PD-AAW-424
52389

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET (PID)

1. TRANSACTION CODE: A = Add, C = Change, D = Delete; Revision No.

DOCUMENT CODE: 1

2. COUNTRY/ENTITY: Mali

3. PROJECT NUMBER: 688-0233

4. BUREAU/OFFICE: AFRICA — A. Symbol: AFR; B. Code: 06

5. PROJECT TITLE (maximum 40 characters): Development of the Haute Vallee

6. ESTIMATED FY OF AUTHORIZATION/OBLIGATION/COMPLETION

A. Initial FY: 88

B. Final FY: 92

C. PACD: 98

7. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE	LIFE OF PROJECT
A. AID	11,500
B. Other U.S. 1.	
B. Other U.S. 2.	
C. Host Country	
D. Other Donor(s)	
TOTAL	

8. PROPOSED BUDGET AID FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE 1. Grant	C. PRIMARY TECH. CODE 2. Loan	D. 1ST FY 88 1. Grant	D. 1ST FY 88 2. Loan	E. LIFE OF PROJECT 1. Grant	E. LIFE OF PROJECT 2. Loan
(1) SDP	223	220		3,960		11,500	
(2)							
(3)							
(4)							
TOTALS				3,960		11,500	

9. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each): 243 244 245 246

10. SECONDARY PURPOSE CODE: 213

11. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code	BS	COOP	TECH	DEL			
B. Amount	5,600	3,100	800	2,000			

12. PROJECT PURPOSE (maximum 480 characters)

To increase farmer's access to production technologies, equipment and other production inputs, financial resources for investments, and markets for inputs and produce.

13. RESOURCES REQUIRED FOR PROJECT DEVELOPMENT

Staff: Ag. Econ., Agronomist, Extn. Admin., Soc./Anthrop., Coop Specialist, Private Sector Spec., Financial Analyst, Institutional Expert, Project Design

Sources: IQC, CDO, REDSO/WCA, USAID Mali

Funds

PM&R - $90,000 planned
OHV (688-0210) - $60,000

14. ORIGINATING OFFICE CLEARANCE

Signature: Eugene Chiavaroli

Title: Eugene Chiavaroli, Mission Director

Date Signed: MM 06 DD 26 YY 87

15. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM 07 DD 10 YY 87

16. PROJECT DOCUMENT ACTION TAKEN

S = Suspended, A = Approved, D = Disapproved, CA = Conditionally Approved, DD = Decision Deferred

17. COMMENTS

18. ACTION APPROVED BY — Signature / Title

19. ACTION REFERENCE

20. ACTION DATE: MM DD YY

AID 1330-2 (8-79)

DEVELOPMENT OF THE HAUTE VALLEE (DHV) 688-0233

PROJECT IDENTIFICATION DOCUMENT
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Executive Summary: Development of the Haute Vallee

The southern area of Mali, which includes the upper valley (or "Haute Vallee") of the Niger River, is well-endowed with cultivable land, irrigation potential and sufficient rainfall. To develop these resources, the Government of the Republic of Mali (GRM) created in the 1960's and 70's a number of rural development organizations (RDOs).

One, the Operation Haute Vallee (OHV), has been the recipient of AID support since 1978. The OHV project funded a wide array of rural development activities, including provision of extension services, credit for agricultural inputs ands equipment, road construction, functional literacy, and cooperative formation.

It is proposed to use the resources of the Development of the Haute Vallee (DHV) project to increase farmers' access to production technologies, equipment and other production inputs, financial resources for investments, and markets for inputs and produce and to effect a sustainable increase in agricultural production, notably food crops, and net incomes of inhabitants of the Haute Vallee.

Expanded support to a combination of organizations and agencies, private as well as public, is necessary to achieve this purpose. The project will actively seek to increase private sector participation in the creation of a growth-oriented agricultural sector as well as to improve the effectiveness of public sector support extended by the OHV.

The DHV project will be implemented in two phases. The first four-year phase of the DHV project, described here, will include two components. The implementation of a third component will depend both on the availability of financing and on the interests of other donors (e.g., Italy) in the region. The three components are:

1. Rural Enterprise/Institution Development;
2. OHV Restructuring; and
3. Expansion of Rural Infrastructure.

The rural enterprise/institution development component will involve village-based farmer cooperatives, private business firms, and rural financial institutions. Cooperatives are central to the focus and a hub around which many activities will revolve. While OHV will continue to play a role in cooperative formation during the first phase of the DHV project, principal responsibility for promoting the growth of cooperatives will be assigned to a US-based Cooperative Development Organization (CDO).

The second project component will work toward making the OHV organization leaner and more effective. Credit, input supply and marketing functions will be transferred to village cooperatives and private sector companies and the staff of OHV reduced by some 50 to 30 persons. The OHV extension services will be reorganized and agents retrained in communicating relevant themes or messages using new approaches and methods of communication. These efforts will be undertaken by the OHV organization itself (with inputs of a technical assistance team provided by the project).

In the initial stages of project design, it was proposed that the DHV project continue a highly satisfactory feeder road construction program launched in the OHV project (which added 380 km to the network). Overall U.S. funding availabilities and the possible interest of Italy in this component have resulted in its identification as a "shelf component." If these conditions change, the road component might well be activated. The natural resource base of most of the zone is good and there is considerable agricultural production activity and an even greater potential that could be exploited with better access to markets.

The Ministry of Agriculture is the proposed GRM grantee. The project will be implemented through the OHV organization, a semi-autonomous cooperative development agency, and the independent National Agricultural Development Bank. Some activities, such as input/ouput marketing, functional literacy, on-farm research and eventually input/output marketing, will be indirectly supervised by OHV through program contracts with both private and public sector entities, consistent with newly established policies for RDOs.

The DHV project will be managed by the Agricultural Development Office of USAID/Mali, specifically the five-person staff of the Extension and Training Division. The policy reform aspects of the DHV project will necessitate that USAID take an active role in ensuring that policy implications emerging from project activities are monitored closely, brought to the attention of USAID senior management, and positions transmitted to and negotiated with the appropriate GRM agencies.

The estimated cost of the first four year phase (FY 88 to FY 92) of the DHV project is $11.5 million.

	$ '000
Rural Enterprise/Institution Component	7,050
RDO Restructuring Component	4,150
Evaluation/audit, road feasibility studies	300
TOTAL	$11,500

Following approval of this PID, design work will require a further five months. The Project Paper is planned for completion in January, 1988, with implementation to begin on or about October, 1988. The Cooperative Development Organization responsible for much of the first component of the project will be involved in early stages of design through use of the collaborative assistance mode.

I. BACKGROUND

A. The Agricultural Sector

The agricultural sector is the most productive and important sector of the Malian economy. Roughly 85 percent of the actively working population is engaged in agriculture. The sector generates 40 percent of the nation's gross national product (GNP). Moreover, livestock and cotton production alone account for nearly all exports.

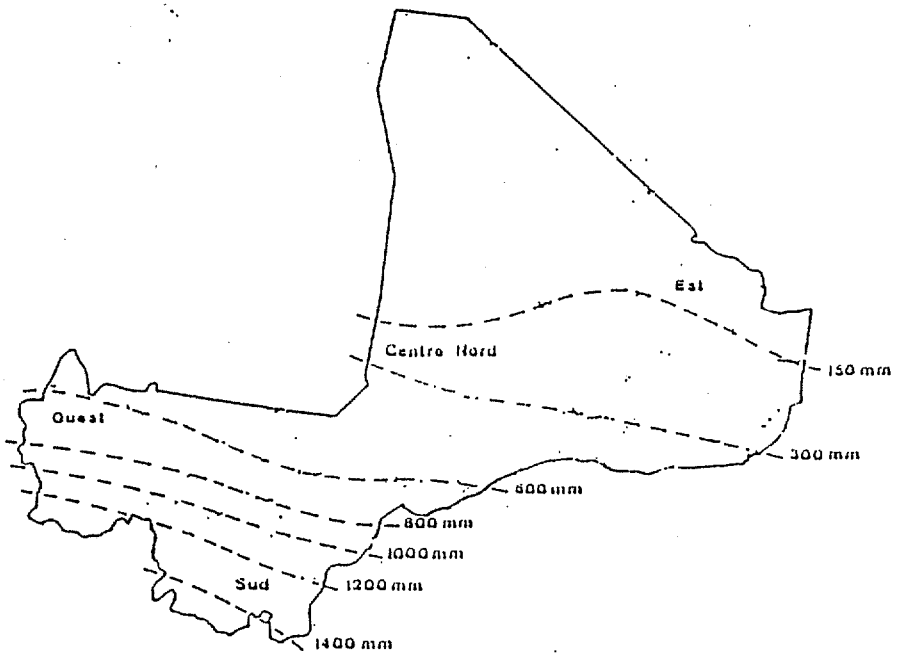
Compared to other Sahelian countries, Mali is fairly well-endowed with cultivable land, irrigation potential and sufficient rainfall in the southern part of the country. According to the FAO, only about 13 percent of the arable land in Mali is cultivated against the potential of 30 percent. Agricultural production systems vary across the three major climatic zones which occur in Mali; the Sahel (less than 400 mm annual rainfall), the Sudan (400-1000 mm) and the Guinean zone (more than 1000 mm) (see Map 1).

The major cereal staples are sorghum and millet, with an average total gross production of about a million tons a year. They are grown in all zones, but millet is the crop of preference between the 300-800 mm isohyets, while sorghum is generally preferred between the 800-1400 mm isohyets. Maize production is possible from the 900 mm isohyet southward into the higher rainfall zones, as is the production of cotton, Mali's major cash crop. Livestock production is of major importance all across Mali, with more sedentary livestock systems replacing the nomadic herding systems as one moves south.

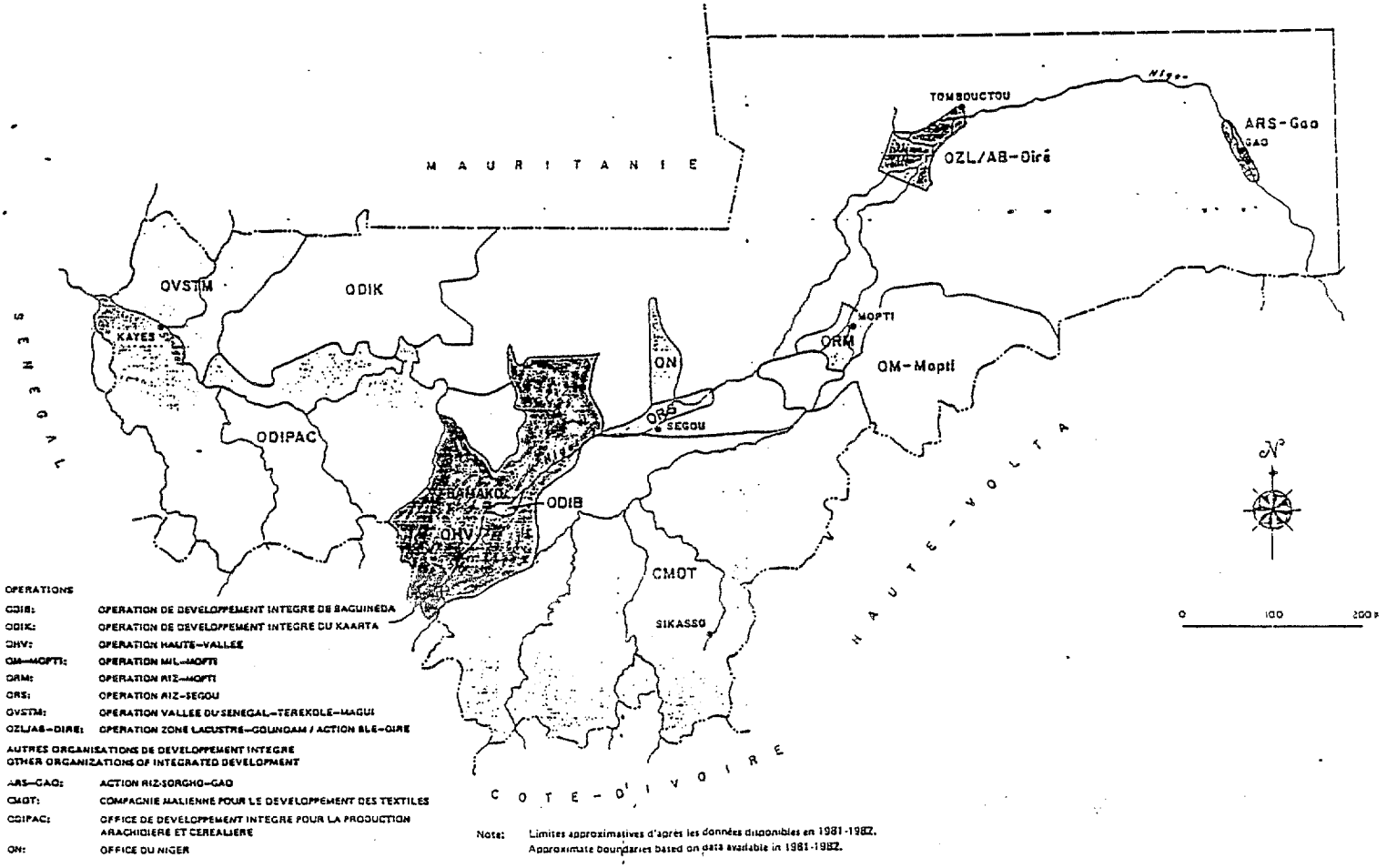
Rice is considered by many in urban centers to be an essential part of their diet, but Mali produces on the average only 50 percent of the total requirement of 250,000 tons. Imports, therefore, play an important role in meeting consumer demand. The major rice growing areas of the country are along the Niger river, where rainfall is only between 400 and 650 mm but the river flood provides adequate water for irrigation.

