DESIGN ASSESSMENT

AMENDED TARGETED WATERSHED MANAGEMENT PROJECT

PROJECT NUMBER 521-0191

submitted to the

United States Agency for International Development/Haiti

Port-au-Prince, Haiti

by

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Acronyms

ADO	Agricultural Development Office
APPAM	Association pour la Protection du Pic Macaya
ARD	Associates in Rural Development
BSP	Biodiversity Support Program
CA	Cooperative Agreement
COSAR	Coopérative St. André de Rendel
DCCH	Développement Communautaire Chrétien d'Haiti
EOPS	End of Project Status Indicators
FAA	Foreign Assistance Act
GEF	Global Environmental Facility
IBRD	The World Bank
ICDP	Integrated Land Use Systems
INAHCA	Institut National Haitian de la Culture et des Arts
IRD	Integrated Rural Development
ISPAN	Institut de Sauvegarde du Patrimoine National
IUCN	International Union for the Conservation of Nature and Natural Resources
LOP	Life of Project
MARNDR	Ministère de l'Agriculture, des Ressources Naturelles et du Developpement Rural
MBR	Macaya Biosphere Reserve
M&E	Monitoring and Evaluation
MOU	Memorandum of Understanding
NRM	Natural Resource Management
ORE	Organization for the Rehabilitation of the Environment
OTS	Organization for Tropical Studies
PACD	Project Assistance Completion Date
PADC	Private Enterprise and Agricultural Development Office
PFS	Pilot Farmer System
PID	Project Identification Document
PLUS	Productive Land Use Systems
PST	Projé Sove Tè
SPI	Strategic Performance Indicators
TAP	Techniciens Agricols Polyvalents
TWM	Targeted Watershed Management
UNICORS	L'Union des Coopératives de la Région Sud d'Haiti
USAID	United States Agency for International Development
WWF	World Wildlife Fund

Inaugurated in 1986, the Targeted Watershed Management Project, hereafter referred to as the TWM project, was conceived by USAID/Haiti to arrest the uncontrolled exploitation and degradation of Pic Macaya and its surrounding watersheds. Located in Haiti's southwestern peninsula, among its accomplishments was the establishment of the Macaya Biosphere Reserve (MBR). USAID suspended its support of the project following a coup d'etat on 30 September 1991.

In the absence of development activities, encroachment into the Park escalated. So as to forestall extensive environmental damage, the Union des Coopératives de la Région Sud d'Haiti (UNICORS) submitted to USAID/Haiti an unsolicited proposal to conduct limited activities in and around Pic Macaya. Under its proposal, UNICORS was to continue operations similar to those it had conducted under the initial TWM project and, in so doing, maintain a presence which would discourage further encroachment. USAID accepted UNICORS' proposal and signed a Cooperative Agreement with the organization on 28 September 1992. In order to strengthen UNICORS' capabilities as an implementor, an OYB transfer, executed in August, 1993, commissioned a centrally-funded activity, the Biodiversity Support Program (BSP), to provide institutional support to the project. In the following text, the joint effort by UNICORS and BSP is referred to as the amended project or, alternatively, the project.

The objective of the amended project is to

(1) extend the activities of the original TWM project by two years (1 October 1992 to 30 September 1994), and
(2) increase the project's authorization from $15,000,000 to a new total of $15,700,000 (USAID, 1992).

This document describes a design assessment of UNICORS' grant activity and of the institutional support it received from BSP. It was carried out between 30 April and 21 May 1994, and included an 8-day field assessment of the amended project, a review of project-related documents, and interviews of project personnel. The assessment evaluated the amended project's achievements according to its

(1) end of project status indicators (EOPS) and design assumptions,
(2) attainment of objectives stated in the Cooperative Agreement with UNICORS and the Memorandum of Understanding with BSP, and
(3) achievements.

UNICORS Achievements

UNICORS' Cooperative Agreement identifies four End of Project Status Indicators (EOPS). These and their situation effective 31 March 1994 include the following (USAID, 1994):[1]

[1]. These and other quantitative output data derive from information provided by UNICORS to USAID and were confirmed to the extent possible. Our visit to the field provided us with no reason to doubt their validity.

1. Indicator: **Increased acres forested** and planted in the Park - at least 600,000 trees planted.

   Accomplished: 479,934 trees have been planted with an 80 percent survival rate. Their area covers approximately 200 hectares, or about the same amount of land lost to encroachment in the interim between the suspension of the TWM project and the inception of this activity.

2. Indicator: **Increase in farmer revenue.**

   Accomplished: Over 21,000 farmers have received revenue from work activities sponsored by the amended project. These have provided an alternative income source and, in so doing, reduced the environmental pressure on the park. More than 55 vegetable gardens were established to provide farm households with an enhanced nutritional profile as well as an income generating alternative.

3. Indicator: 1,100 **farm families reached** with land use management practices.

   Accomplished: Over 500 farm families have received direct technical assistance from the amended project.

4. Indicator: **Environmental education** impact.

   Accomplished: The amended project trained 17 extension agents in techniques to better disseminate messages on park protection. The BSP representive in Haiti has assisted UNICORS staff to conduct 42 meetings with farmer groups. A total of 1,681 residents of the project area (1,025 males and 656 females) have benefited from project extension.

To further expand upon its EOPS, UNICORS has implemented a number of additional actions. These include

- collaboration with a Haitian private firm, Turbo Systems, to design and implement a plan to monitor and evaluate its activities and performance indicators;

- publication in a Haitian newspaper, as part of a national awareness program, a page-long article which describes UNICORS' activities on Pic Macaya; and

- participation, on 18 January 1994, in an information sharing session between USAID/Haiti's Private Enterprise and Agricultural Development Office (PADO) and the Ministère de l'Agriculture, des Ressources Naturelles et du Developpement Rural (MARNDR). The Ministry observed that UNICORS' work was consistent with its priorities.

The following table summarizes the project's major outputs between its inception in 1992 and 31 March 1994:

Table 1. Project accomplishments

Activity		Planned	Accomplished	% of LOP
1. **Park protection**				
Tree production, (000)		800	966	121
Tree planting, (000)		600	479	80
Ravine control, (km)		12	4.5	38
Check dams		200	434	217
2. **Income enhancement**				
Vegetable gardens		90	71	79
Forage multiplication plots		3	1	33
Forage pastures, (ha)		40	25	62
Cash crop demo. plots		16	25	156
Job creation, (000)	M	16	9	56
	F	11	12	109
3. **Training**				
Field agent training sessions		9	6	67
Number field agents trained,	M	15	15	100
	F	2	2	100
Number farm families trained		1100	503	46
Staff training, Sr and Jr,	M	1	0	0
	F	0	0	0

Source: USAID, 1994.

Notwithstanding UNICORS' achievements, there are areas in which its performance could be improved. Its institutional development is weak and, despite recent adjustments, remains in need of further change. In particular, UNICORS' inability to foresee its financial requirements has hindered its recovery of its expenditures, delayed its implementation of project activities, introduced financial stress into its operations, and delayed payments to staff as well as to project participants. Recent changes within UNICORS' administrative structure will lessen but not totally resolve its problem: further adjustments are required. These should take the form of replacing its project committee by a single project administrator; hiring a part-time project facilitator to work in Port-au-Prince; relocating its project center from Chardonières to Les Cayes; increasing the number of its technical staff; and improving the quantity, quality and maintenance of its vehicles.

Adjustments of UNICORS' project outputs are also important. Its over-reliance on check dams to control gully erosion, particularly on steep, unstable slopes, is not responding to the cause of the problem: prolonged misuse of geologically sensitive lands. Reforestation, biological erosion controls such as clayonnage, and controled land use are probably adequate in the cases viewed during this assessment. This is not to say that erosion control structures are not required, but that their location has to take into account the causes of soil erosion, not just its symptoms.

UNICORS' forest nursery operations, while adequate in terms of their output, do not conform to standard practice. While their reliance upon

transplanted natural regeneration of *Pinus occidentalis* contributed to a quick startup of project activities, a gradual shift to the production of seedlings from seed would now be appropriate. To fulfil this objective, this assessment recommends that UNICORS' nurseries be reviewed by a forester experienced in the reproduction of *P. occidentalis*, and that the organization receive guidance to improve its forest seedling production.

UNICORS has been overly rigorous in its desire to preserve the biological integrity of the amended project area, particularly of its buffer zone. While this is commendable, we need also remember the nutritional, fuelwood, and construction wood requirements of the resident population. Meeting these requirements may require, in some cases, that non-indigenous, fast growing species be brought into the area.

Biodiversity Support Program Achievements

In November, 1993, USAID/Haiti, in support its activities implemented by the amended project, initiated a buy-in to the Biodiversity Support Program, a USAID-funded consortium of the World Wildlife Fund, The Nature Conservancy and the World Resources Institute. While its Memorandum of Understanding with USAID covers activities until 1996, BSP's work with UNICORS will conclude on 30 September 1994. BSP's purpose in the amended project is to

(1) strengthen UNICORS staff in the disciplines of ecology and natural resources management, and
(2) increase the awareness of international donors of the Park Macaya Project.

In so doing, BSP has successfully initiated a process of strengthening UNICORS' institutional capability. Some of its accomplishments include

- the hiring of Mr. Joseph Toussaint to assist UNICORS with natural resources management and community participation;
- the preparation of a training needs assessment and, from this, the development of training courses for UNICORS staff; and
- the arranging of a training course for senior staff in buffer zone management. The course will be held in Costa Rica, and will include field visits to numerous conservation and development projects. Project participants include Mr. Toussaint, BSP; Agronome Levelt, UNICORS; and a representative of MARNDR.

While BSP had originally planned to focus on assisting UNICORS to manage the park's natural resources, its experience has shown the need of additional help in community participation. Its resulting strategy is to conduct, in collaboration with UNICORS, an assessment of community needs. From the knowledge the two organizations gain of community requirements, they will then develop an action plan for the development of the park periphery. This plan would describe traditional community institutions, identify their needs, and provide a process for UNICORS (and other NGOs) to negotiate and implement community development initiatives.

BSP may require assistance and coordination at a high level in order to fulfil its task of increasing donor awareness of Pic Macaya. An expression of interest by The World Bank, for example, has been officially

withdrawn. Southwestern Haiti, the amended project area, is viewed by many as a zone of American interest: expressions of awareness by non-USAID contributors may require the coordination of developmental policies and methods among the different participants.

Should the amended project continue?

UNICORS has reached most of its objectives. Its activities are benefiting the environment and the rural communities. Project closure could reverse these gains.

The project is at the lead of biodiversity protection in a stressed environment. By working directly with the resident population and improving the capacity of individuals to better their socio-economic condition, the amended project proposes to set a model which can, with time, be replicated throughout much of Haiti. Its underlying process requires that communities in the park periphery benefit from the park's natural environment. It means that the agriculture, pastoralism, and forestry practiced by these individuals must improve in ways that compensate for the benefits that individuals formerly derived from exploitation of the park itself.

The preceding pages show that UNICORS has reached most of its objectives, that the organization has provided results that benefit the area and its people, and that the amended project has the potential to provide a continuing stream of long-term benefits. In gaging the potential of the amended project for extension, several additional factors require consideration:

- What would happen to the area and its population were the amended project to close?
- What repercussions would occur to USAID as a result of a decision to halt its support?
- What institutional impacts would occur, to NGOs and the Haitian government, from a decision to close the amended project?

The amended project has achieved a lull in the encroachments which threatened the stability of the park. Were the amended project to close - its Project Assistance Closing Date (PACD) is 30 September 1994 - the area would likely revert to its situation prior to the inception of UNICORS' activities: the park would degrade as a result of exploitation for agriculture, forestry, and grazing. This is not to say that the amended project is unsustainable, but that it has not yet had sufficient opportunity to become firmly entrenched in the minds of the people. Also, not all of the park periphery is being addressed by UNICORS: many gaps occur between and beyond the areas where it has concentrated its efforts.

The repercussions of a project closure or suspension would not be restricted to the park area and its immediate environs, but would extend downstream through a degradation of the hydrologic network which services the Plaine de Cayes. While the irrigation offtake on the Grande Ravine de Sud is approaching a state of irreversible damage, that of the Acul at Dubreil is not. Were degradation to continue, both systems would risk becoming almost totally unuseable within the next ten years. Their loss would create reduced agricultural production and employment opportunities.

