that ILO established in 1983 in the Philippines.

- The project has established, most importantly, a system for the identification, design and construction of upland access projects by LB/ES that is unique in the Philippines. LB/ES has likewise demonstrated to be financially competitive with and cheaper than equipment-based methods. In eocnomic terms EB methods cost about 33 percent more than LB/ES.

- The expansion to include provincial road rehabilitation is indeed a viable alternative.

B. **Upland Access Evaluation and Follow-on Options, March, 1989**

Unlike the previous evaluation, devoted more time in determining follow-on options. Conclusions of the evaluation were as follows:

- LB/ES road construction and maintenance technology is highly suitable under contemporary Filipino conditions and should be promoted.

- The Government of the Philippines is now devolving both the decision-making authority and the financial power necessary to implement decisions to local government units (LGUs).

- LB/ES construction, rehabilitation and maintenance methods are competitive with equipment-based (EB) method.

- LB/ES methods have proved marginally less costly than equipment-based techniques.

- In the short-term, LB/ES generates at least five times the person-days of work per kilometer of road construction as do equipment-based method. Wages earned by pakyaw workers are attractive and such wages go primarily to low income families. In addition, women and minorities have been employed in the project.

- Increased vehicle traffic, reduced transport cost and travel time, gradual in-migration and opening of new farms and increase in area cultivated are some of the recorded impacts indicative of improvement in the socio-economic conditions of residence in the subproject areas.

- Both the project management unit staff and the provincial implementing units in the pilot provinces have developed skills in implementing LB/ES construction technology.

- A follow-on option covering a "linked program and project assistance mode" in support of the LB/Es technology was recommended.

E. **Continuing and/or post-project AID monitoring responsibilities.**

None.

F. **Lessons learned and policy implications**

1. **Institutional Development**

a. The LB/ES technology using pakyaw methods of construction for minor roads, trails, footbridges and rehabilitation of unpaved roads is highly suitable in the Philippines. Income and employment benefits are substantial. Expertise at the local level can easily be developed given adequate training and guidelines. Without high-level policy initiatives, it will not be adopted and practiced nationwide.

b. Current GOP administrative systems particularly in pakyaw contracting, accounting and auditing systems need to be simplified in order to respond to the requisites of LB/ES. The current administrative systems are cumbersome and lead to inevitable delays.

c. The return of barangay roads under LGU responsibility will create an opportunity for LGUs to consider LB/ES as an alternative method in construction/rehabilitation and maintenance.

2. **Project Selection** - to generate substantial demonstration effect, pilot projects should be contiguous if possible or close together. In like manner, pilot provinces should be limited to 6 to 9 so as not to disperse project funds.

3. **Maintenance** - Innovative approaches acceptable to the community other than the "lengthman" system of local road maintenance should be encourage following the concept of user's participation. Local budgets should consider maintenance first before new construction activities. In addition, PEOs should develop a schedule for periodic inspection to determine degree or level of maintenance activities.

4. **Monitoring** - a monitoring system covering the planning, construction and maintenance should be developed early on and sustained.

5. **Handtools procurement** - a centralized handtools procurement should be made to ensure availability during construction period and quality. The centralized procurement will also ease LGU burden on procurement systems, which favor lowest priced handtools without consideration of design and quality.

cc: DRM & NRD

Development Resources
from the
Rainfed Resources Development Project

The Rainfed Resources Development Project has produced voluminous information recommending better ways to design, implement and evaluate community based resource management projects in upland and rainfed areas. These recommendations were derived from "hands-on" field experience in more than 60 sites nationwide. Hereunder is a brief description of selected techniques applied in the project. As validated in the RRDP, these techniques hold much promise as development tools not only for the programs of RRDP participating agencies i.e. DA, DENR, PCARD but for rural development initiatives in general whether implemented by government, NGO community or private sector. Each technique is documented in individual manuals that are available at USAID/ONRAD. Each item is identified by source to wit RRDP-NR means "produced by the Natural Resources Component (DENR); RRDP Ag-Agriculture Component (DA); RRDP RE - Research Component; RRDP UA- Upland Access Component).

Tools that aid in situation analysis

Rapid Rural Systems Analysis (Manual - RRDP NR) -- Produced in collaboration the UPLB Institute of Environmental Science Management, RRSA is a practical alternative to costly and long gestating socioeconomic surveys. An adaptation of rapid rural apppraisal and influenced by the philosophy of agroecosystems analysis , RRSA is a useful tool for project site selection, project design and in environmental impact analysis of upland based projects.