Agricultural productivity in Mali is highly variable from year to year and strongly affected by environmental factors. The rainfall averages of the last fifteen years are 20 percent below the recorded long-term averages. Drought, in combination with poor land use management practices such as widespread burning, inattention to erosion control and overgrazing, has had a serious impact on the sustainability of crop and livestock production systems. Consequently, environmental protection in all regions of the country is a major concern and of the Government of the Republic of Mali (GRM) and donors.

The productivity of agriculture is also strongly affected by economic factors. In 1985 and 1986, adequate rains fell in most of the important agricultural areas and the record production has resulted in low prices and sluggish markets for cereals. In addition, the post-1985 fall in world market prices for cotton led to serious balance of payments problems for the country.



Map 1. Mali: Average Rainfall Isohyets



Map 2. Mali: Rural Development Organizations (RDOs)

B. Rural Development Organizations

In order to decentralize responsibility for and enhance rural and agricultural development, the GRM created in the 1960's and 70's a number of rural development organizations (RDOs), called "Operations" or "Actions" (see Map 2). These organizations were in some cases mandated to perform a wide array of functions, including agricultural extension, credit, input supply, marketing, health care and adult education programs in a specific region. In other cases, an RDO was mandated to perform a specific function, such as the production of certified seed or agricultural chemicals.

In theory, the RDOs were designed to be financially self-supporting, deriving income from the sale of agricultural produce or other products to pay all of the organization's salaries and operating costs. In reality, none of the RDOs is able to perform the functions assigned to it without government subsidies and/or donor support. Nonetheless, the RDO approach has had some success in terms of increasing agricultural production, expanding rural infrastructure, and mobilizing resources for rural and agricultural development (See Section IV. C.).

In 1981, the World Bank commissioned a comprehensive study, the SATEC Report, of all the RDOs. The analysis concluded that there was substantial room for improvement in the system and made a series of recommendations for the reform of RDOs' structures and functions. Included were proposals for eliminating or combining certain RDOs, changing the zones of coverage for others, revising the mandates of some, and transferring some of the functions presently being carried out by the RDOs to the private sector. Those recommendations were recently the object of a seminar, including the Directors of all the RDOs, representatives of the Ministries of Agriculture, Plan and Natural Resources and donors, that received high-level GRM attention.

The seminar defined the respective roles of the State, the RDOs, village cooperatives and the private sector in the development of rural areas. In brief: the State is to create an institutional, legal, and economic environment conducive to development; the RDOs are primarily responsible for technical farmer education programs; autonomous village cooperatives are to assume greater responsibility for their own development; and the private sector is to increasingly take over commercial activities from the RDOs. The recommendations of the seminar reflect GRM policies and represent a big step in beginning to translate those policies into action. Given the diverse nature of the RDOs and development problems, the seminar participants and the GRM have opted for a case by case approach for further specification of reform measures to be taken.

C. OHV Project History

The Operation Haute Vallee (OHV) has been the recipient of AID support since 1978. In its original conception, the OHV project was to launch or carry out a wide array of rural development activities, including irrigated perimeter upgrading and management, animal traction (AT) training centers, extension services, credit for AT equipment, cereals marketing, road construction, functional literacy and health service delivery.

In the original project design, it was assumed that the OHV organization had the management capacity, even with technical assistance, to effectively implement the project. In fact, OHV's human resource capacity was extremely weak and too much was expected of the organization. As a result of an evaluation and audit in 1981, the major outputs of the project to be managed by OHV were reduced to focus on administrative and credit management support, extension service and farmer cooperative development. The on-farm research, functional literacy and road construction components were handled by host country contracts with other organizations.

The narrowing of project activities to be executed by OHV, along with an emphasis on strengthening OHV's management capacity and the training of three agronomists, an agricultural economist and a statistician, has resulted in significant improvement in project performance since 1983. Adequate progress has been achieved for all of the major project objectives as defined by the PP Amendment contained in ProAg Amendment no. 8, and in the recommendations made by the last external evaluation in 1984.

Data collected by a Michigan State University marketing study in the OHV region (see Annex Table 1) and the high rates of credit repayment for annual inputs (fertilizers, pesticides) under the current project indicate that the basic technical assumptions about increasing agricultural production through animal traction and other inputs remains a valid basis for expanding current project activities to reach a greater number of Haute Vallee farm households.

The project proposed in this Project Identification Document (PID) reflects the above-mentioned environmental and socio-political realities. Specifically, the basic assumptions underlying the project are:

- support for agricultural development efforts in the higher rainfall zones is the surest route to food security based on local production;

- some technology can already be transmitted to farmers to increase the productivity of farming systems in environmentally sound ways;

- the growing willingness of the GRM to "try privatization" and to foster the entrepreneurial spirit in Mali will lead to self-sustaining development; and

- AID's experience has provided a good basis for continuing to work with OHV, while at the same time supporting the growth of other providers of goods and services for agricultural development.

II. PROGRAM FACTORS

A. Conformity with the GRM Strategy/Programs

The drought and the economic difficulties of the past several years have led the Malian government to articulate four major goals for the agricultural sector:

- achieve food self-sufficiency for the nation as a whole;
- rational and sustainable management of natural resources;
- increase and diversify agricultural production for export; and
- turn over the responsibility for implementing development activities to village organizations and other economic agents.

1. Food Self-Sufficiency

Food self-sufficiency in Mali is based on the production of the two principal rainfed cereal crops, sorghum and millet. Over the past 15 years, Mali has been theoretically self-sufficient in only two of those years. Rainfall is clearly the major determining factor. For this reason, the GRM has given emphasis to increasing the irrigation capacity of the country. While most major donors are actively supporting this effort, the benefits involved do not measure up to actual costs. Consequently, more attention is being given to increasing the level of output and the sustainability of rainfed production systems.

The most effective means to do this is to increase investments in the higher rainfall zones south of the 800 mm isohyet because of the greater potential for food crop production. In an average year, the southern areas account for 75 percent of the total cereals produced in Mali. Maize production in particular has been on the increase in this zone because of the availability of an improved local seed variety, responsive to fertilizer application, which is actively being promoted by the OHV extension service. This fact has led farmers to invest in maize production and to view maize as a cash crop.

Past GRM policies with respect to prices and market controls have most certainly negatively influenced total agricultural production and the potential for achieving food self-sufficiency. Since 1981, therefore, the Malian government has instituted a number of reforms in cereals pricing and trade policies which are designed to stimulate agricultural production and marketing throughout the country. It is hoped that with privately-based, efficient marketing services, surplus production in the south can offset the poor production in chronically deficit areas in the north and meet the needs of the urban population in Bamako.

2. Natural Resource Management and Protection

Two major periods of drought in the past 15 years and poor land use management practices have resulted in severe degradation of the environmental resource base that supports agriculture. Rainfall

averages throughout the country have dropped roughly 20 percent, thereby altering not only the natural ecosystem but also the adaptibility of crop varieties. A number of OHV farmers were recently reported to be growing a sorghum variety previously thought to be grown only in the extreme north of the country. Reversing the environmental degradation which has taken place will require interventions in the agricultural sector leading to improved land use management practices that have a positive effect on increasing water infiltration, decreasing erosion and helping farmers adapt their agricultural practices to changing climatic conditions.

The adopted strategy to reverse environmental degradation is to create a green belt from the middle Sudan zone through the Guinean zone by employing better soil and water conservation methods, encouraging an integration of animal husbandry and forestry with crop production systems, promoting fuel efficient wood and charcoal burning stoves and enforcing no burning rules on all land. A number of proven technologies for water retention, soil conservation and integrating crops with livestock and forestry have already been adopted by substantial numbers of Haute Vallee farmers. A concerted information and education effort for other farmers will be needed regarding the advantages and disadvantages of adopting these practices. Broader adoption of these practices is required throughout the zone if the GRM is to succeed in reversing the environmental degradation which is taking place.

3. Diversify Agricultural Production

The greater production potential of the southern areas is currently being exploited to promote the production of cotton, the only major dryland cash crop. Cotton is an important source of income to some Haute Vallee farmers, even though yearly production in the zone amounts to only 6-7,000 MT or about four percent of Mali's total production. Cotton production also has a demonstrably positive impact on cereal crop production because, as part of the farming system, cotton facilitates the greater use of fertilizer and generates the cash incomes needed to acquire equipment for animal traction. It is, therefore, no surprise that the GRM is concerned to maintain this production for food security goals as well as for export.

This dependence on one major dryland cash crop, however, has created a vulnerability to world market price fluctuations that threatens to compromise the benefits that cotton production has produced for the country and individual farmers. Some opportunities for crop diversification are already being exploited, such as the vegetable markets both locally and in Europe. In order to promote further crop diversification, the GRM is actively moving toward a system whereby credit loans are given on the basis of a group, or cooperative guarantee, rather than on the basis of cash crop, i.e., cotton, production. Also, the Malian government has facilitated private sector marketing of vegetables and other crops in order to stimulate diversified crop production.

4. Village/Private Sector-based Development

Mali, in its early days as an independent nation, articulated and implemented a policy of state control of resources and public management of production. Initial attempts at cooperative formation suffered from excessive governmental interference while private trade has in the past been highly regulated, if not banned, as in the case of cereals marketing. The policy did not have the results hoped for and has gradually been replaced in recent years with one which permits a greater role for the private sector.

Fortunately, Mali has a long history of both cooperative action and individual entrepreneurial activity which has endured for centuries. The GRM is now recognizing the potential contribution of these traditions to the development of the country and has shifted policies toward both. The action plan to turn this policy into a reality calls for a "transfer of tasks" currently performed by RDOs to the cooperative and private sector. This transfer of responsibilities and tasks will leave the RDOs free to concentrate on their primary missions of agricultural extension and planning.

B. Relationship with USAID Strategy

In the FY 85 CDSS and FY 87 ABS for Mali, USAID articulated the assistance objective of enhancing rural production, productivity and incomes through a strategy of: (1) concentrating investments in higher potential production zones; (2) policy and organizational reforms; and (3) technology development and dissemination.

