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GLOSSARY OF TERMS

ANED,	Asociación Nacional Ecuménica de Desarrollo
BANCOSOL,	Banco Solidario
CAPIA	Centro de Apoyo a la Pequeña Industria y Artesanía
CEDETI,	Centro de Tecnología Intermedia
CEPAC,	Centro de Promoción Agraria Campesina
CIDA	Canadian International Development Agency
CIDRE,	Centro de Investigación y Desarrollo Regional
EIA	Environmental Impact Assessment
FIE	Centro de Fomento de las Iniciativas Económicas F.F.P.
FFP	Fondo Financiero Privado
FUNBODEM,	Fundación Boliviana para el Desarrollo de la Mujer
FUNDA-PRO	Fundación para la Producción
GOB	Government of Bolivia
IDB	Interamerican Development Bank
IDEPRO	Instituto para el Desarrollo de la Pequeña Unidad Productiva
IFC	International Finance Corporation
JACs	Juntas de Ahorro y Crédito
MCO	Microcredit Officer
MFI	Microfinance Institution
NGO	Non-Governmental Organization
PAAC,	Programa de Asistencia Técnica y Bioenergética al Campesino
PRODEM,	Prodem Oportunidad, S.A. F.F.P
PROMUJER	Programa para la Mujer
SAT	Servicio de Asistencia Técnica
TA	Technical Assistance
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

1. INTRODUCTION AND OBJECTIVES

Concern over the potential environmental impacts of microenterprises has led several international donors to explore ways to quantify and, if necessary, mitigate these impacts. The purpose of this study was to assess the environmental impact of microenterprises supported indirectly by USAID's program for the development of microfinance institutions (MFIs) in Bolivia. The study also examined options for mitigating the environmental impacts of microenterprises, taking into consideration the current economic and social context in which the microenterprises and microfinance institutions operate in Bolivia.

1.1. Background to the Study

1.1.1. Microfinance in Bolivia

Microfinance has been recognized as an effective development and social welfare tool, which enables poor household to access credit. Bolivia has been a leader in the development of microfinance, and in the last two decades the country has seen a tremendous growth in microfinance. In Bolivia today there is a large and active microfinance market being serviced by approximately 75 microfinance institutions with a total client base of over 400,000 and an outstanding loan balance in excessive of $350 million (SBIF, 1999).

A recent downturn in economic conditions has resulted in decrease in the demand for microcredit and a reduction in the debt capacity of borrowers. Both these circumstances, taken together, have caused an increase in the delinquency rates, now ranging from 6% to 7% over the gross loan portfolios. The crisis has also shown weaknesses in the regulatory framework, the supervisory body, and the technologies of microfinance institutions.

Microfinance institutions in Bolivia can be classified into five categories based on their corporate status and lending practices:

1. Banks

Banks are regulated by the Superintendent of Banks and are subject to all legal requirements and regulations issued by the Superintendent;

2. Private Financial Funds

Private Financial Funds (FFPs) are regulated by the Superintendent of Banks according to special regulations which are less rigorous than for commercial banks, they may offer credit and savings as well as other products such as transfers;

3. Credit and Savings Associations and Cooperatives

Credit and Savings Associations and Cooperatives are institutions which are regulated by regulations and laws designed specifically for them by the Superintendent of Banks;

4. Non-governmental organizations
Non governmental organizations (NGOs) are not regulated by the Superintendent, and accordingly, may not accept deposits; and,

5. Communal Banks
Communal banks are associations of people (usually from 20 to 40) to which an NGO lends money over relatively short cycles of four to eight months and then the "bank" on-lends these funds to its members, either in solidarity groups or on an individual basis. Members of the association may contribute savings to their "bank" to augment the banks lending portfolio.

USAID's support for microfinance initiatives in Bolivia began in 1986 and has involved programs to strengthen the institutional and operational capacity of MFIs. USAID has also provided loans or lines of credit to second tier financial institutions which in turn provide money and support to the retail MFIs.

1.1.2. Environmental Management and Assessment in Microfinance

In terms of environmental management issues in microfinance, there are three principal areas of concern:

- Depletion of natural resources
- Disposal of liquid, solid, and gaseous wastes
- Occupation health and safety issues

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In developing countries, weak environmental legislation, poor enforcement of environmental standards, underdeveloped civil infrastructure, a low level of environmental awareness, and poverty are the biggest obstacle to addressing environmental problems, and to promoting environmental management in all industries, big and small.