Outmigration from the area would likely increase if the project is not continued. This could cause an exodus of people from such areas as Formond, Cavaillon, and Trois-Sources; much of it would be to Port-au-Prince. This pattern has historical roots, and is that followed by farmers from the vetiver zone near Cayes who departed once their fields became barren through over-exploitation. It would also be followed by farmers from the irrigated plains once they were no longer able to rely upon a dependable water supply.

Were the amended project to cease, the repercussions to USAID could involve a loss of confidence in the Agency, by NGOs as well as by the Haitian government. By stopping its support of the TWM project, the Agency has already inadvertently affected the careers of many people, particularly those who had vacated established posts in government to participate in a cause in which they believed. To once again stop this effort would signal confusion and an absence of suitable targets.

The institutional impact of a cessation of activities would adversely affect one of the area's oldest cooperatives, UNICORS. UNICORS has provided the talent and energies of its staff and members to the amended project. While UNICORS has experienced institutional difficulties in the pursuit of its project goals, it has readjusted its administrative structure in an effort to accommodate project requirements and facilitate its communications to USAID. A withdrawal by USAID now would add a sense of futility to the process it has followed to strengthen its organization.

The impact of a cessation of the amended project to the Haitian government would be one of confusion. While the park resulted from a Presidential decree announced in 1983, much of the stimulus for its actual founding was a consequence of USAID financial support provided during the mid-1980s: the current boundary survey was supported by PL-480 funds during the late 1980s; USAID also financed much of the considerable work accomplished by the University of Florida. Cessation of USAID's financial support of park protection would leave a vacuum which Haiti would view as inconsistent with the Agency's stated interest to protect the environment.

Recommendations

UNICORS' present cooperative agreement should be extended for two years. In so doing, changes are required to its institutional structure, its objectives, and the way it carries out its tasks.

With the preceding considerations in mind, the assessment team believes it appropriate for the Mission to amend its Cooperative Agreement with UNICORS to support an extension of project activities through June, 1996. The project should continue with UNICORS because of the organization's more than 20 years of experience in the project area. As the project expands beyond UNICORS' established zone of activity, however, the Mission may wish to open its support to additional NGOs.

Beyond the goals and purposes already stated by the project logical framework (Annex A), the amended project should have the following among its objectives:

- To unite the two UNICORS operations at Formond and Trois Sources and to further extend them to Ducis so that they become a single band of activities.

- To gather the kinds of information that will facilitate the design of a further project extension after 1996. The project requires information about the characteristics of the rural community, its agricultural and livestock systems, its socio-economic requirements, and how these requirements have been changed by the park.

- To improve the quality of agronomic extension to the resident population and to measure its impacts and spread effect. From a design standpoint, the project needs to know the production functions of different land management alternatives and how these vary according to land type. Similarly, it needs to know farmer gross margins for different combinations of crops and management systems. Monitoring and evaluation, because of its scale and importance, should become a distinct activity with its own set of objectives.

In order to obtain this information and better meet its expectations, UNICORS should undertake the following obligations:

- To improve the standard of land husbandry practiced by its member cooperative, COSAR, on its land that lies within the park buffer zone. Its land that actually lies within the park's core zone should be held in reserve for eventual transfer to or purchase by the state.

- To improve its capacity to measure farm outputs and to manage the resulting data.

- To improve its managerial capacity by hiring a full time project administrator and a part time facilitator. To improve its transport efficiencies it should also hire a full time mechanic. To support its expansion, additional technical staff are required. These include at least 1 agronomist, 1 technicien agricol, 2 TAPS, 1 animateur, and 1 forest nursery person.

- To improve its communications with USAID and, in so doing, prevent irritations from become unsurmountable problems.

- To relocate its present office at Cayes to a more suitable building, and provide it with dependable electricity and water.

- To retire its present fleet of vehicles and purchase a new one.

Erosion control should rely less on check dams and more on biological systems. This could include the use of such techniques as controlled grazing, reforestation, restricted land clearing, and improved agricultural systems.

While labour-intensive activities are currently attractive to the project, other income-generating means are also essential if the park is to become sustainably protected from encroachment. UNICORS will need to

improve its knowledge of both forestry and pasture management, however, if these activities are to become effective. Additional overseas training to UNICORS staff in these activities would probably be less effective than employing competent consultants capable of providing staff with hands-on practice. The following Table lists suggested outputs for an extension of the current amended project:

Table 2. Proposed outputs: amended project

Activity	1995	1996	Total
Park protection			
Tree production	1,000,000	500,000	1,500,000
Tree plantation	500,000	700,000	1,200,000
Trail improvement, ..., km	12	5	17
M&E, %	10	10	10
Jobs created	18,000	17,000	35,000
Income production enhancement			
Vegetable gardens	60	40	100
Traditional crops improvement	1	1	2
Cattle improvement	2	1	3
Pasture development, ha	20	20	40
Cash crop plots	20	20	40
Forage hedgerows	30	20	50
Milk processing	0	1	1
Women village bank, accounts	20	10	30
M&E, %	10	10	10
Training and awareness			
No. families trained	600	600	1200
Field agent training	6	4	10
Sr & jr staff training	7	5	12
Articles published	3	3	6
Broadcasting	24	24	48

Source: UNICORS consultations

Assistance is required to better define and manage the boundaries of the park.

The boundaries of the park are not yet marked for much of its periphery. Their ambiguity creates confusion and misunderstanding; trespass is poorly defined and open to judicial abuse. The jurisdiction of military guards to enforce the boundaries is questionable: the military was not identified by the decree of 1983 which created the park. At the time of this writing, the Ministère de l'Agriculture, des Ressources Naturelles et du Developpement Rural (MARNDR) is institutionally too weak to fulfil its park management responsibilities.

High-level assistance will likely prove essential to increasing the awareness of additional donors of the park.

Because the location of the park corresponds to USAID's geographical interests in Haiti, it may prove difficult to identify additional bilateral support for its financing. The World Bank's recent decision to withdraw a

proposed $27 million development and environmental project is a serious development which makes the park even more dependent upon continued USAID support. It is unlikely that BSP or UNICORS, acting on their own, will be able to identify the magnitude of financing required to stabilize the economy of the park periphery and also manage the park. While the present atmospher of embargo is not conducive to long-term financial planning in Haiti, the time will eventually come when assistance is required to coordinate and mobilize the rebuilding of the country's environmental resources. Coordination between donors will help identify appropriate targets, which should include Pic Macaya and its environs.

1. INTRODUCTION

This document provides a design assessment of activities carried out by l'Union des Coopératives de la Région Sud d'Haiti (UNICORS), working in collaboration with the Biodiversity Support Program (BSP), to protect Pic Macaya National Park in southwestern Haiti (Figure 1). Hereafter referred to as the amended project, it is an amendment to the Targeted Watershed Management Project (TWM, Project Number 521-0191), which operated from 1986 until the military coup on 30 September 1991. The TWM provided technical assistance, improved plant materials, financial support, material goods, and services to a consortium of NGOs, the University of Florida, and a USA-based consulting firm working in southwestern Haiti. By improving the environmental condition of critical watersheds, the TWM sought to improve the sustainability of upland agriculture, improve the economic well being of participating farmers, and protect the habitat and biodiversity of the Project area and Pic Macaya. In so doing the Project amplified USAID/Haiti's strategic objective of promoting sustainable, private, sector-led economic growth; it was also supportive of the Agency's strategy of protecting the environment.

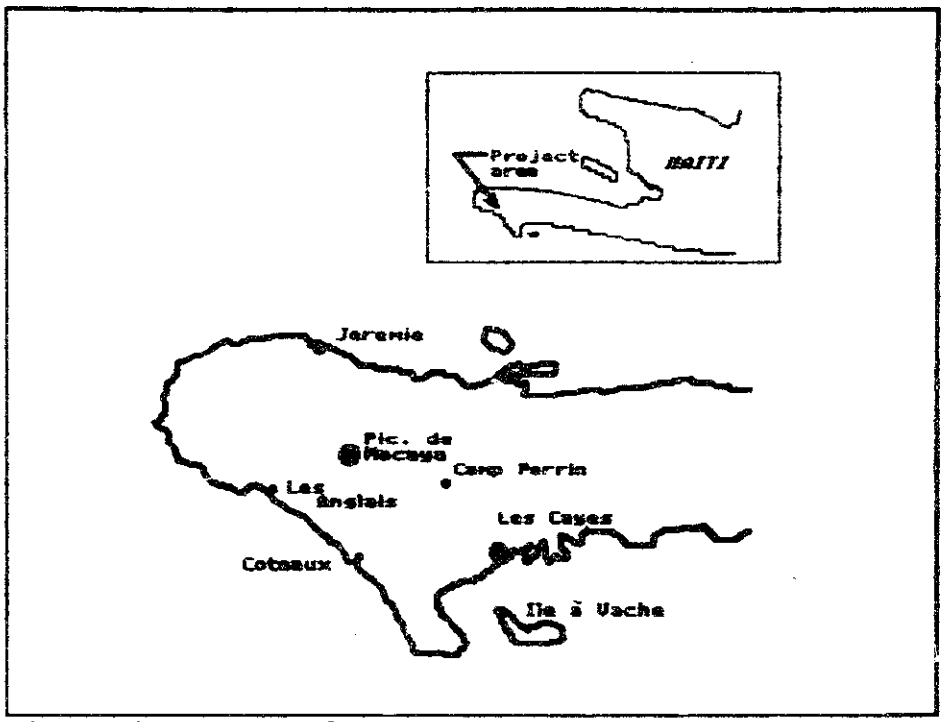

Figure 1. Project location.

The TWM's activities were suspended following the military coup of 30 September 1991; a grant to the University of Florida to provide technical assistance to farmers expired in May 1992. This left farmers in the park area without technical support and exposed the park to encroachment. A government decree promising the distribution of state land to farmers encouraged land clearing and exploitation (Paryski, 1991). In an effort to protect Pic Macaya and its adjoining upland watersheds, UNICORS submitted an unsolicited proposal to USAID requesting it support activities to protect the core and buffer zones of the park. USAID accepted UNICORS' proposal and signed a Cooperative Agreement (CA) on 28 September 1992. In order to strengthen UNICORS' capabilities as an implementor, an OYB transfer was executed in August 1993 to support a complementary, centrally-funded activity, the Biodiversity Support Program (BSP).

At the time of this assessment UNICORS, working in collaboration with BSP, has received USAID/Haiti financial support for more than one year. This assessment reviews the appropriateness and performance of their work

and makes conclusions and recommendations about further activities in the Pic Macaya area (see terms of reference, Annex C). The original budget authorization for the TWM was $US 15,000,000; it was subsequently amended to $US 15,700,000 in support of UNICORS/BSP's activities.

2. EVALUATION BACKGROUND

Slash and burn agriculture and unregulated tree harvesting are causing ecological damage to Park Macaya's watershed and its natural habitats, the last remaining rain forest in Haiti. The amended project aims to mitigate the degradation of the natural resources base in and around the park.

UNICORS received authorization of its budget on 31 August 1992; funds were obligated on 23 September 1992. The Project Assistance Completion Date (PACD) is 30 September 1994 or about 4 months following this assessment (USAID, 1994). The objective of the assessment is to appraise and report on amended project achievements against end of project status (EOPS) indicators, design components and assumptions, and the specific objectives in the Cooperative Agreement (CA) with UNICORS and the Memorandum of Understanding (MOU) with BSP. This information will assist Mission management to decide whether to extend the amended project, fold the activities of TWM into an agriculture sector assistance project, or allow it to end in September 1994.

3. TEAM COMPOSITION AND STUDY METHODS

The assessment team comprises two members: Curtis Paskett, a consultant in soil and water resource planning; and Greg Booth, a natural resources management consultant. Mr. Paskett, the team leader, started his career in 1964 in Algeria where he worked as a forester on a USAID-sponsored land rehabilitation project. Since then he has worked in about 25 countries, most of them in Africa. His experience in Haiti dates from 1979 and includes assignments sponsored by the Inter-American Development Bank, the FAO, and USAID; the total duration of his previous work in Haiti is approximately 5 years. His most recent experience as a project evaluator for USAID was during 1993 when, as leader of a 5-member team, he helped assess Zimbabwe's CAMPFIRE Project. Mr. Greg Booth is the evaluation team's biosphere reserve expert. He has over fifteen years of experience in managing rural development, forest management, and land-use planning activities in over a dozen countries in Africa. Mr. Booth has successfully implemented strategies for conservation and development activities and has experience in the design, management and impact monitoring of USAID natural resources management programs.