The Development of the Haute Vallee (DHV) project proposed here supports and implements this development strategy. In addition, the project will implement a program for improving natural resouces management in the Haute Vallee region. All of the above are consistent with the emphases of the GRM.

1. Higher Potential Production Zones

The Haute Vallee region straddles the 900 mm isohyet (see map), and is roughly divided between the Sudan zone in the north and the Guinean zone in the south. Characteristics of the two zones differ slightly, with a greater reliance on livestock in the north and a greater production of cotton and maize as cash crops in the south. Bamako, the country's capital and major commercial center, is also in the center of the Haute Vallee region and is within reasonable distance of rural areas where a year-round road network exists.

With its emphasis on foodcrop production, the current OHV project (688-0210) has focussed efforts mainly in the higher production potential southern area of the Haute Vallee while the Livestock Sector project (688-0218) has focussed its efforts to date in the northern area, working on improved forage production, finish feeding programs, and animal health service delivery. USAID/Mali has also begun implementation of the Farming Systems Research/Extension (FSR/E) project (688-0232) in the Haute Vallee, where it will build the basis for more technological innovation in both crop and livestock systems.

2. Policy and Organization Reform

The multi-donor Cereals Market Restructuring Project (688-0230) and the bilateral Economic Policy Reform Project (688-0240) have been the Mission's principal policy reform efforts to date. The liberalization of trade in cereals, the abolition of fixed floor prices for rainfed cereals and the elimination of fertilizer subsidies now leave room for the emergence of a dynamic private sector in input/output marketing where both cash crops and cereal crops respond to agricultural inputs and improved technologies.

After the macro-economic reforms of the above-mentioned projects, the reform of RDOs is next on the list of Mission priorities. The DHV project proposed in this PID offers the Mission the opportunity to become involved in a leading effort to promote the participation of the private sector in the development activities of rural Mali by reducing the role of the OHV organization to that of agricultural extension and planning.

3. Technology Development and Dissemination

Existing technologies are being promoted under the current OHV project, such as animal traction, seed treatments, proper plant spacing, erosion control practices and improved local varieties, which are capable of increasing the agricultural production of a greater number of Haute Vallee farmers. Agricultural extension, in conjunction with credit programs, offers the most effective means of transferring these technologies. However, traditional extension methods conducted by poorly-trained agents who sometimes have conflicting responsibilities, e.g., credit recuperation, have not been effective. An emphasis of this new project will be a complete revision of extension themes, organization and methodologies.

At the same time, the Mission has been investing heavily in agricultural research in Mali. Within two to three years, these investments will begin to pay off as improved drought resistant and higher-yielding varieties of sorghum, developed under the ICRISAT (688-0226) project, will become available for on-farm testing under the Farming Systems Research/Extension and SAFGRAD (698-0452) programs. Once these new varieties are adapted to local production constraints, they will enter into seed multiplication, demonstration and direct farm use under the DHV project, thereby increasing the number of viable technologies that can be promoted in both the southern and northern zones of the Haute Vallee.

The new DHV project will also serve as one vehicle to implement the Mission's natural resources management strategy. The several different ecosystems of the Haute Vallee zone from north to south (now being more thoroughly mapped by the Land Use Inventory Program (PIRT)) provide the opportunity to study and to seek improvements in a variety of farming systems.

III. PROJECT DESCRIPTION

A. Development Problem

Experience has made us fully aware of the complexities involved in addressing the priority constraints to increasing agricultural production in the region. We have found in the current OHV project that a combination of constraints must be addressed simultaneously if we are to achieve our objective. On the other hand, we have also found that a completely integrated rural development project, which tries to do too much through one implementing agency, cannot succeed either.

The combination of constraints which, on the basis of experience and recent analysis, seem to be complementary and critical to achieving the goal presented below has thus been identified:

- a lack of useful information reaching farmers on technologies to increase agricultural production;
- a shortage of financial liquidity among rural farm households to make investments in inputs and animal traction equipment;
- poorly organized and fragmented markets for agricultural inputs, equipment and produce; and
- underdeveloped rural infrastructure causing the isolation of rural areas from potential markets and under-utilization of its production potential.

A combination of organizations and agencies, private as well as public, is felt to be necessary to address these constraints adequately. While the OHV organization will continue to be involved in the new project, the participation of banking institutions, independent cooperative advisory services, private sector input suppliers, grain traders and others, is essential to successfully address the constraints enumerated and to stimulate a process of self-sustaining agricultural growth.

B. Project Goal and Purpose

Goal: To effect a sustainable increase in agricultural production, notably food crops, and net incomes of inhabitants of the Haute Vallee.

This proposed project goal reflects three of the four major GRM objectives for the development of the Haute Vallee: (1) to attain national self-sufficiency in cereals production; (2) to reverse environmental degradation through rational and sustainable management of natural resources; and (3) to diversify agricultural production. These objectives also echo the aspirations of the region's 40,000 farm households, who want to produce marketable surpluses of both food and cash crops.

The project, therefore, will seek to effect a measurable increase in the agricultural production, particularly of food crops, of farmers in the

Haute Vallee, a measurable increase of net incomes of farm households, and a rational utilization of natural resources leading to sustainable production.

Purpose: To increase farmers' access to production technologies, equipment and other production inputs, financial resources for investments, and markets for inputs and produce.

This proposed project purpose reflects the fourth development objective of the GRM: transferring tasks and responsibilities for certain activities from the RDO to the private and cooperative sectors. This will only happen, in our view, when farmers have greater and more direct access to the inputs and services they need. This requires new and more widely-shared information, improved private sector input supply delivery and product marketing capacity, and a certain dynamism on the part of the producers themselves.

C. Expected Achievements/Accomplishments

The project will actively seek to increase private sector participation in the creation of a growth-oriented agricultural sector, with farmers profitably using new technologies and equipment, responsibly using both savings and credit to finance continued investments in their enterprises, and reliably contributing surplus production to both internal and export markets.

While quantitatively specific end-of-project status indicators will be determined during the PP design, the following EOPS illustrate the progress the DHV project will make in four years:

- Direct linkages will be established between approximately 150 village cooperatives and banking services (particularly those offered by the National Agricultural Development Bank (BNDA)). This represents a tripling of the number now being serviced with BNDA loans;

- Multiple linkages for input/output marketing will be established between approximately 150 village cooperatives and private commercial enterprises in the villages and towns of the region and Bamako. Cooperative leaders will be trained in managing these relationships; and

- The number of farm families using animal traction and other purchased inputs, planting improved varieties and employing environmentally-sound farming practices will be increased.

An evaluation will be conducted in year 3 or 4 to lay out the scope of work for the second phase of the DHV project. This will permit us to take into account the rates at which the private sector and farmer cooperatives can realistically fulfill their new roles and functions.

D. Project Outline and How It Will Work

The DHV project will be implemented in two phases. The first phase of the project, described here, will have two or three components. The

implementation of the third component will depend both on the availability of financing and on the interests of other donors (e.g., Italy) in the region. The three components are:

1) Rural Enterprise/Institution Development;

2) OHV Restructuring; and

3) Expansion of Rural Infrastructure (roads).

In the presentation of each of these components which follows, an introduction section briefly lays out the already established basis of experience, while a second section describes how the new activity will be implemented to build on this experience.

1. Rural Enterprise/Institution Development

The private enterprises and specialized institutions promoted in this project will be of three types: village-based farmer cooperatives, private companies, and rural financial institutions. All are presently active in the Haute Vallee zone, but their activities are under-developed and under-represented.

a. Village Cooperatives

(i). Basis of Experience

The primary purpose of village-based farmers' cooperatives assisted under the OHV project has been to facilitate the handling of credit and the distribution of inputs and equipment. Credit loans are guaranteed by the group rather than strictly on the basis of cash crop production, although as cotton (the principal cash crop) is subject to guaranteed purchase (by the CMDT) at prices fixed before the planting season, it provides an ideal basis for the extension of credit. Cooperatives have also served as the organizing force behind successful functional literacy classes provided by the National Direction for Functional Literacy and Applied Linguistics (DNAFLA) with present OHV project funding.

A recent sociological analysis revealed that villagers support the creation of village cooperatives for the purposes of qualifying for and managing production credit (McCorkle, Checchi, 1986). Cooperative members have found that there are distinct advantages to controlling their own credit allocations:

- individual farmers have the freedom to decide on which crops they will apply fertilizer;
- the cooperators may distribute credit in a more egalitarian fashion among their members according to their own established criteria;
- mistrust of OHV agents in handling credit is avoided; and
- the cooperative receives a rebate at the end of the

commercialization season in payment for the services that the OHV organization was not required to perform.

The first crop year in which OHV lent credit to village cooperatives was 1984/5. In that first year, eleven cooperatives were certified as having met the established criteria: close proximity to a functional literacy center, at least one literate member, demonstrated ability to produce a surplus of cereals or a cash crop, members accepting the technical advice of the extension agent and village unity behind the cooperative. Virtually 100 percent of loans given to cooperatives since that time have been recovered. The numbers and credit amounts accorded to village cooperatives have risen as follows:

	1983/4	1984/5	1985/6	1986/7
Numbers of Village Cooperatives	0	11	30	46
Number of Members (Farm Households)	0	462	1,354	1,859
Credit to Coops ($000)	0	90	285	460
Total Credit ($000)	470	470	700	1,040

The presence of a functional literacy training center and the literacy of at least several key people have been found to contribute to a successfully functioning village cooperative. Consequently, the OHV project has focussed functional literacy and post-literacy activities on cooperative development and management. To date, over 3,500 villagers have attended literacy classes in roughly 160 literacy centers. The success rate over the life of the OHV project is about 35 percent of the students for literacy and about 20 percent for numeracy. This increase in the number of literate villagers has formed the basis on which village cooperatives have assumed greater responsibilities under the current OHV project.

(ii). Planned Expansion of Activities

The activities carried out in the first phase of the DHV project both by OHV and by a semi-autonomous Cooperative Development Organization (CDO) will serve to develop approximately 100 additional village-based farmers' cooperatives. This will permit OHV to completely remove itself from day-to-day management of credit (with the BNDA picking up the portfolio) and will provide an opening for private sector input suppliers to take over the delivery of inputs to rural areas. The new cooperatives plus the existing 50 cooperatives will participate in training and organizational strengthening activities carried out under the direction of a U.S.-based Cooperative Development Organization (CDO).