Environmental assessment involves a comprehensive consideration of the environmental, (including cumulative) and social impacts of a project undertaking. Traditional environmental procedures involve the assessment of the impacts of a project's 'footprint' on the surrounding environmental components. In a single microenterprise this footprint, and the interaction of the enterprise with its surrounding environment may be negligible or insignificant. However, the cumulative impact of many thousand microenterprises may be substantial and irreversible.

Until recently, environmental assessment of microenterprises has escaped the rigorous project environmental assessment procedures normally required by projects supported by international donors. This is due to the fact that most international donors work through microfinance institutions rather than directly with the microenterprises. This exemption of 'on-lending' practices is now being examined by donors concerned over the potential

cumulative impacts of microfinance portfolios. Some international lenders, such as the International Finance Corporation (IFC), require MFIs to at least report on the environmental impacts of their loan portfolios; however, there are several challenges associated with the environmental assessment of microenterprises which has hindered the ability of MFI to comply with this requirement; namely:

- Microfinance institutions may have as many as 60,000 clients resulting a substantial cost to conduct environmental assessment for all microenterprises
- Microfinance portfolios cover a wide range of sectors, each requiring specific assessment criteria
- There are no clear and appropriate environmental assessment guidelines for microenterprises

Several studies have attempted to quantify the environmental impacts of microlending practices. The Interamerican Development Bank (IDB) undertook an environmental assessment of their lending practices in Bolivia, and concluded that a vast majority (greater than 75%) of microenterprises have no substantial negative environmental impact (BID, 1998). Similar results were found from a world-wide assessment of the microlending practices of the International Finance Corporation. (IFC, 2000). Non-impacting sectors consist largely of urban and rural retail and service enterprises. There are, however, a large proportion (albeit a minority) of microenterprises that result in significant, negative environmental impacts. Sectors where significant environmental problems usually occur are listed in Table 1.1.

Table 1.1. Example of environmental issues in several microfinance sectors.

SECTOR	ASSOCIATED ENVIRONMENTAL ISSUES
Tanneries	Release of and exposure to toxic effluents (particularly chromium VI)
Textile dyeing	Exposure to and release of toxic effluents
Agriculture	Misuse of agro-chemicals
Brick making and lime kilns	Depletion of forest resources, exposure to particulate and fumes
Metal plating	Toxic effluents
Ceramics	Use of glazes based on heavy metals, corrosive acids
Mining	Toxic effluents (particularly cyanide and mercury) in gold processing

In response to apparent environmental management issues in some microfinance sectors, the Canadian International Development Agency (Pallen, 1997) and the Interamerican Development Bank (BID, 1997) developed guidelines for the environmental management in microenterprises. These guidelines assist in identifying the environmental issues

associated with microfinance, and provide a useful reference for the development of appropriate solutions to environmental management problems.

In 1999, CIDA sought to apply some of these principles to their microfinance programs in Vietnam. Working with the State Bank of Vietnam, CIDA developed an approach based on training microfinance loan officers in identifying and, to some extent, mitigating environmental problems in microenterprise. Following a short environmental training course, the loan officers were equipped with a simple technical field manual, which enabled them to assist the borrower in either implementing environmental mitigation measures, or in finding the appropriate solution to their environmental problems from a alternative, reliable source. To date, this has been the only attempt to take the concepts of environmental management in microfinance and develop them into assessment and mitigation procedures applicable to individual microenterprises.

1.1.3. Environmental Legislation in Bolivia

Weak environmental legislation and poor enforcement of environmental standards work against the application of environmental standards in microfinance portfolios. In Bolivia environmental legislation is applicable in general to all types of activities. Commerce and services small and micro enterprises are not required to do Environmental Impact Assessment on their activities. Production-oriented small, and micro enterprises on the other hand, should follow the procedures to register and obtain environmental permits.

A summary of relevant environmental laws and regulations is presented in Appendix A.

1.2. Objectives of the study

There were three principal objectives to this study:

1) Identify possible environmental impacts of the microfinance programs, raise awareness of the issues within the industry, and if and where appropriate, suggest mitigation measures;

2) Assess the role of MFIs as intermediary links to microenterprises, as providers of training and practical advice which promotes environmentally and fiscally viable businesses; and

3) Evaluate the lending process and procedures of MFIs to identify possible areas for incorporating environmental considerations into loan review procedures.