The duration of assessment activities was three weeks. The team arrived in Haiti on 30 April 1994 and departed 21 May. During this time it reviewed documents related to the Project (Annex C) and interviewed individuals concerned with its management (Annex B). On 4 May the team departed Port-au-Prince for Formond where it reviewed UNICORS' achievements for 3 days; it then travelled to Camp Perrin where it interviewed Dr. M. Oriol and ORE; on 9 May it travelled to Chardonnière and Rivière Trois Sources where it interviewed UNICORS implementors; on 11 May it interviewed staff of the Ministèrer de l'Agriculture, des Ressources Naturelles et du Developpement Rural (MARNDR) in Cayes prior to returning to Port-au-Prince. On 13 Friday it interviewed staff from Turbo Support, a local firm engaged to monitor and evaluate work

completed by UNICORS as well as by other USAID-sponsored implementors working in Haiti; it also held meetings with USAID's Private Enterprise and Agricultural Development Office (PADO) and the Mission Director. During the remainder of its time in Haiti the team reviewed documents and wrote this paper.

4. PROJECT OVERVIEW: ITS HISTORICAL, ENVIRONMENTAL, ECONOMIC AND SOCIAL CONTEXT

The amended project is intimately related to Pic Macaya National Park and its surrounding watersheds. Interest in the area commenced in the 1960s with visits by Felix Lowenstein, a prominent environmentalist. On 23 June 1983 the President of Haiti announced a decree which established Pic Macaya as a national park to be administered by the MARNDR and the Institut National Haitian de la Culture et des Arts (INAHCA). Its area was 2,000 ha (Woods, 1986). While, *de jure*, the park's area remains that specified by Presidential decree, its *de facto* area is subject to interpretation: more than 7,500 ha according to the University of Florida (Sergile, Woods, and Paryski, 1992), and about 7,500 ha according to Oriol (1992). In the course of this survey the local community expressed its confusion about the location of the core and buffer zones of the park and the policies which govern their use.

Despite its environmental stature in a country known for its degradation, the park remains threatened by habitat loss. M. Oriol (1992) observed that ambvtiguity in the role between the University of Florida and its Haitian counterpart organizations, underestimation of the human factors of ecological degradation and conservation, and conflict resulting from the absence of clearly understood park boundaries are continuing causes of conflict between park managers and land users.

The challenge to USAID and its collaborators is to strengthen the park's underpinnings so as to reverse the causes - faulty land tenure, unmet household financial and nutritional requirements, government institutions unable to fulfil their mandate, ... - of its continued degradation. In part, USAID's future activities in the short term should be framed so as to answer questions about inputs to an expanded program, particularly those which center on meeting the requirements of communities and individuals living in proximity to the park. Based on these data, the design of an expanded project should then be assessed for its worthiness by subjecting it to a rigorous analysis of its costs and benefits.

4.1 PROJECT OVERVIEW AND HISTORICAL CONTEXT

The Targeted Watershed Management Project was authorized on 3 September 1986 with a Life of Project (LOP) funding of $US 15,000,000 and a PACD of 30 September 1992. Designed to arrest environmental degradation in southwestern Haiti, its specific purpose was to extend soil-conserving and fertility-augmenting land management practices in the watersheds which make up Pic Macaya and its surrounding landscape in order to increase farmer income, and to apply lessons learned to national land management planning.

The original Project comprised two components: *Projé Sove Tè* (PST) and the Macaya Biosphere Reserve (MBR). PST was implemented by four primary grantees:

(1) Développement Communautaire Chrétien d'Haiti (DCCH),
(2) Integrated Rural Development (IRD),
(3) Organization for the Rehabilitation of the Environment (ORE), and
(4) Union des Cooperatives de la Région du Sud (UNICORS).

Under contract with the Mission, a US firm, Associates in Rural Development (ARD), based in Burlington, Vermont, operated as an umbrella agency to provide technical and administrative support to the PST implementors.

The University of Florida (UF) was responsible for the implementation of the Macaya Biosphere Reserve (MBR), whose aim was to protect and rehabilitate the natural ecosystems, biological diversity, and natural resources of the Parc Macaya and its surrounding areas. The MBR included research and rehabilitation activities in the core zone of the park, as well as the provision of technical assistance to 1,750 farm families living in the park's periphery. Although the PACD is 30 September 1992, all the CAs had an estimated completion date of 31 March 1992.

The military coup of 30 September 1991 triggered the suspension of all project activities under Section 513 of the Foreign Assistance Appropriations Act of 1991. In January, 1992, the USAID Agricultural Development office (ADO) determined that several activities needed to be reactivated in order to avoid losing the benefit of assistance already provided. On 11 February 1992, the Mission Director authorized the completion of the Integrated Rural Development (IRD) veterinary program and the extension of the Organization for the Rehabilitation of the Environment (ORE) grant to 31 May 1992, under Section 617 of the Foreign Assistance Act (FAA). Shortly thereafter, ORE submitted to the Mission a proposal for seed production and multiplication. After a preliminary review of the proposal, the Mission determined that the seed production and multiplication activity was relevant to the Mission's post-coup humanitarian program. Therefore, the ORE grant was reactivated under the authority of Section 123 (3) of the FAA. After a formal review of the proposal, the Mission decided to support the first phase of the program through the current PACD of TWM, 30 September 1992, by amending ORE's CA.

On 20 April 1992, the Mission Director authorized, under Section 617 of the FAA, the wind-up of activities of three grantees (IRD, UNICORS, and UF) through 31 May 1992. Wind-up activities for Développement Communautaire Chrétien d'Haiti (DCCH) were not deemed necessary, as USAID-funded resources were not at risk. In May 1992 the CAs for DCCH, IRD, and UNICORS were further extended to 30 September 1992 to accommodate final audits.

The USAID grant to the UF for the establishment of the Macaya Biosphere Reserve terminated, as scheduled, on 31 May 1992; the CAs of DCCH, IRD and UNICORS ended later for audit purposes; that of ORE continued to cover the first phase of its Seed Production and Multiplication Program, which then was renewed as a separate project due to the importance of its scale of production.

The amended project addresses the environment of Pic Macaya National Park through an array of socio-economic, technical, material, and financial inputs.

- Its **goal** is to arrest the process of environmental degradation in Southwest Haiti;

- its **sub-goal** is to provide continued support for the preservation of Parc Macaya as the last natural rain forest in Haiti.

- The Project's **purpose** is to extend soil conservation and fertility-augmenting land management practices in the Pic Macaya watersheds and to apply lessons learned from these field interventions to national-level hillside management planning;

- its **sub-purpose** is to instill better land-use practices by the farmers of the Parc Macaya buffer zone, in order to reduce ecological pressure on the park (USAID, 1992).

Elements of the amended project include

- tree planting,
- gully control,
- improved upland agriculture,
- training, and
- items relating to project administration and finance (USAID, 1992).

Table 4.1 summarizes the amended project's financial data (USAID, 1994):

Table 4.1. Project financial data as of 31 March 1994

Amount authorized: DA/ESF Grant: original		$15,000,000	Amended to $15,700,000
Amount obligated: DA/ESF Grant: original		$ 1,500,000	Amended to $14,496,491
Amount committed:	Period:	$ 27,007	
	Cumulative:	$14,523,498	
Accrued expenditures:	Period - Projected:	$ 144,613	
	Period - Actual:	$ 228,498	
	Cumulative:	$14,027,435	
	Period - Next:	$ 130,000	
	Pipeline as of 3/31/94:	$ 496,063	
Counterpart Contribution:	Planned:	$ N/A	
	Actual:	$ N/A	

% LOP elapsed:	94 %
% of Total Authorized Obligations:	92 %
% of Total Obligated Expenditures:	96 %
% of Total Authorized Expenditures:	89 %

Source: USAID, 1994.

4.2 ENVIRONMENTAL AND SOCIO-ECONOMIC CONTEXT

This section describes the elements which influence the underlying concept of a park at Pic Macaya and of the role of the amended project in its preservation. Its intent is to give dimension to aspects which affect, in varying degrees, the outcome of USAID's current investment.

4.2.1 Geography and land use

The physical geography of the park area and its environs is made up of steep land interspersed by occasional small valleys, mid-elevation plateaux, and summits (Fig 2). Two primary rock types, basalt and limestone, as well as their metamorphic variants, contribute to the diversity of the landscape. Summits formed from basalt are often sharp crested and unsuitable for agriculture; those from limestone are generally rounded and often farmed to such crops as tubers and beans. Because slopes are steep they are also geologically sensitive and, if misused, prone to different forms of surficial erosion and landslides. On basaltic soils these landslides are often shallow dislocations of the surface; on calcic soils they tend to be more deeply seated and may involve a rotational movement of the soil mass. Ruciform limestone, the remnant of ancient reefs, occupies much of the surface surrounding the plateau of Formond and helps to resist some forms of deep-seated soil movement. Figure 2 shows that little land is available for sustainable agriculture save for lowland plains, narrow mountain valleys, and mid-elevation plateaux[2]. The underlying cause of poor land suitability is soil erosion, itself a phenomenon with many underlying causes.

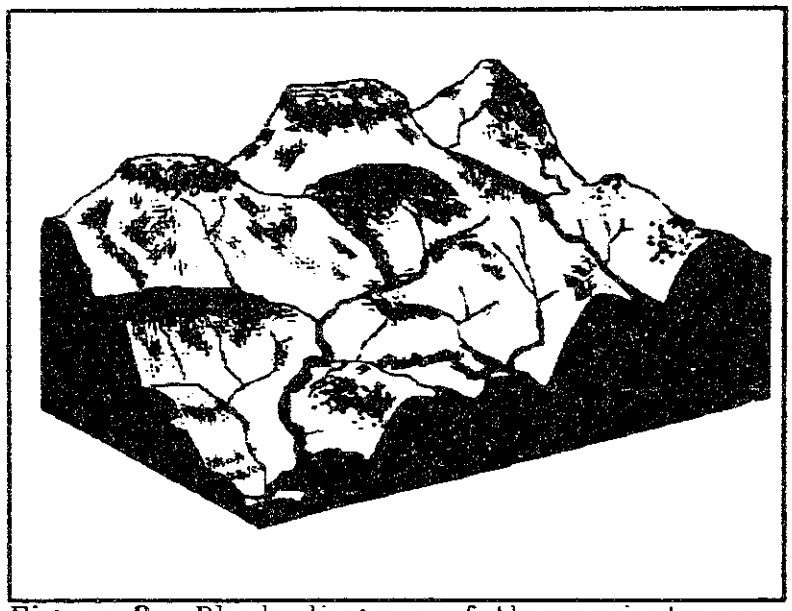

Figure 2. Block diagram of the project area.

The climate of the amended project area reflects a wide range of altitudes and its effects upon moisture. The coastline is droughty whereas the uplands are humid and cool. Neither extreme is good for agriculture, though lowland drought can be remedied by irrigation. The uplands and mid-elevation plateaux receive less insolation and are cooler than lower lying lands, so that crops require longer times to reach maturity. Beans, for example, need 3½-4 months to reach maturity rather than the more usual 3. This is not to say that some crops are better adapted to the highlands than to the plains and low hills.

Runoff reflects both the nature of the storm and the surface upon which the rain falls. Four major rivers - the Port-à-Piment, Grande Ravine de Sud, Rivière des Roseaux, and Rivière l'Acul - as well as a collection of minor ones, drain Pic Macaya in a radial pattern like the spokes of a wheel. Rivières l'Acul and the Grande Ravine de Sud have irrigation takeoffs which service the canal system of the Plain de Cayes, and thus are important to the area's food production. It is a mistake to credit the totality of the region's water resources to Pic Macaya, however. Rainfall much less than that received directly by the park is also important. Indeed, rainfall integrated over both time and space is essential to runoff. Because the surface area below the amended project is much larger than that of the

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2. While about 47 percent of Haiti is farmed, only about 11 percent of the country is considered arable.

Park itself, it likely provides equally important quantities of runoff despite its lower rainfall.

Storm type is linked to water quality. Despite the presence of forests, runoff is likely to be torrential during tropical storms and hurricanes. Hurricane Gilbert did much damage to the Project area during the late 1980s, despite the presence of trees; hurricane Cleo, much earlier, severely damaged much of Haiti and gave a jump start to its charcoal industry. Heavy storms on unprotected land are instrumental in triggering the erosion which has buried important irrigation offtakes under tons of cobbles and boulders. Offtakes such as those at the Grande Ravine de Sud are now destroyed and require major hydraulic engineering for their rehabilitation. Their current state is such that it is an inaccuracy for the Project to credit improved runoff to the Grande Ravine de Sud irrigation system as a Project benefit: the water cannot be used, even if there were more to be had, because the offtake is malfunctioning. It can become worse, but the bulk of the damage has already been done.