Cooperatives are central to the focus and a hub around which most project activities will revolve.

```
Technical Advice        Input/Equipment Credit        Input Marketing
    (OHV)            (Rural Financial Institution)   (Private Companies)
      =                          |                          =
        =                        |                        =
          =                      |                      =
            Village-based Farmers' Cooperatives
            (Cooperative Development Organization)
                                 |
                                 |
                                 |
                        Output Marketing
                         (Private/OHV)
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Cooperatives were chosen as a central focus for the project because:

- they are consistent with present GRM policy regarding rural organization;

- they have a 99 percent credit repayment record in the Haute Vallee and are the borrowers of choice for the BNDA;

- experience has shown that when cooperatives have a solid economic base, they are capable of providing substantial benefits to rural communities; and

- they represent a good bet for introducing new technical and commercial relationships which are sustainable, i.e., require the minimum in on-going GRM public or donor financing.

In order to maintain and increase the rate of growth in the formation of cooperatives, additional effort in literacy training will be required. In the coming months the OHV project will conduct a survey of virtually all Haute Vallee villages to determine where each one stands vis-a-vis adult literacy and cooperative development. Using the results of that survey, villages with an interest and displayed potential for engaging in economic activities through community organization will be targeted for special emphasis. The CDO will be asked to develop a plan to incorporate womens' cooperatives into DHV project production and credit activities.

While OHV will continue to play a role in cooperative formation during the first phase of the DHV project, principal responsibility for promoting the growth of cooperatives will be assigned to the CDO. They will work closely with both OHV and the National Direction for Cooperative Action (DNACOOP) in the Ministry of Agriculture but, by operating semi-autonomously, will be able to focus 100 percent of its time on the village-level effort. The semi-autonomous status of this activity will also facilitate the establishment of multiple, direct linkages between cooperatives and private sector suppliers of goods and services and the effort to transfer credit responsibilities from the OHV organization to BNDA.

The proposed rate of development of village cooperatives in the first phase of the DHV project is as follows:

	1987/88	1988/89	1989/90	1990/91	1991/92
Numbers of Village Cooperatives	69	87	107	127	147
Number of Members (Farm Households)	2,900	3,650	4,500	5,300	6,600
Credit to Coops ($000)	717	940	1,200	1,485	1,745
Total Credit ($000)	1,240	1,365	1,495	1,620	1,745

There are roughly 450 villages in the southern four Sectors of the Haute Vallee and 900 in the whole zone. The 147 village cooperatives will not include all Haute Vallee farmers, but they will permit an expansion of the distribution of credit to significantly more farmers than the present system. The estimated number of farm households who receive individual and group credit will increase from approximately 4,000 to 6,600.

Agricultural input credit for cotton and maize production is only one activity in which village cooperatives are interested. The Haute Vallee zone, because of the good natural resource base, irrigation potential and proximity to markets, presents a number of possibilities for "secondary crop" production. Efforts to assist the cooperatives to seek out other production possibilties have been limited by the desire to move cautiously. However, the willingness of farmers, and in some cases women, to organize themselves when they have an economic interest has now been demonstrated. Therefore, the DHV project will expand the latitude in end-use of credit that cooperatives seek.

b. Private Companies

(i). Basis of Experience

OHV, at the present time, operates virtually alone in the delivery of agricultural inputs and equipment (on credit) and has the legal monopoly for marketing of the two major cash crops, cotton and tobacco. Contacts between farmers and private sector suppliers of other goods and services are evident (particularly for grain trade and trade in consumables), but the possibilities for expanding these contacts to handling of fertilizers, pesticides, and animal traction equipment are not known. However, it is clear that the demand for agricultural inputs exceeds OHV's financial and management resources to deliver them, even when prices are not subsidized, and that the use of additional inputs would probably boost productivity in the region significantly.

Private businesspersons have quite rationally hesitated to consider expanding their own rural input/output market operations in dispersed

rural markets as long as OHV continues to perform this function.

Recent contacts, however, indicate that private dealers in agricultural inputs and equipment are interested in initiating economic contacts with farmers or groups of farmers. One company was seeking agreement from a village cooperative to extend credit for animal traction equipment and fertilizers in exchange for a guaranteed delivery of cereal crops at a pre-negotiated price to repay the loan. In another case, a village organization purchased on credit a small pump for off-season vegetable production and subsequently entered into a contract farming relationship with a local exporter to produce green beans for the European market. These two cases are indicative of the growing potential for profitable relations between private companies and cooperatives that the project will promote through increased contacts and better circulation of information.

It is felt that the greatest potential for private company development lies in the area of input supply. At present, there is one medium-scale factory (a state enterprise) making agricultural equipment and one mixed enterprise engaged in mining and distribution of phosphate fertilizers. Both operate way below potential capacity and have unreliable delivery schedules. Virtually all of their production is handled by RDOs, who supplement it with imports, often made through private sector dealers.

There are roughly six private companies which now import agricultural inputs and equipment, largely without import taxes. Entry into the market for inputs has recently been greatly facilitated by the adoption of a new commercial code that contains simplified commercial licensing procedures. On the negative side, however, the enterprise which manufactures animal traction equipment (SMECMA) has been granted a certain amount of "market protection" which requires that private sector dealers wishing to import must seek SMECMA authorization and attestation that it cannot produce the equipment desired before a private company can import animal traction equipment. This slows things down and raises the costs of doing business.

(ii). Planned Expansion of Activities

The project proposed here will seek to gradually expand private sector marketing activities in the Haute Vallee region and to ease the transition of the competitive entry of private companies into input/output markets by helping OHV to manage a phased withdrawal.

The first step in this transition will be to de-link the credit and input/output marketing functions now being carried out by OHV. OHV will begin by contracting out, initially on a test basis, the purchase of inputs delivered to village cooperatives and outputs to market destinations. The responsibility for purchasing and delivering inputs and marketing outputs will then be passed over to village cooperatives receiving assistance from the semi-autonomous CDO. Helping cooperatives to bargain for goods and services as a group is another way of encouraging them to take responsibility for procuring the inputs they want -- rather than waiting for what OHV is able to deliver.

Nevertheless, it is important to note that getting greater and more

independent involvement of the private sector in input/output marketing in the Haute Vallee region will take some time. Care must be taken, for example, to ensure that the private sector could do the job without passing unacceptable cost increases on to farmers, particularly as private sector traders' upfront inventory acquisition costs would have to be passed on, but also because of structural problems -- difficulties in road transport, the economic inefficiencies associated with small orders, etc. (OHV presently uses its cotton profits and the project support to underwrite these costs). These issues must be further examined in the preparation of the Project Paper to lay out a clearer plan for private sector development. Bank credit may be a constraint to private sector expansion; a line of credit could be established with project funds in a private bank for the importation of agricultural inputs and equipment intended for Haute Vallee farmers. A Commodity Import Program (CIP) for fertilizers might also be considered as another way of ensuring adequate supply.

The DHV project will not overlook the important role of village blacksmiths in repairing farm implements, providing spare parts and even manufacturing whole carts, plows, tool bars and other equipment. There are 21 blacksmiths operating in the Haute Vallee zone at present, most of them already trained in the use of modern forges and tools by the OHV project. The functional literacy program is attempting to target them as a group to upgrade their skills as private entrepreneurs. The DHV project will reinforce those efforts with management assistance from Volunteers in Technical Assistance (VITA) and small enterprise development Peace Corps Volunteers.

c. Rural Financial Institutions

(i). Basis of Experience

The principal lender of production credit to farmers is the BNDA. As a matter of policy, BNDA lends principally to farmer groups, usually village-based and receiving active assistance from an RDO.

Under the present system, RDOs assist the cooperative in preparing and submitting a list nominating cooperative members for credit, the list is modified and approved by the BNDA, the inputs and/or equipment are purchased well in advance by the RDO and placed with cooperatives according to the approved list, and approximately one month later the RDO is reimbursed for the amount of credit placed. The BNDA then assumes the risk that the credit will be repaid roughly eight months later. It is the policy of the BNDA that once a cooperative defaults on a loan they are not eligible for BNDA credit until the loan is repaid. To date, only one of the 46 village cooperatives receiving BNDA credit in the Haute Vallee has defaulted.

All of BNDA's operations in the Haute Vallee are managed from the Bamako office, although the BNDA has begun to open branch offices in the CMDT zone when loan placements exceed the equivalent of 270,000 US dollars per year. In the Haute Vallee, this portfolio value has already been attained and, in theory, BNDA should be willing to open a branch there in the near future. BNDA has, however, exercised considerable prudence in expansion of operations in order to maintain its reputation as a

commercial bank (even though it is, in fact, a state-owned operation). The proposal will be formally presented to the BNDA during their Board of Directors meeting in December.

(ii). Planned Expansion of Activities

To increase the access of farmers and their cooperatives to credit for production inputs and equipment, the BNDA will be assisted in the opening of regional branches in rural areas of the Haute Vallee region. These offices will deal directly with village cooperatives to establish credit levels and types of loans. The current volume and value of credit placements justifies (according to BNDA criteria) opening branch offices in two of the four southern Sectors of the Haute Vallee. By the end of the first phase of the DHV project, the BNDA should have established four regional bank offices in the four southern Sectors of the zone.

The DHV project will give added support to the BNDA in order to achieve the objective of creating more opportunities for the initiative of cooperator members and private businessmen. In its first phase, the project will establish a line of credit for agricultural inputs and equipment, which will have the effect of increasing available financial resources for OHV farmers' use, and also encourage the development of more direct links between village cooperatives and private commercial interests. As farmers depend less and less on the OHV organization for credit services, village cooperatives and/or the BNDA will need to increase their participatation in analyzing potential investments.

Recent analysis of the production credit environment in the Haute Vallee also suggested that there is a growing potential for rural savings mobilization in the region. Although this idea is relatively new to the GRM, it has already been explored elsewhere in the Sahel (Burkina and Niger) and the BNDA has begun to consider the possibility of selling time certificates of deposit. The possibility of expanding farmers' abilities to manage cash incomes for later investments justifies an experimental approach using mobile banks in one or two sectors to test this potential.

It is, therefore, proposed to fund an experimental savings program using the regional branches of the BNDA or other interested banks. They will be equipped with mobile units and make the rounds to Haute Vallee villages located where cooperatives are active and agricultural production is significant. If successful, we might demonstrate a sustainable way of generating capital for re-investment in development projects in rural areas of Mali.

2. OHV Restructuring

The OHV organization, which is considered to be statutorily responsible for all development activities in the region, will be substantially changed during the first phase of the project, as agricultural extension and development planning will, with project support, become its primary purposes. As already described, OHV's direct involvement in input supply and credit will be phased out. Already, its direct involvement

in farm-level agricultural research has been transferred to the research organizations. The issue of how to distance OHV's extension operations from its marketing activities is not yet resolved, but is appears feasible that eventually an association of village cooperatives might handle cotton marketing through contracts with private sector transporters. This, along with other options, will be further explored in the development of the PP. The release of extension agents' time from commercial activities is critical to improving their overall performance in promoting increased crop production.