Key Farmer Problem Approach (Manual - RRDP NR)) -- A diagnostic technique for participatory situation analysis and grassroots planning.

Rapid Commmuity Assessment and Planning (Manual and tape RRDP Agri) -- Also an adaptation of RRA to rainfed agriculture conditions in the countryside. Useful tool for agricultural technicians.

Tools that aid in Technology extension

Farmer Based Extension systems (Manual RRDP NR) -- This is a novel extension technique that mobilizes training talents of farmers to promote sound land use technologies. It provides guidance in the selection, training and management of farmer trainors as well as managemnt of cross visits.

The Star Communication Method (Manual, RRDP NR) -- A technique that supports farmer based extension systems by describing upland community communication patterns and providing specific tips on the identification and utilization of effective farmer communicators.

Show (Magazine, RRDP NR) -- A portfolio of model upland projects implemented by the DENR and NGOs. It describes farmer training facilities in 16 sites nationwide.

How to Localize Technologies (Manual, RRDP-NR) -- New insights are provided by this manual for diagnosing failures in upland extension work. It furnishes practical tips regarding the conduct on-farm trials, and managing small farm credit programs in the uplands.

Simple Financial Management System for Community Organizations (Manual, RRDP NR) -- This is a practical guide for community organizations just starting to manage their own funds.

<u>Low-input Technologies for the Uplands and Rainfed Areas</u>

Agroforesty Manual (RRDP-NR) -- This is a compendium of the various upland stabiization techniques developed not only by RRDP but other successful projects such as those implemented by SALT, World Neighbors and IIRR.

Assisted Natural Regeneration (Manual RRDP NR) -- A radical yet effective alternative to traditional reforestation approaches that banks on the natural laws of plant succession in humid tropical conditions. The technique cuts traditional reforestation costs by at least 30% and increases the survival rates of forest plantations.

Soil Ameliorants (RRDP-RE) -- Under the Research component, several microbial strains have been isolated and subsequently commercialized as soil ameliorants that increase soil fertility at very low cost. Most notable of these soil ameliorants are:

-- *Mycogroe*, a commercial tablet form of selected mycorrhizal strains that increase growth of pines, eucalypts and dipterocarp species.

-- *Bio-N*, a commercial form of azospirillium which provides nitrogen fertilization for non-leguminous plants such as rice.

-- *Biotabs*, a commercial form of microbial combination also for fertilzation of annual and perrenial crops.

These products may be obtained from licensed small scale manufacturers through the UPLB Institute of Plant Breeding.

Contract Reforestation (Manual RRDP NR) -- Contract reforestation by NGOs and communities which RRDP developed in 5 sites replaces traditional reforestation done by government-hired labor. RRDP has developed standards and guidelines for this novel approach.

Appropriate production technologies -- PCARRD produced at least nine publications describing packages of technologies for agroforestry, broiler production, fruit processing, banana, cacao, sheep raising, corn post production operations, dairy products, meat processing, mungbean and 17 descriptions of technologies (e.g. rattan production at village level, rhizobia inoculation for legumes, new high yielding rice variety). In addition, PCARRD has prepared a state-of-the-art series which integrates information on local technological innovations for selected commodities compiled in one publication. Already published are states-of-the-art for agroforestry and watershed management.

Labor-based equipment assisted road construction method (RRDP UA) -- An intermediate technology useful for road improvements and trail construction on hinterland areas that rely more on community labor than heavy equipment. Project cost under this method is 10% lower than equipment-based construction. It generates about 2000 man/days of employment per kilometer. At an average of 4 km per project, one project would normally generate P300,000 income for a local community.

<u>Project lessons for future project designs</u>

Saving the Forests through People Empowerment (Video Tape RRDP NR) -- A documentation of the experience of the DENR and the NGO community in the design and implementation of community-based agroforestry proejcts.

It Can be Done (Magazine) -- The RRDP Agriculture Component describes its experience in promoting market based farming systems in the rainfed areas of Bicol, Panay and 20 other microprojects nationwide dealing with livelihood activities ranging from cattle raising in Pampanga to growing sea horses in Sulu.

Success Stories of Farmer-Manager Coconut-based Farming Systems (Booklet RRDP1.) - Case studies on successful enterprises involving coconut farming systems are documented on this 3 volume publication by PCARRD.