4.2.2 Social structure and economy

Surprisingly little is known about the lives of the inhabitants of the Project area. The team understands a sondeo was conducted by the University of Florida; Dr. M. Oriol, a sociologist resident in Camp Perrin, has also worked in the Project area. Their reports were unavailable to this assessment, but would have obvious importance to a project redesign effort. In our meetings with peasant associations in Formond and Rivière Trois Sources, it is evident that there are different categories of households resident in the amended project area, each with its own set of priorities. It is the understanding of these priorities that provides one of the keys to a successful project.

Regardless of its stature within the community, each family has been affected by the establishment of the Park. Many of these effects have been distorted by the embargo, now effective for about two years, but it seems that most families have both benefited and suffered. Because we do not have a statistical profile - age, population, sex - we really have no idea of the effect of the park on nutrition. Certainly beans, proscribed in the park since the presence of the UF, now appear to play a much reduced part in the local diet; monetarily, one resident reported his living had been reduced 60 percent.

In a meeting between the Conseil Communautaire de Formond and the assessment team, a group leader reported that local residents were getting used to the idea of a Park. This was due principally to the remunerative employment they had received from UNICORS and, previously, the UF. Weaknesses in the compensatory value of employment as against their former use of lands in the Park area are a source of complaint, and comprise such matters as delays in payment for their labour, and arrests and fines for trespass. The community expressed some of its immediate needs as follows:

. A reduced diet based mainly on root crops has less than 1/3 the energy value, 1/3 to 1/2 the carbohydrates, and 1/10 to 1/20 the protein content of beans. The amended project does not know the extent to which other crops and meat have replaced the protein and energy obtained from beans in the diet of Park residents.

- schools for its children (USAID is to begin financing the construction of a school in Formond),

- clarification of ambiguities in the park boundaries and the land use policies engendered by them,

- right of access to an important spring which now lies within the park, and

- permission to use land suitable for agriculture (the buffer zone occupies portions of nearly level land, parts of which are now excluded to agriculture).

As noted in a preceding section, the park has many different types of land and agro-climates. Until recently the inhabitants of the area have been able to exploit these different land qualities in order to provide a range of crops. The TWM project proposed change to this system by excluding some areas from use, and by improving the land use systems of other areas - a compensatory exchange of land use method for land area.

At this state of the amended project it is impossible to identify from measurements the actual benefits of the techniques recommended by the amended project. Most of the production curves that exist at this time derive from assumptions, not measurements; those that have been measured come from outside the amended project area, not from within. Individual farmers, however, will keep a keen eye towards the relative worth of their investment in time and labor. Eventual project redesign with a view towards expansion would benefit from the use of measurements, not assumptions, wherever possible. The assessment recommends, for this reason, that UNICORS collect data about the worthiness of the different technologies it promulgates. To reduce its burdon, the amended project should exploit auto-monitoring by resident farmers as much as possible.

4.2.3 Land ownership

Contrary to common belief at the time the state attempted to establish boundaries to the Park, not all the land essential to the core and buffer zones belonged to the state. Indeed, one of the largest private land owners in the Park is the Coopérative St. André de Rendel (COSAR), a member cooperative of UNICORS, which purchased land prior to the 1983 decree and which occupies 644.5 ha within the core zone, reaching almost to the summit of Pic Formond (Oriol, 1992). COSAR's stewardship of its land has been questioned, and this writer can remember observing steep land being cleared for beans in the late 1980s. Primarily a coffee cooperative, its marketing has been severely damaged by the embargo so that, with help from UNICORS, it is seeking to diversify its use of the land.

Virtually every resident of the Park environs has benefited from its soil and forest resources; individuals as far as Rendel and Camp Perrin have made visits to harvest timber. The team met one former resident of Jérémie who has moved to Pic Macaya to enter into farming in an attempt to recover from payments he made along the north coast for the use of state land. At Trois Sources the team inquired of a meeting of about 100 farmers the number who continued to use the Park for agriculture, pasture, and tree cutting: about 5 raised their hands although we were told that it should have been higher.

While the majority of farmers apparently own land, a large percentage rent, lease, or sharecrop land while leasing out some their own land to others. The status of land titles is very unclear. When attempts have been made to precisely determine ownership, it has been found that between 30-68 percent of farmers in the areas studied claimed to have titles. The validity of these, however, was frequently questionable.

The tenure status of Haitian land is complicated by

(1) the existence of several types of land tenure,
(2) the uncertainty of tenure and status of much of the land,
(3) the uncertainty as to the amount and geographical location of state-owned lands, and
(4) the tenancy status of farmers occupying this land.

The absence of cadastral survey is a further complication. The unclear legal status of land ownership results in title insecurity, which adversely impacts on investment in land improvement, use of inputs, and the application of conservation practices (USAID, 1985).

4.2.4 Political situation

The decade or so lasting from project design to this assessment has been trying for Haiti. Members of ARD's team were residents of hotels in Port-au-Prince for long periods while civil unrest disturbed the countryside; more recently armed individuals were reportedly occupying the post-independence fort at Formond. Even such a benign matter as the establishment of a national park is likely to encounter difficulties that will affect its flow of inputs and outputs.

This analysis would be incomplete were it not to mention some of the effects of the embargo, in place for nearly two years, upon the project area. Transport, of crops as well as of people, is severely disrupted. Where once long lines of buses and trucks caused dust to rise high in the air, at best the markets now receive very few (we saw two small buses at one market where previously there would be 10-12. The cost of bringing produce to market is too expensive for many of the crops grown in far away places like Formond and Trois Sources. Agriculture has changed: easily perishable produce has given way to hardy crops; once well maintained coffee stands are degraded and expensive micro-nutrient fertilizers are no longer applied; farmers, unable to market much of their produce, are maintaining irrigation canals to a much reduced standard. Individuals known by this writer in years past are now much thinner. Farmers at one meeting reported that delayed wages meant they may lack the strength to do the work asked of them.

4.2.5 USAID, its context and role

USAID/Haiti's Private Enterprise and Agricultural Development Office (PADO) is responsible for formulating and implementing strategies for the Mission's program in agricultural, natural resource and private enterprise sectors. It aims to increase food production, income and trade, investment and employment and to diversify agriculture to reach new markets. Its project and policy activities seek to

(1) create and reinforce economic incentives for sound ecological management of the country's natural resources base;
(2) promote investment, access to credit and expansion of agribusiness and trade through diversification; and
(3) increase rural incomes, food security and agricultural productivity.

The amended project fits well within PADO's goals and presents an opportunity for it to integrate biodiversity and tropical forest management into its economic development portfolio (USAID, 1994).

Due to its evolution within USAID as items of special U.S. Congressional interest, biodiversity and tropical forest activities were originally seen as being different from the Agency's primary development effort: they were rarely designed and evaluated according to the same analytical rigor as were other economic development activities. While still a relatively new and experimental activity, USAID is now attempting to integrate biodiversity and tropical forest management more rigorously into its development program. Increasingly, these activities are being required to justify themselves in terms of measurable economic returns on the investment.

USAID/Haiti is likely to consider the design of a new Park Macaya project in 1996. An analysis of the park's costs and benefits are essential to an understanding of its financial and economic sustainability. The following section lists several financial considerations which could form part of an eventual economic analysis.

Cost/Benefit Considerations

Potential Benefits

- Beneficial hydrologic impact from watershed: stabilized water discharge and reduced sediment load. Anderson and Thampapillai (1990) observe:

> "The difficulties of handling downstream externalities ... suggest that upstream ... projects in agricultural areas should be justified primarily on onsite grounds. Offsite benefits should be incorporated only when the assumptions about destination and time profiles for sediment are clear and are appropriately discounted for probabilities of occurrence."

- Nutritional and financial benefits to farmers from project interventions.

- Consistent long-term USAID policy regarding NGO implementors and beneficiaries.

- Behavioral change by farmers – e.g., farmer adoption of sustainable interventions, protection of the park by farmers.

Potential Costs

- Opportunity costs associated with competing development alternatives. Anderson and Thampapillai (op. cit.) note that:

"... investments to improve ecologically sound upland farming should be balanced against increasing employment opportunities in nonfragile areas, lest the push of population growth and the pull of project innovations combine to increase migration into ecologically fragile areas."

- Investment in experimental and unproven development approaches such as buffer zone management.

- Infrastructure and transportation costs associated with activities in a remote mountainous area, e.g., vehicle and road maintenance.

5. ISSUES ADDRESSED BY THE EVALUATION

In conducting this design assessment, the team separated the project into its component issues: (1) conceptual issues, (2) design and implementation issues, (3) organizational and human resource issues, and (4) impact monitoring issues. Project achievements were compared to criteria which expressed their overall adequacy, compliance with recognized standards, and efficiency.

5.1 PROJECT CONCEPTUAL ISSUES

An underlying concept of this assessment is that the park should be auto-protecting, that is that the inhabitants of the region should perceive the benefits they receive from the park outweigh those they might receive from its systematic and unsustainable exploitation. This requires a conceptual linkage between the social and economic benefits for people living outside of the protected area and the behavioral response the project seeks to achieve from those same people to reduce land pressure inside the protected area. The following issues seek to define the effectiveness of these linkages and their impact upon the park.

Issue 1: Conservation Education

The present project design places much emphasis on community awareness of the park. While this may be an appropriate first step, we need remember that the impact of awareness activities - e.g., radio programs, posters - on changing behavior and practices of farmers should be monitored as rigorously as are other project components.

Issue 2: Testing Linkages

Integrated conservation and development projects (ICDP) attempt to provide benefits - income, employment, agricultural technology, health services, education - to rural people who live adjacent to protected areas. In order for the success of an ICDP to be understood, it must ultimately establish a link between the social and economic benefits it provides **outside** a protected area and the behavioral response it seeks to achieve from people **inside** a protected area. In testing this linkage, project staff need to determine the extent of biological changes to the park and its surrounding watershed that results from rural development activities in the buffer zone and its adjacent watersheds.

Issue 3: Park Protection

The assumption is often made that as individuals living adjacent to protected areas become better off from the results of a development project, they will refrain from illegal exploitation of that protected area. According to Brandon and Wells (1992), however, such expectations may be naïve and even invalid. They observe that, in some cases, efforts to strengthen guard patrols and to impose penalties for illegal activities may be justified. Under its current situation, the Ministère de l'Agriculture, des Ressources Naturelles et du Developpement Rural (MARNDR) is institutionally too weak to fulfil its mandate to manage and protect the park; the military, which does undertake the role of park protector, was not identified by the 1983 decree which established the park - it lacks jurisdiction. Strengthening of MARNDR to increase its capacity to operate and manage the park may be essential to the park's ultimate sustainability. By the same token, the Haitian military should vacate the role it appears to have illegally assumed.

Issue 4: Habitat Management

While the park may have important biological assets, its management should be more of its habitat and watershed resources than for its value as a wildlife park. Indeed, its inaccessibility and absence of spectacular wildlife make the park unappealing to most potential tourists. Emphasis should now be placed on buffer zone management: providing rural communities with economic alternatives to replace the slash-and-burn agriculture they formerly practiced.

Issue 5: Park Boundary

The park boundary needs to be physically established in the field. There is a great deal of confusion regarding where the park and buffer zone actually begins and ends. The ambiguity of the present park boundary has led to conflicts among farmers, UNICORS, and the military. Instances of trespass into the park appear to be poorly documented.

Issue 6: Community Surveys

There is little information regarding the social structure of people living near the park area (BSP, 1994). Socio-economic baseline surveys and periodic surveys are needed to

(1) identify the needs of the community - e.g., education, health care - and
(2) measure changes in community behavior and adoption of sustainable practices over time.

Issue 7: Farmer Extension

UNICORS has focused on providing off-farm agricultural and erosion control demonstrations. Its future activities should concentrate more towards on-farm activities such as improving the conditions (education, credit, land reform, health care, conditional project assistance ...) under which farmers adopt new interventions. These conditions should be conditional on the adoption of production technologies that also conserve soil, forest, and pasture resources.