In general, the OHV organization should, as a result of DHV project activities, be leaner and more effective. Credit, input supply and marketing functions will be removed from all OHV field and headquarters personnel at the rate that village cooperatives and private sector companies are able to assume them. The present staff of 450 will be reduced to approximately 300 and others will be redeployed and retrained. Recurrent costs of the extension service will be reduced to levels that can be supported through the allocation of a portion of cash crop marketing revenues and replace AID financing of those costs over the life of project.

a. Upgrading the OHV Extension Service

(i). Basis of Experience

At the present time, OHV extension agents are to offer technical advice to farmers which will permit them to increase production of both cash and food crops. There are some fundamantal problems, however, regarding the effective accomplishment of this objective. The limited input supplies already mentioned are one problem. Inadequate time management, with too little time devoted to actual extension activities and too much to credit administration and cotton marketing, may be another. What is clear is that farmers in the OHV are not nearly as productive as their counterparts in the CMDT (even with similar rainfall and soils) and the performance of the extension service in increasing technology adoption by farmers is, in part, deficient.

Recent assessments indicate that the reasons that more farmers have not adopted those technologies are varied and include:

- insufficient information about the technology reaching the farmer;
- the unavailability of the technology or the means to finance it;
- farmers' perceptions that the risk outweighs the potential gain; and
- the poor adaptation of the technology to a farmer's specific needs.

In the current project, the OHV extension service has been responsible for trying to overcome all of these constraints to farmer adoption. In the new DHV project, the OHV extension services will be asked to

concentrate on the first constraint and collaborate with other institutions or projects, such as the BNDA, ICRISAT or FSR/E project, on the rest.

The current OHV extension service has in the field three levels of agents:

Sector Chief	(6 field personnel)
| |	
"Zone d'Expansion Rural" (ZER) Chief	(40 " ")
| |	
"Secteur de Base" (SB) Chief	(94 " ")

They are supervised and trained "en cascade", that is, the Sector Chief oversees the ZER Chief, who oversees the SB Chief. While this system is used throughout Mali, it runs the risk of distorted messages reaching the lowest level and insufficient feedback going back up through the system. In its original conception it was thought that SB agents with little formal education could better relate to farmers. In practice, they have not been able to convey useful information to farmers.

(ii). Planned Expansion of Activities

Training and better time allocation (by reducing the amount of time needed to be spent on credit administration and cotton marketing) are obviously part of the solution. Two other elements are also needed:

- better development of the themes or messages which agents are to convey; and
- increased use of new approaches and methods of communicating with farmers.

The technology transfer study conducted last year concluded that a serious revision of extension themes, based on a thorough review of research results, is needed. Instead of having one set of recommendations per crop for all farmers in the region, the basic advisory documents ("fiches techniques") should be revised to reflect the latest research results and adapted to specific farming systems and geographic areas. In addition, efforts must be made to strengthen the linkage between adaptive, on-farm research in the region and the extension service.

The same study recommended that the extension approach, techniques and methodologies of OHV should be further modified along the lines of recent experiments to remove the lowest (and least-trained) level of extension agents (the Chef SB) and to include more field days, demonstration plots and visits by headquarters' staff. The elimination of the lowest level of the system would be facilitated by formation of cooperatives (which could assure adequate diffusion of information among their members as well as take over time-consuming activities of credit administration and cotton marketing now performed by OHV staff) and would focus skills upgrading activities among extension agents' who are already better able to comprehend a broader range of ideas. The new "farmer contact" level will be that of the Chef ZER and these agents will be expected to pass more complex extension messages, digest farmer

feedback and adapt extension themes to farmers' different circumstances.

These message and staff improvement efforts will be undertaken by the OHV organization itself, drawing on the resources of the national research institutions (IER and INRZFH), the various agricultural schools and faculties (the CAA system and the Institut Polytechnique Rural (IPR)), as well as on short-term and long-term training opportunities in Africa and elsewhere and the services of external trainers.

Further action will also be taken by OHV and an in-house technical assistance provided with DHV funding to develop work performance criteria, supervision systems, and new methods and approaches to extension (use of groups, demonstration fields, field days, etc.). Regular monitoring of performance will be required to determine further training needs or modification of extension themes.

The reduction of staff levels will result in some savings in personnel costs for OHV as a whole. USAID assistance will be targeted to areas where the new extension structure is being implemented.

b. Better Resource Development Planning

In order to improve the effectiveness with which both extension and planning roles are accomplished, the DHV project will have to devote more attention to data gathering and analysis. These efforts will be linked to implementation objectives, for example, providing data of productivity within OHV in a way which will permit monitoring and evaluation of extension agents' performance or of extension theme effectiveness in increasing production.

(i). Basis of Experience

The Division of Statistics and Planning within OHV was created to provide reliable information which can be used to monitor the effectiveness of the extension effort in terms of providing farmers' access to technical advice which pays off in increased agricultural production. So far the Division has not effectively performed its assigned role because of problems in the conception of surveys, their execution and in the analysis of the results. Although equipped with computers and staffed with personnel trained in data gathering and analysis, efforts are inadequately targeted at the information needs of OHV for management of its tasks.

OHV efforts at data collection have most recently been complemented by those of the FSR/E project. The two services are in the process of harmonizing their definition of terms so that their databases will permit information sharing. In addition to benefitting from the FSR/E project, OHV has contracted with other organizations in Mali which have benefitted from USAID support in the past and which can perform specialized analyses required for regional planning. The Land Use Inventory Project (PIRT) headquartered at the National Livestock and Natural Resource Research Institute (INRZFH) is one such organization.

The current OHV project has contracted with PIRT to conduct a land use inventory of the natural resource base for the entire Haute Vallee

region. The report will include soil maps, hydrological data and vegetative characteristics at a scale of 200,000:1 for the entire zone and at a scale of 50,000:1 for selected areas. It is expected that the report will assist OHV in the planning for the development of the region by identifying land use capabilities for targeted activities and areas. Preliminary results show a large degree of heterogeneity of soils and geomorphic characterisics, leading us to believe that further land use studies at a scale of 50,000:1 are required.

Over the past several years the OHV project has had some success in promoting better natural resources management through the extension service. Extension themes on proper crop rotations, erosion control through bunding, contour plowing and maintaining ground cover, organic fertilizer composting and utilization, growing green manure crops, planting live windbreaks and avoiding highly erodable soils have been incorporated into technical sheets and passed on to and accepted by farmers. This success, when assisted by better planning and targeting of these extension efforts should result in better natural resources management by Haute Vallee farmers. This year the German Aid Agency (GTZ) is providing technical assistance and support to OHV in order to monitor the impact of some of these extension themes on soil and water retention and crop productivity.

(ii). Planned Expansion of Activities

The new DHV project will strengthen OHV's capacity to collect and analyze data needed for planning, monitoring, and evaluation in a timely way and facilitate coordination of this role with the Ministry of Plan's Division of Statistics and with the Ministry of Agriculture's National Direction for Agriculture. Under the project, in-house technical assistance will be provided to the Planning Division at OHV, and they will have to be staffed with trained agricultural economists, in addition to the statisticians currently employed.

The DHV project will use information from these studies as well as others (e.g., the work of the International Livestock Center for Africa (ILCA) on forage crops and FSR/E on farming systems) to refine the extension themes being presented by OHV field agents. Extension agents will be given more precise messages to present to farmers which correspond to the particular environmental conditions and constraints where they are located and promote better natural resource management by Haute Vallee farmers. OHV extension agents, attached to the Ministry of Agriculture, are likely to be the most effective at this task as they are more numerous in the field than livestock and forestry agents.

The OHV project has concentrated efforts to date on the southern four Sectors of the Haute Vallee, largely because of their greater production potential, but also because the northern two Sectors were added to OHV after approval of the original project. Extension agents in those two Sectors are not, for the most part, encumbered with credit and commercialization responsibilties, nor do they have the necessary logistics support to be effective. Therefore, the DHV project will implement at a faster rate the restructuring of the extension service in those two Sectors and increase the support system for those agents. Because of the limited potential for cash crop production, an emphasis

will be placed on improved natural resources management.

c. Administrative Reform of OHV

(i). Basis of Experience

Key reforms of the organization of OHV itself which will be attempted in the first phase of the DHV project will deal with reduction of staff and the transition to a more limited role in marketing of agricultural inputs and outputs. The latter process has already been described in the section above on increasing private sector involvement in the region. Its successful implementation implies a certain willingness of the part of OHV staff to cede part of their present portfolio of activities to others -- and this may be problemmatic. However, OHV financial managers will be able to facilitate the transition by improving the cost-accounting systems in place to permit more refined analysis of the costs and benefits which such a transition is likely to engender and thus permit the project to ease the transition.

The reduction of staff issue is potentially even more difficult. In Mali, at present, unemployment is a major social and political concern of the GRM. The idea of firing employees (such as the present lowest level extension agents) without attempting to make productive use of their agricultural skills is a waste of human resource potential. Many OHV employees do not qualify for the early retirement program of the Economic Policy Reform Program because they were hired under personal services contracts. In addition, after just a short time, the demand for early retirement under that program has far exceeded the available project resources.

(ii). Planned Expansion of Activities

As the OHV organization reduces its role in commercial activities and the size of its extension service, it will be necessary for the "excess" OHV agents to find other work. There have been expressions of interest in settting up an early departure program for OHV employees (similar to that being supported as part of the EPRP), and there is a good possibilty that some of them can install themselves as producers in the OHV zone where many of them already have small farming operations. The potential savings to OHV are significant because all employee salaries, even for GRM civil servants, are now paid by the OHV organization and not the public treasury. The details of such a program have not yet been discussed but would likely involve a certain amount of severence pay and access to credit sources.

3. Rural Infrastructure Component (roads)

(i). Basis of Experience

An evaluation this year of the roads constructed under the current project (through a contract between OHV and the national agency charged with road construction -- Travaux Publics) reported that they have had the desired effect of stimulating agricultural production and crop diversification. The roads component revealed an average benefit/cost

ratio of 2.00 and a rate of return of 46.6 percent for the 378 kms of roads constructed thus far. The benefit/cost ratios and rates of return, while all positive, vary considerably according to population densities, actual and potential agricultural production, actual and potential traffic and the terrain. A system for roads maintenance has been put in place, tested and found to be adequate.

In the initial stages of project design, it was proposed that the DHV project continue with this satisfactory initiative. Two factors have conspired to lead us to identify this component as a "shelf component." First, overall funding availabilities for Mali have shrunk; doing the roads would cause us to compromise investments in the cooperative and private sector development areas. Second, the Italians have recently expressed interest in participating in the Haute Vallee regional development and might be willing to provide the funds.

The decision to shelve the road construction effort during the first phase of the DHV project was made in concert with OHV. Recognizing that project funds will be scarce, we established the following priorities for USAID assistance under the DHV project:

1) Cooperative Development
2) Private Enterprise Development
3) Extension/Planning Services Improvement
4) Roads Construction
5) Irrigation Development

(ii). Planned Expansion of Activities

If funding should become available, however, the road component might well be activated. The natural resource base of most of the zone is quite good and there is considerable agricultural production activity and an even greater potential that could be exploited with better access to markets. It is clear that the specific factors listed by the evaluation team with regard to choice of site must be taken into consideration in the selection process to ensure that future roads will have the desired impact on agricultural production and marketing. With this in mind the Mission intends to pursue an in-depth analysis of the feasibility of proposed new roads in collaboration with the Italians during the first phase of the DHV project.

Whether or not we will construct roads during the second phase of the DHV project will depend upon a reassessment of these priorities, other donor intentions, the magnitude of the need and the availability of funds.

V. Factors Affecting Project Selection and Further Development

A. Social Considerations

The notion of village cooperatives builds upon traditional village institutions, called "tons" in the local language. They are village groups, often based on age and/or sex, which organize their members to perform joint endeavors. This habit of collective work is a tradition

since time immemorial of the two predominant ethnic groups of the project area, the Malinke and the Bambara. Attempts to abolish the traditional structures during the colonial period were unsuccessful.

After independence, the GRM revived and attempted to use the "tons" concept to mobilize popular participation in socio-economic programs of the socialist regime then in power. Communal fields were to become the basis for instituting a form of collectivized agriculture. Decisions for even local level activities were centralized in the capital and made on behalf of rural farmers. As a result, these early attempts to "organize" villagers failed and the word "tons" became a stigma to cooperative development efforts.

The current official GRM policy towards "tons" is to accord to them administrative and financial autonomy to engage in economic and social activities determined by the group. Under the DHV project they will be called "associations villageoises" (AVs), or village cooperatives, consistent with other projects in Mali which strengthen local organizations and the terminology generally accepted by the GRM. Participants in village cooperatives in the Haute Vallee give their resounding approval to the current policies and programs for cooperative development.

The focus of the project on the development of village-based cooperatives is only justified if we are assured that they have the required autonomy to make decisions for themselves and if they can technically handle the tasks they attempt to assume. The criteria by which we have made that positive determination include their historical context, recent experiences, lessons learned and the desires of rural inhabitants.

Village cooperative development in the DHV project will, therefore, be based on two principles; 1) that the cooperatives operate free from undue government influence, and 2) that they operate on a sound financial footing. For reasons cited earlier villagers have found it to be in their economic interest to manage their own credit and input distribution. In addition to these activities cooperatives have facilitated a group approach to agricultural extension that the project will further promote.

Our recent study of village cooperatives in the Haute Vallee recommended that women's concerns can best be addressed through the traditional village societies. Certain activities related to the project goal and purpose, such as rice cultivation and market gardening, are traditionally reserved for women. The DHV project, with assistance of the CDO, will attempt to strengthen women's cooperatives which want to gain access to production credit, and monitor the use of all credit to ensure that women benefit as well.

It is proposed that a U.S. Cooperative Development Organization (CDO) work in collaboration with the OHV and the Ministry of Agriculture on the development and training of village cooperatives. Through this mechanism it is planned that beneficiary farmers will become more involved in on-going evaluation of the project and provide valuable feedback to the OHV, with the objective of achieving an orderly transfer

of responsibilities to village cooperatives.

B. Economic Considerations

How the investments of the DHV project will affect farmers' access to production technologies, equipment, and other production inputs, financial resources for investments, and markets for inputs and produce has already been described. What this increased access is likely to mean in terms of increased foodgrain productivity is the subject of this economic analysis.

1. Access to production technologies

It is clear from comparative production data collected in 1985 and 1986 in the Haute Vallee (Annex Table 1) that farm households with animal traction equipment produce more foodgrain both per household and per capita than do households without such equipment. Equipped farmers in the southern OHV zone produced 4.2 MT of millet, sorghum and maize per household while those with no animal traction equipment produced only 885 kg. In the north of the Haute Vallee zone, equipped households produced 2.4 MT of grain while households using manual tools produced only 822 kg. Since equipped farmers have larger households in general, the per capita figures are closer together but the gap still exists. In the southern areas, average per capita production of grain was 154 kg for equipped farmers and 130 kg for non-equipped. In the north, those households with animal traction produced 131 kg per person while those without such equipment produced only 88 kg/person.

These observations suggest that increased investments in animal traction equipment are important to overall productivity even with present levels of extension information and availability of inputs/markets in the Haute Vallee region.

The set of animal traction investments which defines a farm household as "completely equipped" these days costs about 350,000 FCFA - 400,000 FCFA, of which about 180,000 FCFA is the cost of the animals themselves. If this investment results in increased output for the household of 3 MT/year of foodgrain in the south and 1.5 MT of foodgrain in the north, the average price of this grain over the life of the equipment (10 years) is 40 FCFA/kg, the animals are sold and replaced (for the same price) in five years, and recurrent costs are assumed to be equal to amortization of the mechanical equipment only, the discounted stream of benefits compared to the costs indicates that the investments are likely to be justified by the grain yield increases in the south but not in the north (See Annex Tables 2 and 3). On the other hand, if a less complete set of equipment is proposed for the lighter soils of the north, then the return may justify the investment.

2. Access to Improved Extension and other Services

The comparative data presented above also suggest a reasonable hypothesis with regard to the magnitude of the foodgrain productivity increases one might anticipate from improvements in extension, credit from the NADB, and supply services by the private sector.

It is widely felt that the CMDT extension service is superior to that in OHV and that the overall access to transport and markets is also somewhat better. Thus, for looking at the possible return to these "softer" project investments, we took available data on production from the CMDT zone as our "with project" level of productivity.

Comparative data on CMDT farmers and OHV farmers with the same level of equipment (and similar rainfall and natural resources) indicates that OHV farmers' productivity lags significantly behind that of CMDT farmers. Equipped CMDT farm households, for example, produced 5.1 MT of foodgrains on average in 1985 while equipped farmers in the OHV region produced only 3.2 MT. Overall, the average farm household in the southern CMDT zone produced 4.4 MT of foodgrains while the comparable farmers in the OHV region produced 1.7 MT. Northern CMDT households produced 3 MT of foodgrain while those in northern OHV produced 1.3 MT.

These household production data indicate that even without investments in animal traction equipment, more general investments in extension services, input supply, and market development could result in substantial within-strata increases in productivity.

If extension, road, and market improvements in the Haute Vallee are projected to result in the OHV farmers attaining in ten years approximately the levels of grain productivity now being experienced by CMDT farmers, then it would seem to be worth spending up to $ 8 million over the next four years on these improvements (Annex Table 4).

3. Conclusion

The level of benefit/cost analysis presented here is indicative at best. However, it tends to confirm the proposition that both farm-level and project-level investments to improve foodgrain production are economically feasible. A much more detailed economic assessment will, of course, have to be done in the preparation of the Project Paper.

The economic benefits generated by this project will have to be more specifically related to:

- the success of the farmers in the OHV zone in their individual production investments, not only in quantity of production but also in terms of monetary incomes;
- the profits of village cooperatives in doing business;
- the relative efficiencies of the private sector traders over OHV in delivering goods and services (lower costs for farmers and profits for private sector entrepreneurs);
- the reduced costs and increased revenues generated by road improvements (if these are funded by the project) for producers/population as a whole; and

- the decreased costs (increased efficiency) of OHV as an organization which provides commercial (cotton marketing) and public (extension, research) services.

These analyses will be part of the PP design effort.

C. Relevant Experience with Other Projects

The present Operation Haute Vallee project (688-0210) is, of course, the experience most relevant to the proposed Development of the Haute Vallee project. The linkage between the two has been made clear in virtually every section above. The restructuring of the present OHV will, however, also build on similar experiences of other RDOs in Mali and on cooperative development experiences elsewhere.

CMDT, a mixed-capital RDO supported by the World Bank and other donors, is thought of as the most successful RDO in promoting agricultural development and the one which OHV should most closely emulate. CMDT has, for example, increased cotton production from 22,000 to 195,000 MT, maize production from 11,000 to 105,000 MT and the use of animal traction from 30 to 70 percent in the past 20 years. CMDT also supports a research program which has led to the introduction of improved local varieties of maize and cotton, regularly maintains a network of rural roads and has fostered the growth of more than 900 credit cooperative associations. One of the major reasons for its success is that it occupies the most favorable southern region of Mali.

OHV, much smaller than the CMDT and organized much later, has had the support of the U.S. and the European Community. The OHV has, in the past ten years, increased maize production from 6,000 to 16,000 tons in addition to introducing improved local varieties of maize, sorghum, millet and cotton. The project has constructed and maintained 378 kms. of rural roads, run a program to provide 3,600 adults with instruction in literacy and numeracy skills, established a credit system for production inputs and animal traction equipment and assisted in the formation of 50 village cooperative associations. Even though the region is not as well-endowed as the CMDT, the potential for agricultural development with its proximity to Bamako, is comparable.

The cotton marketing activities of OHV have been one reason that the current OHV project has established a successful credit system that achieves 95 percent repaymant rates annually. Continued USAID support for the credit system, in light of Policy Determination (PD) 15, is justified on the grounds that cotton production has the spin-off benefits on cereals production listed above and the fact that cotton production in the Haute Vallee is insignificant relative to total Malian production, let alone that of the U.S. In addition, an analysis of theoretical vs. actual cotton yields and fertilizer use leads one to conclude that as much as 35 percent of fertilizers may be applied directly to other crops, including foodgrains.

The other major cash crop marketed by OHV, tobacco, is not so justified. Originally started with EEC (FED) financing, the tobacco program has not delivered the same benefits to farmers. Tobacco is grown during the dry season with irrigation and requires a greater capital investment. Few

farmers are able to grow enough tobacco to repay their loans. The Mission has increasingly distanced AID assistance to OHV from even indirect support to tobacco, and is requesting a complete separation of accounts, resources, logistical support, etc., to ensure that AID funds are not used for unauthorized purposes.

The profits derived from the marketing of cotton have made the Malian Company for the Development of Textiles (CMDT) and OHV considerably more financially independent than the other RDOs in Mali. In the cases of CMDT and OHV, donor resources have been used to underwrite the activities which did not generate a financial profit, such as research and foodcrop extension services, but did not have to cover virtually all operating costs as they have in other RDOs. In the RDOs not supported by donors, the GRM has made an effort to provide the necessary funding, but given the general budgetary difficulties of the public sector, many of them have simply not had adequate resources to function effectively.

Currently, OHV finds itself in the precarious situation of generating enough profit to cover the majority of its operating costs but depending very much on donor assistance to make up the difference. OHV's inability to be self-sufficient is largely attributed to an aging truck fleet used for cotton marketing and the mandate to provide extension and credit services to farmers in a substantial area which is not suited to cash crop production, and therefore provides no direct income for OHV. The transfer of commercial tasks from the RDO to the private/cooperative sector is intended to reduce the losses to OHV. A mechanism will be worked out whereby OHV continues to receive the portion of funds reserved for extension service support from cash crop marketing in the Haute Vallee zone.

D. Proposed Grantee and Implementing Agency

The Ministry of Agriculture is the proposed grantee and the project will be implemented through: (1) the OHV organization, an RDO under the National Direction for Agriculture, (2) the BNDA, (3) a U.S-based CDO which will work semi-autonomously under the supervision of OHV, and (4) various private sector agencies (the Chamber of Commerce) and businesspersons.