Issue 8: Sustainability of Buffer Zone Management

The amended project is improving agricultural technology in the buffer zone of the park in order to compensate upland farmers their perceived losses which resulted from the closure of the park's core zone to exploitation. At this time many of the benefits of the project's new technologies are unproven under the agro-ecological conditions represented by Pic Macaya. Exceptions include the introduction of improved root crops under the TWM project and which now dominate much of the plateau landscape, the introduction of *Calliandra calothyrus* which provides wood used as supports for yams, and the introduction of other fast-growing species such as Eucalyptus used for construction timber and fuelwood. SECID, working at lower elevations near Jérémie, is demonstrating that the integration of livestock into hedgerow farming systems provides improved financial returns. The Organization for the Rehabilitation of the Environment (ORE), working under the TWM project at mid-elevation farms near Torbeck, demonstrated increased revenues from improved bean and corn seeds, fruit trees, sweet potatoes, hot peppers, forage crops, and animal husbandry (ORE, 1992).

UNICORS is now working hard to introduce new garden crops such as garlic, cabbage, and carrots into the agriculture of the project buffer zone. Continuing research and farm trials will continue to remain important to the project's success. Because the project area has such a wide variety of rainfall, soil types, and land slopes, trial successes and failures from one site are unlikely to provide identical successes and failures on all sites. Research and its accompanying data collection and management is becoming increasingly important to the project's sustainability, and should be considered as a separate task item.

Veloz and Logan (1988), working in the Cordillera Central of the Dominican Republic, measured soil losses from conservation treatments such as rock walls, grass strips, and hillside ditches that were at least 10 times greater than their corresponding rate of soil formation: because the rate of soil loss was greater than the rate of soil development, the treatments were unsustainable. Veloz and Logan's measurements conform to soil loss estimates made of similar treatments on 35 percent slopes under the TWM project (Paskett, 1988), and highlight the need for considerable care in the practice of upland farming. Problems such as these can be averted by avoiding the cultivation of sloping lands. On sites that are unsuitable for crops, forestry and controlled grazing offer promising alternatives.

Issue 9: USAID's Development Program

With the assistance of USAID/Haiti staff, UNICORS appears to have access to lessons learned - e.g., Productive Land Use Systems project, private sector initiative, ORE seed multiplication project - from other USAID supported projects. The authors have rarely seen a USAID Mission so interested in using lessons learned from its development portfolio for the management of a biodiversity, tropical forest project.

BSP could assist the Mission in its effort to identify lessons learned from community development initiatives. For example, it is our understanding that Mr. Toussaint, the Haitian BSP advisor, will be coordinating regularly with ORE - ORE appears to have a number of lessons learned in agricultural extension which may be useful to UNICORS. We also understand that BSP will obtain lessons learned from other USAID-

supported ICDP activities, farmer extension, policy reform, and impact monitoring.

5.2 PROJECT DESIGN AND IMPLEMENTATION ISSUES

5.2.1 USAID

USAID/Haiti maintains a good working relationship with UNICORS and BSP. Its staff communicate effectively in the areas of monitoring and evaluation, community participation, agricultural systems analysis and rural development. The contacts between the Mission and UNICORS/BSP are collaborative and pertinent. Nonetheless, members of UNICORS' Board reported they had difficulty understanding communications that were addressed to them in English.

The Mission is currently developing impact indicators for the amended project. Under its amended grant to the project, the funding of monitoring activities such as data gathering and analyses should continue.

UNICORS has reported problems in its receipt of financial reimbursements from USAID (see the following section). Due in large part to UNICORS' failure to anticipate its financial requirements, the organization has attempted to resolve the issue by making adjustments within its administrative structure. The problem occurred at a time when critical people in USAID's office were absent for approved reasons, a situation which caused some unforeseen additional delay to payments. At the core of the matter, however, remains UNICORS' inability to foresee its fiscal needs in advance of its actual requirement. Section 5.3 describes changes carried out in the structure of UNICORS' to address this problem, and additional changes recommended by the assessment to improve program management.

5.2.2 UNICORS

UNICORS' management of the amended project needs to be viewed from two sides: from a managerial perspective as well as from one based on achievement. Technically, UNICORS has accomplished important activities such as tree planting, farmer unification and sensitization, road improvement, crop trials, and garden farming. These have been done under extremely trying conditions, often with little recognition. The organization deserves considerable appreciation for what it has done. Its problem lies in the certainty that UNICORS could have achieved these same outputs with much less managerial stress, for UNICORS as well as for USAID. This Section and Section 5.3 suggest some ways in which UNICORS can improve its performance, credible as it is under its current situation.

Project management by UNICORS, in some ways, has failed to reflect its years of experience with USAID: first with PST under the TWM, and now with this amended project. It has been hampered by a reluctance to expend money in accordance with its budget and by a failure to anticipate its future financial requirements. Section 5.3 discusses organizational matters - additional personnel, improved offices, ... - which could help address this issue; this section is more concerned with design and implementation, both issues which require some modification.

UNICORS has now established itself on the southeastern and northwestern flanks of Pic Macaya National Park. That it also represents a

private landowner within the Park boundaries, COSAR, is an important issue which could embody a conflict of interest. COSAR's efforts at land husbandry are to be both applauded and criticized: its past clearing of land for coffee is a suitable land use; its clearing of identical slopes for beans is not. That much of this coffee is now degraded is a result of the embargo and does not signify additional complaint against the organization. Some conditionality has to be made, however, between this Project and COSAR to ensure against future land misuse. In the short term it would not be unreasonable to require, as a precondition to a continued accord with UNICORS, that COSAR use its land in a sustainable manner; in the long term there should occur either

- an adjustment or exchange of its land title, or
- a declaration of utilité publique with purchase of title by the state.

Ultimately and, again in the long term, the final resolution of the park boundary requires action by the state.

UNICORS should look forward to expanding its protection so that both its areas, Trois Rivières and Formond, are joined; it should extend its activities towards the east to include Ducis at the headwaters of the Grande Ravine de Sud. In so doing it will

- achieve better control of the park area, and
- strengthen its presence in the Cavailler area where access is difficult.

Cavailler represents a weakness in UNICORS' presence which could serve as a conduit for exploitation of the park. Because it lies strategically between the two strongpoints of UNICORS' activities, Formond and Trois Sources, its incorporation is critical to the amended project. The objective of consolidation would be to promulgate upland farming, pastoralism, and forestry techniques to people who reside in the park's buffer zone, but who are presently unaffected by the activities of the amended project. It would require the development of a UNICORS outstation at Cavailler; the hiring of additional personnel (for example, 1 agronomist, 1 Technicien Agricol, 2 TAPS, 2 animateurs, 1 pepinieriste; and the purchase of transport (horse or mule), office, tools and instruments, and supplies.

UNICORS has done well to introduce forest nurseries in a short period of time. These now need to be reviewed by a consultant forester experienced in the production of large numbers of *Pinus occidentalis*. The present approach appears to be flawed by its use of natural reproduction rather than of seedlings grown from seed. Another opinion should be sought, however, and appropriate recommendations made. Some references cite fire as a necessity for the reproduction of this species, though the exact requirement is not specified. This writer remembers visiting an old burn dating from the 1960s which still had not regenerated by mid-1980. We need to understand the causes of failures such as this in order to improve our success with replanting and forest management.

Among the tasks of the consultant forester should be the following:

- Examine the current forest nursery system employed by UNICORS and identify its relative strengths and weaknesses.

- Examine UNICORS' method of harvesting natural regeneration for its nursery seedlings, and determine whether or not this can be improved by producing seedlings from seed.

- Identify seed production by *Pinus occidentalis*, and determine if it within the capability of UNICORS to initiate a seed harvesting operation. Advise if this should be a private enterprise scheme functioning under the umbrella of UNICORS, or if it should be a park activity operated by UNICORS itself. Train UNICORS in the techniques of seed harvesting from *P. occidentalis*.

UNICORS has become over-reliant on check dams to control soil erosion, particularly on slopes which are geologically sensitive following prolonged periods of misuse; its treatment of natural watercourses - which may appear to be actively eroding after tropical storms or hurricanes, but which later revert to a more restricted cross section - is unnecessary. Figure 3 provides a longitudinal section of a typical treatment as it is now being carried out. These structures carry a benefit limited to the crest of the structure . As the Figure shows, much of the eroded surface above this elevation remains uncontrolled. Indeed, the point from which the erosion is expanding - the upward, nearly vertical face of the scar - is untreated. We recommend this type of investment be severely curtailed. A more appropriate use would be in ravines on nearly level land typical of the plateaux. We also need recognize, however, that these structures have provided important sources of employment during times of serious economic need. As an alternative, trails in the park often require stabilization and could benefit from reshaping and masonry not too dissimilar from that used in the check dams, a possible additional use for labor.

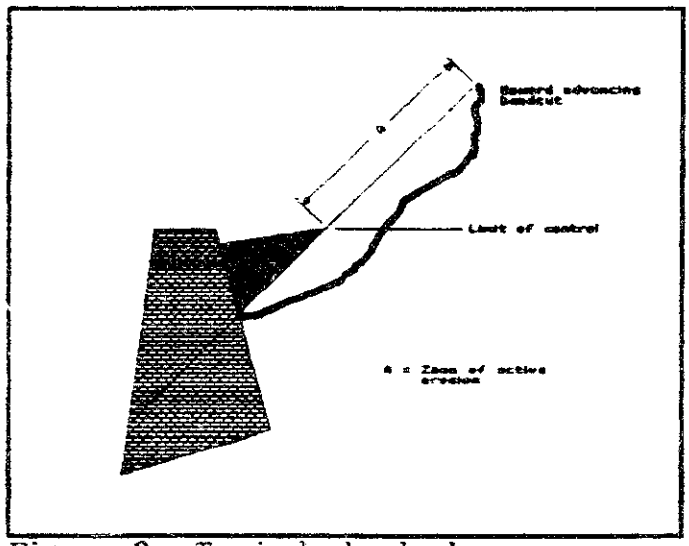

Figure 3. Typical check dam as installed on steep slopes.

Haiti has in its lexicon of soil erosion control the practice of clayonnage, the attachment of horizontal bands of straw to the ground surface. In many ways it is a practice not dissimilar from many of the straw and jute nets used to control erosion along highways in the states. In the Figure shown above. refacing the upward slope so that it was not vertical, attaching clayonnage, and replanting would be a cost-effective erosion control method. In an area where visual impact is important, it would also blend more subtly into the background.

The present reliance on structures and road rebuilding needs to be viewed as a temporary quick-fix solution to a bad problem. Its principal risk is one of building dependence by the local population on work projects. The ultimate goal, as stated earlier, is that the population will protect the park because it benefits from the park remaining in its natural state. This means that farmer gross margins have to revive to their pre-park levels, and that these have to keep pace with population growth. Two

items are at issue here: farmer (and pastoralist) gross margins, and population growth. UNICORS is not yet at the level of sophisticated agronomic practice as was ORE before it left Formond. It would probably benefit from a closer collaboration with ORE than it has at present, something which may require hiring ORE as a consultant. UNICORS should also closely monitor its progress in agronomy: farm locations should be plotted on a map, yields should be measured, farmers adopting the practice but not in the programme should also be shown on the map. This activity, because of its scale, needs to be implemented as a separate project component. Auto-monitoring by project participants and statistical sampling procedures could reduce its required inputs.

UNICORS needs to improve the management of its vehicles. Table 5.1 lists its present fleet. In reviewing this list, we need remember the conditions of working in the amended project area: many stream and river crossings, possibly as many as 12 in any one day; rough roads which twist vehicle frames until critical welds break; dust during the dry season, mud during the wet; low availability of spare parts; narrow roads on steep slopes. Fording the Acul and Port-à-Piment Rivers requires a 4x4 diesel vehicle high off the ground; traversing the escarpment to Formond requires a narrow vehicle; short wheel base vehicles will survive the twisting of the road between Cayes and Port Salut better than a long wheel base. Taking these factors into account explains why UNICORS' present vehicles are overdue for replacement. We recommend it repair its fleet and sell it at the end of its current amendment. Its new fleet should be composed of a single vehicle type with at least a 20 percent turnover after year 2, assuming the project will continue, and a total replacement after year 5. It will need the services of a full-time mechanic to achieve even this level of vehicle survival. UNICORS currently has 5 serviceable motorbikes but now needs 6, 8 if the amended project is to expand.