It is the intention of the project design to maximize the participation of private/cooperative entities and to keep to a minimum the requirements for on-going financial support to cover public sector recurrent costs. OHV will reduce its activities throughout the life of project until it directly manages only extension and regional planning and coordination activities. Other activities, such as input/ouput marketing, functional literacy, on-farm research and eventually input/output marketing, will be indirectly supervised by OHV through program contracts, consistent with newly established policies for RDOs.

Project implementation will require: (1) three experts from a Cooperative Development Organization (CDO), who will operate semi-autonomously according to the terms of a cooperative agreement negotiated with USAID/Mali, and (2) four technical assistance experts working with OHV under the terms of a host country contract. The CDO team will coordinate both with OHV and the MOA National Direction for

Cooperatives. It will present yearly work plans and monthly reports to an oversight committee with representation by those GRM agencies and USAID. The OHV technical assistance team will present yearly work plans and monthly reports to the joint MOA, OHV and USAID project committee. For day to day project implementation, they will report to the Director General of OHV.

E. AID Support Requirements and Capabilities

The DHV project will be managed by the head of the Extension and Training Division of the Agricultural Development Office (ADO) of USAID. This Division is staffed with one USDH Agricultural Development Officer, one FSNDH Project Manager, one FSNPSC Private Sector Specialist, one FSNPSC Project Assistant and one full-time Secretary. The DHV project will become the main activity of this Division after the close-out of the current OHV project and an Agricultural Education project. The other project management activities of this Division are two small programs with the Peace Corps.

The current USDH is principally involved in the design of the DHV project and will be departing post o/a August, 1988. The Mission will replace him with an agricultural officer with a broad knowledge of the rural development process. The FSNDH Project Manager is working toward a PhD in development sociology and has managed the functional literacy component of OHV and the Agricultural Education project. He will be given the responsibility of the cooperative development and functional literacy components of the DHV project. The FSNPSC Private Sector Specialist has studied agricultural economics, is working on the design of the project and will help to implement that component. The FSNPSC Project Assistant will be responsible for general administration.

The policy reform nature of the DHV project will necessitate that USAID take an active role in ensuring that policy implications emerging from project activities are monitored closely, brought to the attention of USAID senior management, and positions transmitted to and negotiated with the appropriate GRM agencies. It is anticipated that in this way USAID will continue to be involved in policy dialogue with the GRM throughout the life of project. The USDH Agricultural Developemnt Officer will be responsible for supervising the Extension and Training Division staff to keep project management informed of on-going developments.

F. Estimated Cost and Methods of Financing

The estimated cost of the first phase of the DHV project is $11.5 million for a four year period from FY 89 to FY 92. The method of financing will be a grant, including support for technical assistance, training, construction and local currency expenditures by OHV. The indicative budget broken down by project components is as follows:

	('$000)
Private Enterprise Component	
Cooperatives	3,100
Private Companies	1,800
Financial Institutions/Credit	2,150

RDO Restructuring Component	
OHV Extension Service Upgrading	1,250
Improved Resource Development Planning	800
Administrative Reform of OHV	2,100
Project Evaluation/Audit	200
Roads Feasibility Studies	100
TOTAL	11,500

G. Design Strategy

The Mission will field a Project Paper design team in late September or early October 1987, composed of two cooperative development specialists, an agribusiness expert, a rural sociologist, an agricultural economist and an agronomist. The scopes of work, the length of time required and a statement of desired qualifications and experience for each of the positions are being drafted by the Mission. A REDSO/PDO and locally-hired consultant counterparts will also participate in the design process, along with Mission personnel. The design effort will require approximately three months.

The two cooperative development specialists will be provided by the Cooperative Development Organization (CDO) selected from an expression of interest to participate in the design and implementation of that project component under a Cooperative Agreement using a collaborative assistance acquisition mode. The other expatriate experts will be hired through an Indefinite Quantity Contract. Local consultants will either be hired directly by USAID or by the OHV project. The design team will coordinate its work with the appropriate GRM officials and include them in the design effort whenever feasible. The total cost of the design effort will be approximately $150,000.

USAID intends to make a presentation of the PID in AID/W as part of the review process and request that the PP be approved in the field under Delegation Of Authority 551. We expect that this DOA will permit the Mission to amend the project for the second phase on the basis of an evaluation in the third or fourth year of implementation. REDSO/WCA contracting advice and RLA/Dakar legal opinions will be sought on technical assistance contracts and the Project Agreement to be signed with the GRM. We expect to use full and open competition to procure the technical assistance services for support to OHV. However, the possibilities of using 8(1) or Grey Amendment procedures will be explored in the PP design.

H. Recommended Environmental Threshold Level

The Mission expects to render a favorable I.E.E. before formal presentation of the PID in AID/W. The activities of this project will have a positive impact on the environment, especially the promotion of soil and water conservation cultivation practices.

I. Waiver Requirements

The Mission will request vehicle waivers for approximately six double-cab light pickup trucks and 12 four wheel drive pickup trucks from a European or Japanese source for the cooperative development and agricultural extension work. The waiver will be justified on the basis that no representative of a US manufacturer maintains an adequate inventory of spare parts or after-sales service in Mali for US made vehicles. The purchase of US made vehicles, therefore, would impose serious project implementation problems and impede US foreign policy objectives in Mali.

J. Design Issues

Experience with the OHV project and results of in-depth consultations held with proposed participants in the DHV effort give us a substantial amount of confidence that the project can be implemented along the lines laid out in this PID. There are a number of outstanding issues, however, which will require specific attention in the design process.

1. Timeframe for cooperative development

It is proposed to nearly triple the number of viable farmer cooperatives operating in the Haute Vallee in a period of four years. While there is anecdotal evidence from various studies that a substantial number of villages are interested in launching their own cooperatives, it may be that the training needs are greater than anticipated or that the economic climate may be so negative over the next couple of years that viable cooperatives may simply not be possible. The survey which OHV is presently getting underway to look into the state of cooperative-readiness will be extremely helpful in deciding on a realistic target number of cooperatives for the first phase of DHV activity. The close involvement of the CDO which will implement the cooperative development program in the design phase itself should also help to ensure realism in setting project objectives.

2. The feasible rate for transfer of responsibilities from OHV to other organizations

Experience with the policy and structural reform process has made us well aware of the pitfalls in assuming that once a role is re-assigned on paper that it will become this way in reality. The person or organization who is supposed to play the new role must be immediately capable of doing so (trained, financed, committed) or implementation may lag substantially behind expectations.

In the DHV project, it is proposed to transfer credit responsibilities from OHV to the BNDA and input supply responsibilities from OHV to private sector businessmen. The OHV-BNDA transfer is principally contingent upon the speed with which cooperatives can be constituted. The transfer of input supply responsibilities will, however, require thorough analysis of the input supply question (one staff member is already at work on an analysis of the agricultural equipment subsector) as well as a management plan to ensure that OHV does not provide unfair competition to suppliers or that farmers' needs remain unmet.

3. Organizational issues at BNDA

It has been proposed to expand BNDA's presence in regional towns closer to farm villages and cooperatives both for credit and savings purposes. Based on their own analysis of funding availabilities, the BNDA at this point has no plans to build branch banks in the Haute Vallee. When asked whether project funding to underwrite establishment and initial recurrent costs might change their planning, BNDA representatives responded affirmatively, subject to the possibilities for assuring adequate staffing. This will have to be further pursued in the PP design process.

Another potential issue regarding BNDA is its capacity to evaluate non-traditional proposals for cooperative credit which might (on the basis of Nigerien experience) emerge from the cooperative development program. A related issue concerning BNDA which needs further exploration is the potential for BNDA to entertain financing proposals coming directly from cooperatives. At present, BNDA relies on RDOs to certify the technical aspects of all proposals and for the RDOs to play an active role in credit supervision. As conceived here, OHV's role in credit management is to decline; this potential conflict must be examined and resolved in the PP process.

4. The need for an additional line of credit or guaranteed input supplies (as through a CIP)

There seems to be little need for project funding to augment the amounts available for cooperative credit, but there may be a need for additional liquidity for private sector input suppliers. Given our ongoing analysis of the equipment situation, there may also be a need to assure the physical delivery of inputs to Mali.

5. GRM policy support

While the lines of GRM policy reform with regard to restructuring of RDOs were clearly laid out at the recent national conference on the subject, and the proposed project is consistent with these lines, the ability of the GRM to actually implement these reforms should not be taken for granted. As noted above, reductions in staff are politically difficult even when they are accepted as fully necessary. Further, the historical attitude toward public sector leadership in development and public sector control of the process continues to influence the rate of progress made toward privatization of the economy. Identification of the measures necessary to ensure that the transfer of roles between public and private sectors, for example, actually takes place will be an important design task.

6. GRM financial support

The OHV organization presently operates with virtually no public financing. Payments by the CMDT for cotton marketing services, fees levied on credit managed by OHV, and support from donors (USAID and, until recently, the European Economic Community) now constitute a financial basis which is independent of the government budget. It is

planned, however, that over the life of the project, the GRM will assume more responsibility for financing what are appropriately defined as public services: extension and research activities. The rate at which the government budget can absorb these costs will need to be carefully projected in the design effort.

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

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PROJECT TITLE AND NO:
DEVELOPMENT OF THE HAUTE VALLEE
685-0077

Life of Project:
From FY 88 to FY 95
Total U.S. Funding: $11.5 mil
Date Prepared: June 18,, 1987

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Goal of the Program or Sector: Larger objective to which the project contributes:	Measures of Goal Achievement:		
To increase agricultural production, notably of food crops, and net incomes of inhabitants of the Haute Vallee.	1. A measurable increase in agricultural production of farmers in the Haute Vallee. 2. A measurable increase in net incomes of inhabitants of the Haute Vallee.	1. Special data collection within the framework of monitoring the project in the Planning and Statistics Division of the DNA and Operation Haute Vallee. 2. Scheduled evaluations.	1. The Haitian government will continue to give a priority to the support of agricultural and rural development; especially to agricultural credit, road maintenance, restructuring RDOs, promotion of the private sector, and training and retraining of public sector personnel and farmers. 2. Prices offered to producers will provide sufficient production incentives. 3. The strategy for increasing agricultural production will be adapted to changes in climatic conditions.
PROJECT PURPOSE:	Conditions which indicate that the purpose was achieved: End of Project Status.		
Increase farmer's access to production technologies, equipment and other production inputs, financial resources for investments, and markets for inputs and produce.	1. Reach 12,000 farm households with improved extension services so that they are employing improved, environmentally-sound cultural practices. 2. Organize and train 150 village cooperatives assisting some 7,000 farm households with agricultural credit and rural banking services. 3. Assist 150 village cooperatives in making contacts with private businessmen for input supply and output marketing.	1. Special data collection in the framework of monitoring the project within the Planning and Statistics Division of the DNA and Operation Haute Vallee. 2. Schedule evaluations.	1. The technology for increasing productivity is available for transmission to farmers and is economically viable. 2. Research results will increase the availability of relevant techniques. 3. Staff of DNA will be capable of and motivated to reach farmers. 4. Village cooperatives will render those services desired by their members. 5. Inputs and agricultural equipment will be available, effective and sold at reasonable prices. 6. Political climate remains conducive to cooperative development.

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PROJECT OUTPUTS:			
A. Rural Enterprise/Institution Component 1. Village Cooperatives a. Credit Activities b. Other Commercial Activities 2. Private companies a. AT Equipment and Inputs Suppliers b. Fertilizer CIP Private Bank Credit for bulk purchases c. Transport of Production d. Village Blacksmiths 3. Credit/Savings Institutions a. Field Offices in 4 sectors b. Agricultural Production Credit c. Rural Savings Mobilization (mobile banks)	A. Rural Enterprise/Institution Component 1. a. 150 village cooperatives created and assisted. b. 30 village cooperatives contracting directly with private companies in 4 years. 2. a. Up to 10 local firms purchasing AT equipment and inputs through bank credit. b. Approx. 10 private companies supplying inputs to village cooperatives. c. Up to 5 local firms contracted to transport ag produce to market. d. Increased production capacity of 20 village blacksmiths and 10 acre installed. 3. Credit/Savings Institutions a. Open 4 regional offices in the 4 southern sectors. b. Increase BNDA credit to 150 cooperatives serving 7,000 farm households. c. Distribute on credit 20,000 units of AT equipment and 1,000 tons of fertilizer. d. Establish experimental rural savings mobile bank.	A. Rural Enterprise/Institution Component 1. Cooperative Development Organization (CDO) monthly reports. 2. CDO monthly reports, village cooperative records and VITA Blacksmith program records. 3. NACB records, quarterly reports and village cooperative records. B. RDD Restructuring Component 1. OHV extension and planning records and reports, TA monthly reports. 2. Land use inventory final report. 3. OHV credit section statistics and other reports; NADB and CDO monthly reports. 4. OHV Division of Administration and Finance reports.	A. Rural Enterprise/Institution Component 1. That the creation of new village cooperatives will continue at the current rate. 2. That private companies will continue to seek profitable relations with village coops. 3. That the level of credit demand will continue to justify the creation of regional offices. 4. That rural households have savings and will entrust that to a bank.
B. RDD Restructuring Component 1. Upgrading OHV Extension Service a. Better Messages to Convey b. New Approaches and Methods 2. Improved Resource Development Planning a. Monitoring Extension Agent Performance b. Measuring Impact of Project Interventions 3. Administrative Reform of OHV a. Reduction in Workforce b. Early Departure Program	B. RDD Restructuring Component 1. a. Completed revision of extension structure and new methodologies introduced, and creation of better adapted extension themes. 2. a. Establishment of an on-going evaluation system of impact of project activities on production and incomes. b. Completed land use inventory for all OHV at 50,000:1 scale. c. Strengthened natural resources management emphasis in all six Sectors of OHV. 3. a. Reduction of 155 OHV agents. b. All credit transferred to BNDA and village cooperatives by 1997. c. reduction to zero of inputs and equipment bought by OHV on behalf of farmers. d. All OHV input/output marketing contracted to private companies.	C. Rural Infrastructure Component 1. Feasibility final report.	
C. Rural Infrastructure Component (Roads) 1. Feasibility Studies 2. Shelf Component	C. Rural Infrastructure Component 1. a. Feasibility study accomplished.		

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PROJECT INPUTS:			
A. Rural Enterprise/Institution Component 1. CDO will strengthen village cooperatives through outreach and training of trainers program and build contacts with private companies under a cooperative agreement with USAID. a. Technical Assistance b. Training c. Commodities d. Operations e. Functional Literacy 2. VITA and Peace Corps to train village blacksmiths in better production methods and business management. a. Technical Assistance b. Training c. Commodities d. Operations 3. Assist the BNDA to strengthen the loan evaluation unit and conduct the savings mobilization experiment. a. Technical Assistance b. Training c. Commodities d. Operations e. Construction f. Credit 1) Farmer's Production 2) CIP Fertilizers 3) Private Sector Transport/Storage	A. Rural Enterprise/Institution Component 1. CDO Program a. Project Manager (48 pm), Trainers (96 pm) Short Term (12 pm) b. Short Term and In-country Seminars c. Logistics and Field Office Support d. Operating Costs e. CHAFLA contract for F.L. activities 2. VITA/Peace Corps Program a. Production/Marketing Expert (48 pm) Peace Corps Volunteers (96 pm) b. Agricultural Mechanics Institute Training (20 pm), In-service (100 pm) c. Logistics and Field Office Support d. Operating Costs 3. BNDA/Banking Program a. Savings/Loan Bank Officer (40 pm) b. In-service Training c. Logistics and Field Office Support d. Operating Costs for Field Offices e. Construction of 4 Field Offices f. Credit 1) Farmer Level for Animal Traction Equipment and other Inputs 2) CIP for Fertilizers 3) Line of Credit for Transport/Storage	A. Rural Enterprise/Institution Component 1. Cooperative Agreement with CDO, CDO Records, Monthly and Yearly Reports 2. Cooperative Agreement with VITA, VITA Records, Monthly and Yearly Reports, Peace Corps Records and Volunteer Reports 3. BNDA Quarterly Reports, Cooperative Credit Records, Private Bank Credit Records	A. Rural Enterprise/Institution Component 1. A CDO will be interested in the program and can locate qualified staff. 2. VITA and Peace Corps can locate qualified staff. 3. The BNDA will obtain approval from their Board of Directors to expand their regional offices.
B. RDO Restructuring Component 1. Within the DHV organization to strengthen extension and planning activities of DHV, and the transfer of commercial tasks to the private/cooperative sector. a. Technical Assistance b. Training c. Commodities d. Operations e. Evaluation/Audit f. Early Departure Program 2. Strengthen capacity of GRM institutions in policy analysis and conception to support private sector development. a. Training	B. RDO Restructuring Component 1. DHV Program a. Financial Analyst (48 pm), Extension Agronomist (48 pm), Agricultural Economist (48 pm), Credit Specialist (24 pm), ST (20 pm) b. M.S. Agricultural Economics, M.S. Extension Agronomy, M.S. Accounting, Short Term Computer Programming, In-country Training Program c. Logistics, Headquarters and Field Support (supporting improved extension delivery) d. Operating Costs (targeting reforms) e. Short Term Experts (9 pm) f. Cost of Removing ISE Agents 2. Policy Analysis a. Short Term Training/Seminars for MOA Officials (10 pm)	B. RDO Restructuring Component 1. DHV and T.A. Contractor Monthly Reports, USAID Reports, PIO/T's, Contracts 2. USAID Training Records, PIO/Ps, Training Reports 3. DHV Financial Reports, USAID Records, PIO/C's and Purchase Orders 4. DHV Monthly Financial Reports, USAID site visits 5. Evaluation/Audit Reports 6. DHV Personnel Records	B. RDO Restructuring Component 1. Capable experts with appropriate qualifications are available and interested. 2. Qualified candidates for training can be identified for training.
C. Rural Infrastructure Component a. Technical Assistance	C. Rural Infrastructure Component 1. ST (4 pm)	C. Rural Infrastructure Component 1. Feasibility Study	

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Annex Table 1. Foodgrain Production by Farm, Product, Worker, and Per Capita
1985/86 -- Situation by Zone and Stratum

Zone, Sub-Zone, and Stratum	No. farms sampled	Population per farm	Total Foodgrain Production Kilos	% millet	% sorghum	% maize	kg per worker	kg per capita
- CMDT : South -								
Equipped	13	15.1	6289	35.1	45.4	19.4	925	416
Semi-equipped SS	12	12.3	5108	47.1	30.8	22.1	912	415
Semi-equipped NSS	11	9.6	2825	38.4	35.0	26.7	743	328
Not equipped	12	6.3	1540	35.0	38.9	26.1	616	244
Total	48	11.4	4392	38.5	40.2	21.3	866	384
- CMDT : North -								
Equipped	16	19.3	4171	61.7	34.6	3.7	596	216
Semi-equipped SS	11	10.4	2114	67.8	25.6	6.5	492	203
Semi-equipped NSS	11	9.7	1592	61.0	27.8	11.2	379	164
Not equipped	10	6.0	1295	75.0	18.6	6.4	540	216
Total	48	14.2	2969	63.3	31.9	4.9	551	209
- ONV : North -								
Equipped	11	27.6	4242	49.4	39.8	10.8	624	154
Semi-equipped SS	10	15.9	2196	55.4	38.4	6.1	477	138
Semi-equipped NSS	13	13.9	1080	51.5	48.6	1.9	284	78
Not equipped	14	6.8	885	35.3	62.5	2.3	421	130
Total	48	13.4	1664	48.0	45.7	6.3	451	124
- ONV : South -								
Equipped	9	18.4	2412	80.6	19.4	0.0	350	131
Semi-equipped SS	10	14.9	2053	80.9	19.1	0.0	395	138
Semi-equipped NSS	10	11.4	1176	85.0	15.0	0.0	287	103
Not equipped	17	9.3	822	86.4	13.6	0.0	228	88
Total	46	12.1	1341	83.1	16.9	0.0	299	111

Source: Food Security Project in Africa, Michigan State University, CESA, Producer surveys, 1985

Note: Semi-equipped farms are divided into two categories: SS for self-sufficient and NSS for not self-sufficient

Annex Table 2. Benefit-Cost Analysis of Animal Traction Investments
Southern Haute Vallee Region
Base Case

Year	Basic Investment FCFA (a)	Oper. & Maint. @ 15%	Annual Investment Cost (FCFA)	Discount factor % 12	NPW of Investment FCFA @ 12%	Gross Benefits FCFA (b)	NPW of Investment FCFA @ 12%
1	400,000	60,000	460,000	0.893	410,780	140,000	125,020
2		60,000	60,000	0.797	47,820	140,000	111,580
3		60,000	60,000	0.712	42,720	140,000	99,680
4		60,000	60,000	0.636	38,160	140,000	89,040
5		60,000	60,000	0.567	34,020	140,000	79,380
6		60,000	60,000	0.507	30,420	140,000	70,980
7		60,000	60,000	0.452	27,120	140,000	63,280
8		60,000	60,000	0.404	24,240	140,000	56,560
9		60,000	60,000	0.361	21,660	140,000	50,540
10		60,000	60,000	0.322	19,320	140,000	45,080
	TOTALS				696,260		791,140

Ratio Discounted Benefit/Cost = 1.136

Assumptions:

(a) A complete set of animal traction equipment would require:
180,000 FCFA for a pair of animals
45,000 FCFA for a plow
70,000 FCFA for a cultivator
45,000 FCFA for a cart
60,000 FCFA for a seeder and miscellaneous equipment

(b) 3.5 MT of additional production valued at 40 FCFA/kg

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Annex Table 3. Benefit-Cost Analysis of Animal Traction Investments
Northern Haute Vallee Region
Base Case and Alternative

Base Case

Year	Basic Investment FCFA (a)	Oper. & Maint. @ 15%	Annual Investment Cost (FCFA)	Discount factor % 12	NPW of Investment FCFA @ 12%	Gross Benefits FCFA (b)	NPW of Investment FCFA @ 12%
1	400,000	40,000	440,000	0.893	392,920	60,000	53,580
2		40,000	40,000	0.797	31,880	60,000	47,820
3		40,000	40,000	0.712	28,480	60,000	42,720
4		40,000	40,000	0.636	25,440	60,000	38,160
5		40,000	40,000	0.567	22,680	60,000	34,020
6		40,000	40,000	0.507	20,280	60,000	30,420
7		40,000	40,000	0.452	18,080	60,000	27,120
8		40,000	40,000	0.404	16,160	60,000	24,240
9		40,000	40,000	0.361	14,440	60,000	21,660
10		40,000	40,000	0.322	12,880	60,000	19,320
TOTALS					583,240		339,060

Ratio Discounted Benefit/Cost = 0.581

Alternative : Less than Complete Set of Equipment

Year	Basic Investment FCFA (a)	Oper. & Maint. @ 15%	Annual Investment Cost (FCFA)	Discount factor % 12	NPW of Investment FCFA @ 12%	Gross Benefits FCFA (c)	NPW of Investment FCFA @ 12%
1	295,000	44,250	339,250	0.893	302,950	100,000	89,300
2		44,250	44,250	0.797	35,267	100,000	79,700
3		44,250	44,250	0.712	31,506	100,000	71,200
4		44,250	44,250	0.636	28,143	100,000	63,600
5		44,250	44,250	0.567	25,090	100,000	56,700
6		44,250	44,250	0.507	22,435	100,000	50,700
7		44,250	44,250	0.452	20,001	100,000	45,200
8		44,250	44,250	0.404	17,877	100,000	40,400
9		44,250	44,250	0.361	15,974	100,000	36,100
10		44,250	44,250	0.322	14,249	100,000	32,200
TOTALS					513,492		565,100

Ratio Discounted Benefit/Cost = 1.101

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Assumptions:

(a) A complete set of animal traction equipment would require:
180,000 FCFA for a pair of animals
45,000 FCFA for a plow (perhaps not needed in north, eliminated in alternative)
70,000 FCFA for a cultivator
45,000 FCFA for a cart
60,000 FCFA for a seeder and miscellaneous equipment (eliminated in alternative)

(b) 1.5 MT of additional production valued at 40 FCFA/kg

(c) 2 MT of additional production valued at 50 FCFA/kg

Annex Table 4. Benefit-Cost Analysis of Output Improving Project Activities
Base Case, Northern and Southern Haute Vallee Region

Year	Hypothesized Cost of Proj. Improvements in FCFA	Hypothesized level: southern farm output (kg/farm hh)	No. of southern farm hh	Base and marg. inc. farm output Reg'l MT	Hypothesized level: northern farm output (kg/farm hh)	No. of northern farm hh	Base and marg. inc. farm output Reg'l MT	New Output From Project Total MT	Value of Output Million FCFA
1	600,000,000	1664	18,800	31,283	1341	20,000	26,820		
2	600,000,000	1967	18,800	5,698	1522	20,000	3,618	9,316	372,650,667
3	600,000,000	2270	18,800	5,698	1703	20,000	3,618	9,316	372,650,667
4	600,000,000	2573	18,800	5,698	1884	20,000	3,618	9,316	372,650,667
5		2876	18,800	5,698	2065	20,000	3,618	9,316	372,650,667
6		3180	18,800	5,698	2245	20,000	3,618	9,316	372,650,667
7		3483	18,800	5,698	2426	20,000	3,618	9,316	372,650,667
8		3786	18,800	5,698	2607	20,000	3,618	9,316	372,650,667
9		4089	18,800	5,698	2788	20,000	3,618	9,316	372,650,667
10		4392	18,800	5,698	2969	20,000	3,618	9,316	372,650,667
TOTAL in FCFA	2,400,000,000								3,353,856,000
Total in $ @ 300 FCFA/$	8,000,000								11,179,520
NPV (I)=	1,822,409,608			NPV(O)/NPV(I)=			1.090	NPV(O)=	1,985,575,837

Assumptions:

(a) Present DHV output (kg grain/hh) will increase gradually over ten years to equal present CMDT average

(b) Value of additional output is 40 FCFA/kg.

(c) Investment has lag of one year in effect on increasing productivity and effects last for up to six years after initial investment.

(d) Investment is "worthwhile" until Net Present Value of Investment is greater than Net Present Value of Additional Output.

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Annex Table 5. Background Data on OHV

Zones/ Sectors		No. farms	Estimated number of pieces of animal traction equipment in use ..... Plow	Multi-cultivator	Donkey hoe	Seeder	Harrow	Cart	Crop sprayers	Oxen
South	Kangaba	3,235	1,776	1,344	0	437	1	1,192	257	10,073
	Bancoumana	3,943	1,570	1,188	0	386	1	1,054	174	8,908
	Kati	5,621	1,581	1,197	0	389	1	1,062	991	8,971
	Duelessebougou	5,991	1,742	1,318	0	429	1	1,170	565	9,884
Total southern sectors		18,790	6,670	5,047	1	1,641	2	4,478	1,986	37,835
	% AT	43								
North	Koulikoro	12,383	3,973	3,006	1	977	1	2,667	120	22,536
	Banamba	7,608	2,706	2,048	1	666	1	1,816	0	15,349
Total northern sectors		19,992	6,678	5,054	2	1,643	3	4,483	120	37,886
	% AT	33								
	TOTAL	38,781	13,348	10,101	3	3,284	5	8,961	2,106	75,721
New value of equipment (FCFA/piece)										
	SNECMA		40,185	62,755		51,224		42,785		180,000
	GTI/CREPA		39,980	62,060		49,980		41,980		180,000
	SONEA		46,215	72,170		58,910		49,145		180,000
	OHV blacksmiths		16,821	24,500						180,000
	Market blacksmiths		17,500	32,500						180,000
	Ets Cheikna Diallo		45,125	72,120		58,910		48,715		180,000
	SONECI		43,825	70,025		56,980		47,525		180,000

Sources: Price estimates based on reports from various companies
Total amount of equipment reported in OHV surveys was distributed to sectors by weights of farms