Table 5.1. UNICORS Vehicles

Number	Type	Year
2	Toyota Hilux	1988
1	Ford	1989
1	Ford	1990
1	Jeep Wrangler	1987

Source: UNICORS

5.2.3 BSP

USAID/Haiti established a buy-in to the Biodiversity Support Program (BSP) for activities to be conducted during 1 November 1993 through 31 October 1996. The BSP is a USAID-funded consortium of the World Wildlife Fund, The Nature Conservancy and the World Resources Institute. It provides assistance to USAID conservation development activities worldwide and has technical expertise in park management, community development and NGO institutional strengthenning.

The purpose of the BSP buy-in activity is to conduct the following activities:

(1) strengthen UNICORS staff in the areas of ecology and natural resources management, and
(2) increase the international donor awareness of the Park Macaya project.

It is important to note that the BSP activity in Haiti has just begun to design and implement its activities. Presently in its first year, the BSP is in the process of laying the ground work for its assistance to UNICORS.

One of BSP's first steps was to hire Mr. Reynold Toussaint, a Haitian natural resources management specialist, who has extensive experience in Haiti and abroad in natural resources management and community participation. Mr. Toussaint began his assistance to UNICORS by conducted training course for UNICORS farmer extension officers and technicians. The training course provided the staff with information regarding

(1) the natural history of Park Macaya and the region,
(2) soil erosion and its control, and
(3) rural community development associated with conservation and development activities.

Preparations are presently being made by BSP to conduct a training needs assessment for UNICORS staff. Based upon the information developed from the assessment, BSP will design a series of training courses and other activities to benefit UNICORS staff.

While BSP had originally planned to focus on providing assistance in natural resources management, it has also determined that the project requires help in community participation. Accordingly, BSP has made arrangements for Messrs. Toussaint and Levelt (UNICORS Technical Director), and a MARNDR staff member to attend a buffer zone management course in Costa Rica. The course will include visits in the field to numerous conservation and development projects. By providing concrete examples of how NGOs and governments develop partnerships with communities, the course will be of particular importance to the projectand its participants.

In the near future, BSP will also provide assistance to UNICORS for the development of an action management plan. This plan would define a process to promote the efficient assessment and implemention of UNICORS' community activities, and would include the following activities:

(1) identify communities and their traditional structure,
(2) conduct community needs assessment,
(3) conduct analyses to answer key management questions, e.g., farming systems analysis,
(4) design implementation activities, and
(5) integrate impact monitoring and evaluation system.

As part of its task to increase the awareness of international donors of the park, the evaluation team believes that BSP could provide UNICORS with lessons learned from situations similar to Haiti's. For example, the BSP already has valuable experience in monitoring and evaluation, buffer zone management and community development. BSP could assist both the Mission and UNICORS to identify international organizations already located in Haiti

that have experience in the conduct of policy initiatives which would complement the project's undertakings. For example, Haiti's problems of land tenure could be addressed in the project area[4]. Another international organization may have experience with the creation of financial endowments which could help assure the sustainability of UNICORS' activities.

5.2.4 Role of government

The Ministère de l'Agriculture, des Ressources Naturelles et du Developpement Rural (MARNDR) played an important role in establishing the initial Targeted Watershed Management project. It conducted, for example, the early surveys for the proposed mapping of park boundaries. It continues to keep abreast of project activities, though it admits its current weaknesses prevent it from becoming an active participant.

Ultimately, it will be the Government of Haiti who will carry responsibility for the management of Park Macaya. As the political situation eventually approaches stability, the amended project may wish to identify ways to strengthen the capacity of MARNDR so that it can better manage its mandated obligations towards the park. The BSP has taken the first step in this direction by providing support for a MARNDR representive to attend a planned buffer zone management course in Costa Rica. Of particular importance will be the course's emphasis on the establishment of partnerships between project implementors and local communities.

5.3 PROJECT ORGANIZATION AND HUMAN RESOURCE ISSUES: UNICORS

UNICORS, a consortium of 8 coffee cooperatives in southwestern Haiti, has its headquarters in Chardonières. It is headed by an Assemblée Générale with a Comité de Surveillance as its staff (see Annex D.2, Organogram). Subservient to the Assemblée is a Conseil d'Administration which is served by a number of Conseillers Techniques. The office of Direction Générale, formerly immediately below the Conseil d'Administration, has now been succeeded by a Comité Générale. This replacement occurred in response to a request by USAID for UNICORS to streamline its operational control of this Project. Below the Comité are the offices of Direction Technique, the branch responsive to this amended project, and the Direction Exécutive in charge of accounting, guarding, and other day-to-day activities. The Direction Technique supervises the work of agronomists (2), agricultural technicians (3), general agricultural agents (techniciens agricols polyvalents, TAPS), extension agents, and nurserymen.

While UNICORS has its central office in Chardonières, the Project has its own office in Les Cayes as well as out-stations in Trois Sources and Formond. The office in Chardonières, while spacious, suffers from an inadequate supply of water and electricity. The office in Cayes is in poor repair and also has inadequate water and electricity. While UNICORS received computers and was trained in their use under the TWM, these have become unusable due to the electrical problems mentioned above.

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[4]. During the mid-1980s GTZ supported a land reform initiative near Gonaive. Its experiences should be reviewed before undertaking similar activities in the amended project area.

UNICORS, in times previous to this assessment, was apparently hindered by a reluctance to expend the financial support it received from USAID. Its financial planning failed to anticipate future pecuniary requirements, preventing it to respond to the timely repair of vehicles, payment of salaries, and purchase of materials. This resulted in large part from the vertical nature of the UNICORS' organization and the participation of people who, though exposed over long periods of time to USAID's administrative requirements, nonetheless failed to grasp their fiscal obligations.

UNICORS, by removing the office of Direction Générale and replacing it by a committee[5], believes it has addressed the problem. Its structure remains flawed, however, in that it occupies the time of its Head Agronomist in matters related to finance and management. To remedy this situation we suggest UNICORS hire a full-time administrator to work in Cayes, as well as a part-time facilitator to work in Port-au-Prince. The principal task of the administrator would be to manage the budget and prepare financial and other communications to USAID as well as to UNICORS; the task of the facilitator would be to arrange purchases and customs clearances and to maintain communications to USAID. These two posts would effectively eliminate the need for a Comité Générale, thereby reducing some of the verticality of UNICORS' administrative structure and further streamlining its operations; they would be subservient to the Direction Technique.

We also propose that UNICORS hire a full-time mechanic, based in les Cayes but free to travel to Formond and Trois Sources, to service its Project Vehicles. This matter was further addressed in a preceding section.

UNICORS, by its aversion to paying other than modest salaries, may incur difficulty in identifying the quality of skilled staff required by an amended project of this caliber and who are willing to live under the hardships typical of Pic Macaya. We recommend the organization review its salary policy with a view to provide a general upgrade; we also propose it consider providing a hardship allowance for those who spend long periods in isolated locations.

In a discussion with members of the Assemblée Générale, Mr. Yves Lubin, President, expressed his unwillingness to identify a Project Administrator until such time as the project expanded. This assessment believes the amended project should be expanded over the next several years, but that the hiring of an administrator, facilitator, and mechanic are essential to the current project and should be preconditions to USAID's continued support of UNICORS. We also recommend that operations based in Cayes operate from a more suitable structure than as at present, and that investment be made to assure it has suitable water and electricity.

The President of UNICORS expressed the thought that the organization has been targeted by USAID and punished in ways that involve delayed payments. That this feeling appears to exist is unfortunate. The assessment team has no way of separating directed misinformation from simple errors of communication, or of assessing fault. That a

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5. The former director who was responsible for UNICORS' earlier problems is a member of the committee. Its other members include UNICORS Technical Director, the BSP NRM specialist, and UNICORS' accountant.

communications problem exists, however, is important for both parties to discuss and bring to a conclusion.

The situation with UNICORS will require careful monitoring by USAID's Project Manager. While we disagree with the concept of micro-management, problems which hinder the performance of UNICORS' contractual obligations require identification and correction.

5.4 IMPACT MONITORING ISSUES

Effective monitoring and evaluation (M&E) systems enable project implementors to assess progress, to identify problems and make necessary modifications, and to determine project impact. In addition, M&E assists project implementors to test the hypotheses and assumptions of cause and effect relationships which underlie the project.

The Mission has hired TURBO SYSTEMS, a Haitian private company, to develop a M&E plan for the project. TURBO has worked closely with both the Mission and UNICORS to achieve this purpose and its progress is considerable. Nonetheless, TURBO requires technical assistance to gain access to lessons learned from USAID and NGO M&E activities in similar countries worldwide.

In order to better understand the relationships between program inputs and people-level outcomes, USAID developed in 1988 a five-level natural resources management (NRM) framework. The framework organizes proxy impact indicators in a hierarchial order in order to better identify the lessons learned from its field projects and programs. (See Annex D.3 for a description of the framework.) The importance of the framework is that it represents a step-by-step process of economic development. **The project's M&E plan should be designed using the USAID NRM five-level framework so that lessons learned can be assessed in a way consistent to other USAID projects.**

Technical assistance on the M&E framework is available to the Mission through its present buy-in to the BSP. The World Wildlife Fund (one of BSP's partner organizations), for example, supports a M&E activity under its Social Science and Economics Program.

The project's future M&E plan should be both practical and cost-effective. The plan developed by TURBO, possibly with BSP assistance, should

(1) identify key questions and assumptions to test in the field;
(2) identify a simple development process for each project component using the USAID five-level framework;
(3) identify tentative impact indicators associated with the development process;
(4) test the linkage between buffer zone activities and the biological maintanence of the park; and
(5) identify who, what, when, where and how information is to be gathered without burdening implementation activities (Booth, 1993).

Many of the approaches being used in conservation and development projects are new and untested. Brandon and Wells (1992), in a recent

assessment of conservation and development projects for The World Bank, showed that very few projects quantitatively measure, monitor, and evaluate the effects of the project on the people who live near protected areas; they also showed that changes of biotic communities within protected areas are similarly often unmeasured.

The data gathering methods which make up the M&E plan would evolve from a collaborative effort of project participants. The process includes the following steps:

- Review approaches currently being used for socio-economic biological assessments. These could include the use of remote sensing and geographical information systems.

- Hold a workshop with project participants to develop a consensus on the baseline data that should be collected, by whom, and over what time frame.

- Implement standardized plot monitoring activities on the project site.

The amended project should take a participatory approach to M&E. This approach allows project participants to take part in deciding

(1) how, when and what is to be evaluated;
(2) the field methodology to be used;
(3) how information is to be analyzed; and
(4) how M&E results are to be used.

Participatory M&E has been shown to produce information that is both accurate and relevant to the end users. Other advantages include timeliness and transparency. In a participatory process, information needed for decision-making is immediately available to participants and project managers alike - project modifications can be made readily made. Like participatory design and implementation, participatory M&E strengthens participants' skills, promotes autonomy, and fosters the long-term sustainability of the activity. The M&E plan should be based on the premises outlined below:

- M&E activities should be carried out by project implementors and interest groups.
- Information should be gathered to answer key management questions and to test project hypotheses.
- Information should be gathered routinely as part of regular project implementation.

- Community members (extension workers, guides, scouts) should be trained and compensated for carrying out and analyzing data collection (World Wildlife Fund, 1993).

6. QUESTIONS IN THE FRAMEWORK OF DEVELOPMENT

The following paragraphs provide key questions and details on the activities that would comrise a future amended project.

1. Buffer Zone Management

Conservation and development projects have been established worldwide, many with support from USAID. While there are numerous reports on the subject, the Mission should identify which projects are showing the most progress under conditions similar to the amended project area, and how their example might benefit this project.

Key Questions:

What are the lessons learned, regionally and worldwide, regarding buffer zone management in Haiti's biophysical and community environment?
What is the comparative advantage of USAID/Haiti's experience in community development? How can its lessons learned continue to integrate into this project?
What type of AID/W assistance would be most helpful in assisting UNICORS to strengthen traditional community decision making, and to negotiate and implement development activities.

2. Establishing Community Partnerships

Little information is available regarding the structure and needs of the rural community living near the park area. Socio-economic baseline surveys and additional periodic surveys are needed before sustainable community development activities can be developed.

Key Questions:

- How are communities using the park: when, where, how and why?
- How are communities organized to build consensus and to make decisions?
- What are their economic development priorities, e.g., education, income, and health care?
- What is the most effective approach to establishing community development agreements?
- What is the most effective system to measure change in community behavior and adoption over time?

3. UNICORS Action Management Plan

The BSP should provide UNICORS with assistance to develop a park action management plan. In contrast to a park management plan, the plan would be based on community surveys. It would contain a process to identify, design, and implement community development activities in the buffer zone.

Key Questions:

- What are the lessons learned, from areas sharing Haiti's problems of resource degradation, climate, and soils, about action management plan implementation?
- What is the most effective form of training for UNICORS to develop and implement the action management plan?

4. Park Boundary

The park boundary needs to be physically established in the field. The absence of a boundary is creating conflict among farmers, UNICORS, and the military. The first step towards establishing a boundary is to sort out land ownership within and around the park.

Key Questions:

- What is the land tenure system in the region?
- Where are the private land claims in the park and who owns land outside of the park?
- Can the government or a future project buy this land?
- What type of park boundary (live tree border, markers, ...) has been most effective in Haiti's biophysical and community environment? What is the preference of the community?

5. Impact Monitoring

In order to test assumptions and identify lessons learned, a comprehensive impact monitoring and evaluation plan should be developed using USAID's five-level monitoring framework.

Key Question:

- What are the lessons learned, regionally and worldwide, about USAID's impact monitoring and evaluation in Haiti's biophysical and community environment?

6. Lessons Learned

The project should obtain lessons learned from projects similar to Park Macaya. Opportunities for creative farmer extension should be identified. Could key farmers visit other sites in Haiti and the Dominican Republic and be provided with follow-up support such as credit and training?

Key Questions:

- Where is agriculture and private enterprise development effectively and sustainably working on degraded land in Haiti, the Dominican Republic, and other countries of the region?
  Where is USAID promoting farmer site visits and follow-up support, e.g., AFR/ARTS/FARA?

7. Private Enterprise Development

The project should assess the opportunities for private enterprise development for communities living in the buffer zone area. The community of Formond is isolated and some imagination may be required in order to identify opportunities.

Key Questions:

- What is the market for timber poles in Les Cayes? If there is a good market, how can transportation costs and other constraints be reduced?
- What kind of technical assistance would be most appropriate to identify potential private enterprise opportunities in the region?

8. Research

The University of Florida focused primarily on research about the biology of the park. Future research should be limited to answering key management questions related to the park and its adjoining, peripheral communities.

Key Questions:

- What is the community traditional decision making process?
- What is the land tenure system in the area?
- What are the non-consumptive uses of the park by local communities, e.g., medicinal plants?

9. Creative Policies

Creative policy options for the park and community development should be explored. As indicated in issue number 8 above (USAID Development Program), there may be additional opportunities to apply successful USAID/Haiti policy activities to the Macaya Park Project.

Key Questions:

- What are the creative policy options needed to assure the sustainability of project activities? For example, is it possible to establish a financial endowment?
- UNICORS has had some experience in providing credit to farmers as part of its agricultural extension activities. Is there potential for the USAID/Haiti PADO office to assist UNICORS to identify creative policy options for the park - investment promotion, credit, agribusiness, financial endowments.

REVISED LOGICAL FRAMEWORK

TARGETED WATERSHED MANAGEMENT
(521-0191)

(Parc Macaya Component Only - 1992-94)

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Goal: To arrest the process of environmental degradation in Southwest Haiti. **Sub-Goal:** To provide continued support for the preservation of Parc Macaya as the last natural rain forest in Haiti.	The Pic Macaya rain forest remains largely intact The rich range of bio-diversity in the Macaya Biosphere Reserve remains largely intact Soil erosion in project area is significantly reduced Macaya watersheds continue to serve the 7 rivers which irrigate the Plaine des Cayes	-Visual inspections of Parc Macaya by NGOs, GOH and international environmental groups -World Bank and FAO estimates -USAID Monitoring Unit findings	**Assumptions for Achieving Goal Targets** -Sufficient political stability exists in Hait allow project activities to be carried out planned. -Climate and rainfall levels do not vary markedly from historic patterns.
Purpose: To extend soil conservation and fertility-augmenting land management practices in the Pic Macaya watersheds and to apply lessons learned from these field interventions to national level hillside management planning. **Sub-purpose:** To instill better land-use practices by the farmers of the Parc Macaya buffer zone, in order to reduce ecological pressure on the Park.	**End-of-Project Status:** Increased acres forested and planted in Parc Macaya Collective public awareness is raised markedly regarding the importance of preserving the Parc Macaya forest and watershed At least 600,000 tree planted in the park 1,500 farmers in the park periphery reached by project land use management activities	-National and regional agricultural and rural income statistics -Semi-annual reports by UNICORS -UNICORS field records -Project evaluations	**Assumptions for Achieving Project Purpo** -GOH policy permits NGOs and PVOs to operate independently in Haiti. -Planning for the World Bank environmen project, interrupted by the 1991 coup, w resume in time to permit a start-up of Ba financed activities in Macaya by 1994. -The mix of project interventions will be sufficient to stop encroachments into Pa Macaya for tree-cutting and land clearing

Outputs:	Magnitude of Outputs:		Assumptions for Achieving Project Output
1. Systematic planting of upland native and endemic tree seedlings in critical areas of Parc Macaya	400,000 trees planted in 1993 and 200,000 in 1994	-UNICORS records -Monitoring Unit reports	-Farmers in the Park zone will agree to contribute their labor for tree planting, gul reclamation and access road maintenance recognizing these as valuable self-help measures.
2. Reclamation of critical ravines in the park to control gully erosion	12 km of ravines protected 200 gully plugs placed	-on-site inspections by USAID PADO staff	
3. Farmers living in the area of the park trained in environmental awareness and Association pour la Protection du Parc Macaya established and functioning	1,100 farmers trained 9 field agent training sessions conducted	-Field visits by USAID PADO staff	-Farmers will be willing to pursue land conservation techniques introduced under the project, recognizing their prospective value.
4. Farmers operating in the park periphery trained in productive land use techniques, including grass production to reduce animal forage	90 km of hedgerows placed 2 forage multiplication plots established 8 cash crop demonstration plots developed 90 vegetable gardens operating	-Project evaluations	-Farmers will be receptive to project training opportunities and environmental awareness efforts.

Inputs:	Magnitude of Inputs:		Assumptions for Providing Inputs:
Technical Assistance	144 pers/mos of TA by UNICORS staff	UNICORS Cooperative Agreement	
	7 pers/mos of S-T consulting by an int'l environmental organization thru buy-in arrangement	Project evaluations	-Linkages with appropriate international environmental organizations can be developed thru AID/W buy-in arrangemer as a source of short-term consultation.
Equipment & Supplies	Tree seedlings Farm tools, seeds Educational materials	Procurement records	-Existing equipment already procured by TWM project can be effectively used and maintained by UNICORS.
Training & Extension	UNICORS extension agents & consultants Staff travel in-country	USAID monitoring records Training records	
	Labor supplied by local farmers		
Operations & Maintenance	Vehicle maintenance		

LIST OF PERSONS AND ORGANIZATIONS CONTACTED

Amas, Morena	Member, UNICORS board
André, Claude Emile	Technician, UNICORS
Balixte, Lein	MARNDR/Cayes
Banatte, Jean Yves	Agronomist, MARNDR/Cayes
Benèche, Cepas	Secretary, UNICORS board
Bérard, Frantz	Technician, UNICORS
Blaise, J.F. Andrée	Animator, UNICORS
Crandall, Larry	Director, USAID/Haiti
Daniel, Ronnie	PADO Deputy Chief
Darbouze, Carl	Turbo System, P au P
Enok, Joseph Alexis	Director of Administration, UNICORS
Finnigan, Sean	Director, ORE
Finnigan, Mousson	Administrator, ORE
Français, Paul J.	Principal animator, UNICORS
Gaspard, Venel	Member, UNICORS board
Georges, Joseph	Technican, UNICORS
Hibart, Denis	Head of Oversight, UNICORS
Jacques, Vanel Louis Jean	Technician, UNICORS
Lea, Zach (John Dole)	Economist, SECID
Levelt, Simon Robert	Technical Director, UNICORS
Lubin, Yves	President, UNICORS board
Magloire, Elliassint	Agronomist, ORE
Mentor, Bruno	Accountant, UNICORS
Methieu, Joseph S	MARNDR/Cayes
Nesidor, Ravil Felix	Engineer, MARNDR/Cayes
Oriol, Michelle	Sociologist, Camp Perrin
Philoctête, Charles-Emile	Project manager, USAID
Populaire, Thorès	Technician, UNICORS
Sévère, Pierre F. Patrix	Agronomist, UNICORS
Toussaint, J. Ronald	NRM Specialist, BSP
Wahab, Abdul	Chief of PADO

LIST OF DOCUMENTS ANALYZED

Anderson, J. and J. Thampapillai. 1990. *Soil Conservation in Developing Countries: Project and Policy Intervention.* The World Bank. Wa.D.C. 45pp.

Anon. 1990. *Revenue Increases from PST improved crops.* Draft report. Haiti.

Biodiversity Support Program. 1994. *First Annual Workplan.* USAID/Haiti.

Biodiversity Support Program. 1994. *BSP Assistance to UNICORS Park Macaya Project, Haiti.* 29 pp + app.

Biodiversity Support Program. Undated. *Attachment A: Proposal to Provide Technical Assistance to UNICORS and other NGOs in Order to Conserve and Restore Pic Macaya National Park.* 11 pp.

Booth, Greg. 1993. *Biodiversity Monitoring Indicators Within A Natural Resources Management Framework For Sub-Saharan Africa.* U.S. Agency For International Development, Forestry Support Program. Washington, D.C. (50 pp.).

Brandon, Katrina and Michael Wells. 1992. *People and Parks--Linking Protected Area Management With Local Communities.* Washington, D.C.:International Bank For Reconstruction. (99 pp.).

BSP. 1994. *BSP Assistance to UNICORS Park Macaya Project--Report For January to March, 1994.* Port-au-Prince, Haiti. (103 pp.).

Erlich, M. et al. Undated. *Haiti: Country Environmental Profile - a Field Study.* USAID/Haiti. 120 pp.

ORE. 1992. *Final Report: Projé Sove Tè, Targeted Watershed Management Project.* USAID/Haiti. 82pp.

Oriol, M. 1992. *Protection de l'environnement contre système agraire: Considerations sociologiques et propositions pour l'implantation du Parc Macaya.* 21 pp.

Paryski, P. 1991. *Macaya Biosphere Reserve Project: a Case Study.* USAID/Haiti. 4pp.

Paskett, C. 1988. *Les sols d'interfleuve des rivières des Anglais et de Port-à-Piment. ARD, Camp Perrin, Haiti. 22pp + tables, figures, and annexes.*

Turbo System. 1994. *Monitoring and Evaluation System, Targeted Watershed Management Project.* USAID/Haiti.

University of Florida. 1992. *Final Report of the University of Florida, Macaya Biosphere Reserve Project.* USAID/Haiti. 113pp + app.

University of Florida. 1992. *Final Report of the University of Florida Macaya Biosphere Reserve Project.* USAID/Haiti. 3 pp.

University of Florida. 1986. *Executive Summary: A Plan for the National Parks of Haiti.* USAID/Haiti. 39pp.

USAID. 1985. *Haiti Environmental Profile--A Field Study.* Cooperative Agreement USAID - IIED No. DAN-5517-A-2066-00. Washington, D.C. (120 pp.).

USAID. 1993. *Cooperative agreement: UNICORS/BSP.* Haiti.

USAID. 1994. *Private Enterprise and Agricultural Development Office, USAID/Haiti.* Port-au-Prince, Haiti. (15 pp.).

USAID. 1992. *Project Paper: Targeted Watershed Management Amendment Number 1.* USAID/Haiti. 20 pp.

USAID. 1994. *Private Enterprise and Agricultural Development Office.* USAID/Haiti. 15pp.

USAID. 1986. *Project Paper: Targeted Watershed Management Project.* USAID/Haiti. 55 pp + annexes.

USAID. 1994. *Haiti Action Plan.* Draft. USAID/Haiti. pp 25-37.

USAID. 1994. *Project Status Report.* USAID/Haiti. 3pp.

Veloz, R. and T. Logan. 1988. *Erosion Research on Steep Lands in the Dominican Republic.* Conservation Farming on Steep Lands. Moldenhauer, W.C. and N.W. Hudson, ed. Ankeny, IO. pp 269-70.

World Wildlife Fund. 1994. *Social Science and Economics Program--Draft Document On Participatory Monitoring and Evaluation of Conservation and Development Projects.* World Wildlife Fund. Washington, D.C.

TECHNICAL ANNEXES

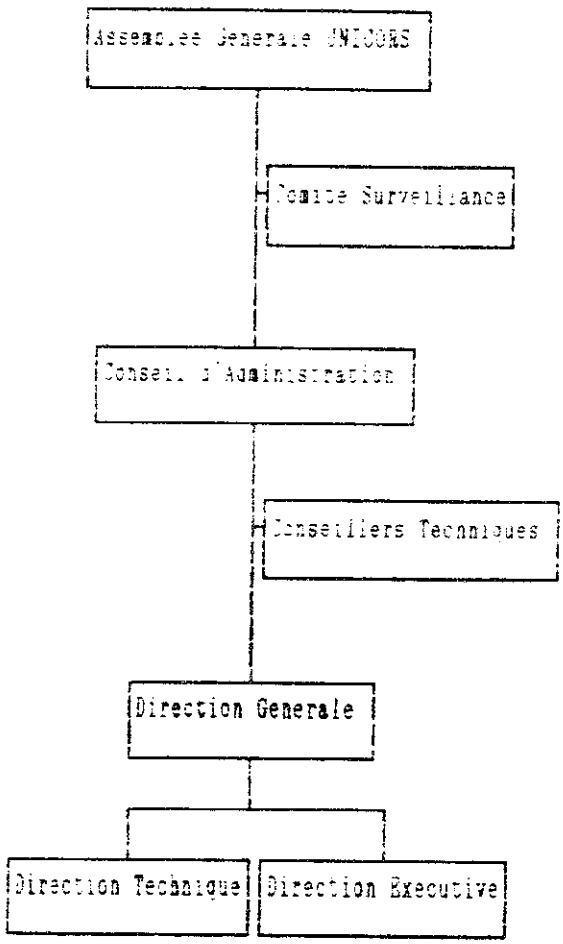
Page

PROJECT OUTPUTS

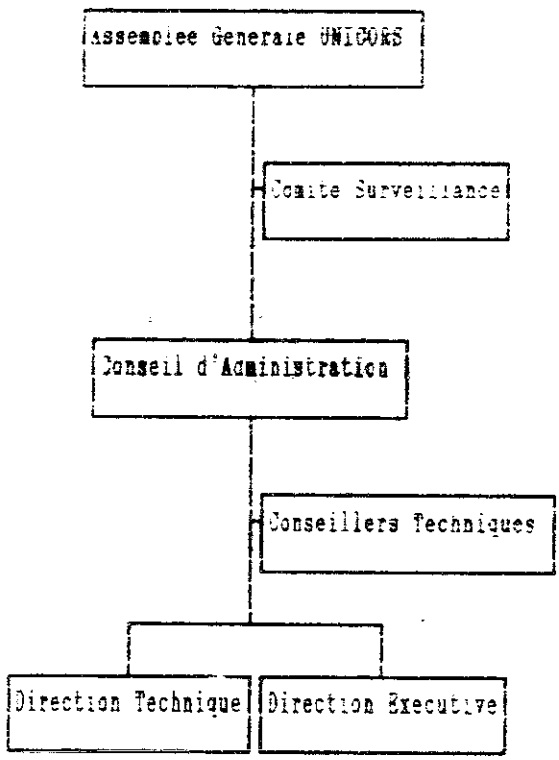
	Planned				Accomplished		
	LOP	Period	Cum	Next period	Period	Cum	% of LOP
1. Park protection							
a) Tree production (000)	800	300	800	-	306	966	121
b) Tree planting (000)	600	400	600	121	235	479	80
c) Ravine protection (km)	12	4	7	2	5	5	38
d) Gully plugs (number)	200	200	345	140	35	434	217
2. Income/production enhancement							
a) Vegetable gardens	90	30	60	30	56	71	79
b) Forage mult. plots	3	3	3	1	1	1	33
c) Forage pastures (ha)	40	20	40	15	5	25	63
d) Cash crop demos (plots)	16	8	8	8	12	35	63
e) Job creation (000) M	16	3	12	5	2	9	56
F	11	2	8	1	1	12	109
3. Training							
a) Field agent (no. sessions)	9	4	9	3	1	6	66
b) No. agents trained M	15	3	12	17	7	15	100
F	2	1	4	2	2	2	100
c) No. farm families trained	1100	300	800	500	240	503	46
d) Sr & Jr staff training M	1	0	0	4	0	0	
F	0	0	0	1	0	0	

Source. USAID. 1994.

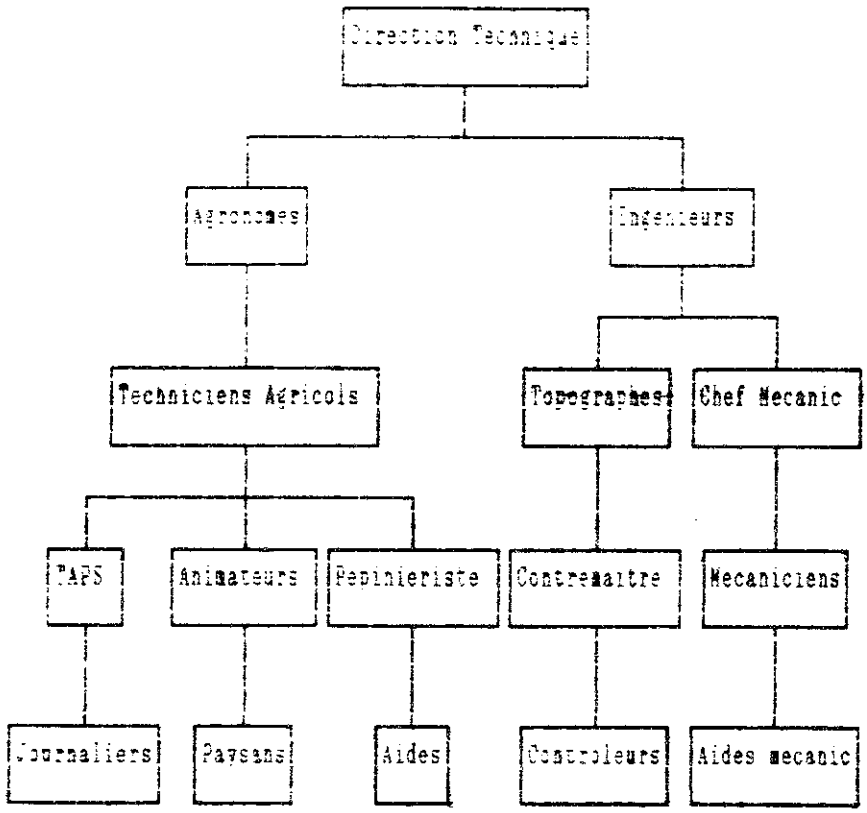
UNICORS: Organogram

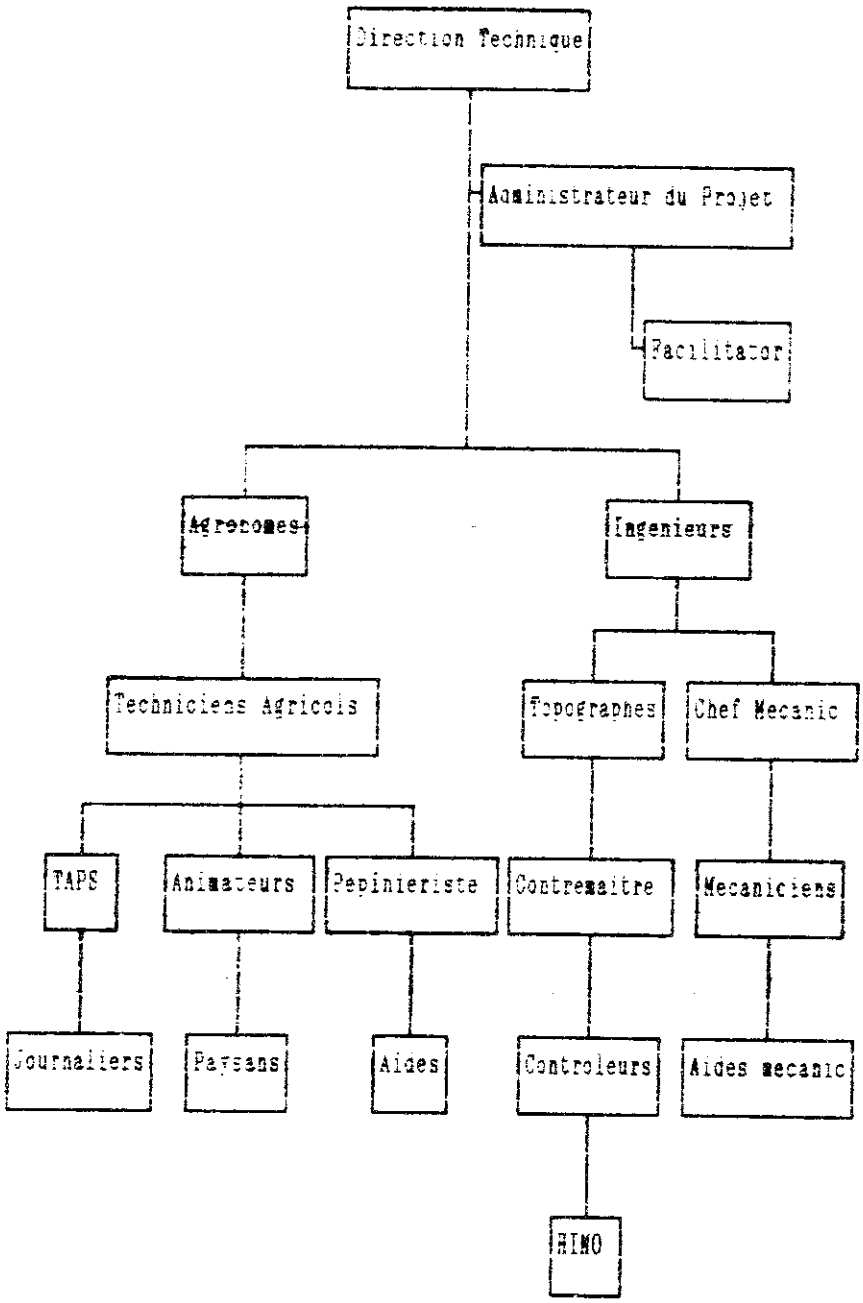


This should become this

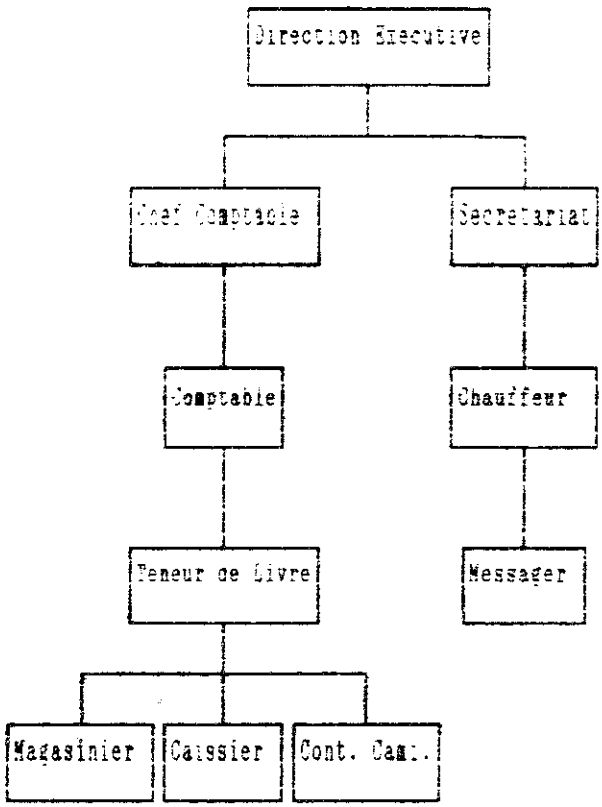


This should become as shown on page 36.




Direction Technique
Administrateur du Projet
Facilitator
Agronomes
Ingenieurs
Techniciens Agricols
Topographes
Chef Mecanic
TAPS
Animateurs
Pepinieriste
Contremaitre
Mecaniciens
Journaliers
Paysans
Aides
Controleurs
Aides mecanic
HIMO

This remains unchanged.



ANALYTICAL FRAMEWORK FOR PROJECT MONITORING AND EVALUATION