Specific tasks associated with these objectives were:

- Conduct a consultation with government and MFI stakeholders in order to gauge their perception, and understand their opinions of environmental management in microfinance in Bolivia;

- Identify the microenterprise sectors in which the Bolivian MFIs are lending;
- Identify the direct and indirect environmental impacts of microenterprises being supported by the MFIs in selected representative sectors, and by type of business;
- Recommend a framework for the assessment and mitigation of environmental issues within the studied microfinance sectors;
- Develop recommend for MFI lending procedures which could possibly take into consideration environmental impact of lending activities;
- Identify private (non-MFIs) and Government of Bolivia (GOB) partners to assist the microfinance sector with implementation, follow-up and monitoring of environmental recommendations;
- Conduct a final consultation with government and banking stakeholders to obtain their feedback on proposed assessment and mitigation proposals; and,
- Identify opportunities for financial support for ME environmental activities.

The study took place between January 21 and February 17, 2001.

2. APPROACH AND METHODOLOGY

2.1. Selection of the team

The study team was composed of four members with skills and experience related to the central themes of the project:

- Dr. Richard Donald (co-team leader), an environmental specialist with experience in the assessment of microfinance institutions;
- Mr. Rafael Acevedo (co-team leader), a professional engineer with experience in environmental assessment and audit procedures;
- Dr. José Pereira, a sociolinguist, anthropologist and environmental specialist experienced in urban and rural Andean and Amazonian communities; and,
- Ms. Anne Beasley, a microfinance specialist with extensive experience working with Bolivian MFIs.
-

2.2. Design of the study

2.2.1. Planning stage

Background literature on environmental management in MFIs, and environmental assessment and mitigation frameworks applicable to microenterprises, were reviewed.

Prior to field visits and consultations with MFIs and borrowers, a detailed work plan was elaborated in consultation with USAID, and in consideration of the Terms of Reference for the project.

In order to collect data on lending procedures, all microfinance institutions supported (either presently or in the past) by USAID were selected for visits. In planning the field visits, it was felt that a representative cross section of MFIs and activity sectors should be selected in order to focus the field visits and information gathering activities.

Due to difference in lending practices and procedures, it was felt that MFI institutions representing full-fledged banks, Fondos Financieros Privados (FFPs), NGOs and Credit Cooperatives should be visited to assess the appropriateness of the environmental assessment and mitigation models among these differing banking models.

The following priority sectors were selected for field visits, with the justification that past studies have shown them to be potentially the most polluting sectors:

- Tanneries
- Agricultural and agri-food processing
- Artisans (ceramic, textile, jewelry)
- Brick making
- Metal shops

Visits to MFIs and borrowers in La Paz/El Alto, Santa Cruz and Cochabamba were arranged through the various MFIs in each area.

It was necessary to seek input and advice from various governmental and NGO groups involved in environmental and business issues. Relevant organizations were identified during the initial consultations with stakeholders, and during the course of the study. A complete list of individuals, institutions and organizations which were visited during the course of the study is given in Appendix C.

2.2.2. Development of working research models

The study team felt that the previous work conducted by CIDA (CIDA 2000) in the assessment and mitigation of microfinance operations in Vietnam, and the evaluation of this approach undertaken by the IFC (IFC 2000), served as a useful starting point for considering possible assessment frameworks and methodology for Bolivian MFIs. For this reason the CIDA model was adopted as a preliminary working model for this study. As described previously, the central concept in the CIDA model is the training of microcredit officers (MCOs) in the basic concepts of environmental management. The MCOs carry out the assessment of a potential client during the normal loan approval process. Using simple technical guidelines, the MCO provides advice to potential clients on mitigation of environmental problems, or refers the client to other technical sources for assistance.

During the consultations with stakeholders, and as a result of interviews with MFIs and borrowers, several variants of the working models evolved to accommodate concerns of the stakeholders, and in consideration of the economic and social reality of present-day Bolivia. Through this process, appropriate variants of the CIDA model were developed for application to the Bolivian context.

2.2.3. Preliminary Consultations

Preliminary consultations were held with government ministries involved with the microfinance sector in Bolivia and with the managers of several MFIs in La Paz. These consultations took place on January 24 and 25, 2001. The purpose of the consultations was to inform stakeholders of the objectives of the project, and seek their feedback on the methodology and work plan. The participants to the first consultation are listed in Appendix D.

2.2.4. Field Work

Field visits involved visits to MFIs and visits to a cross-section of microenterprises representing the priority sectors identified during the initial planning stages of the project. Prior to the field visits interview sheets were developed in order to guide information gathering activities.

During field visits to the financial institutions, information on the size and nature of their microlending portfolios was obtained. Loan approval procedures, as well and details on tracking and collection of loans were also collected. Interviews with the MFIs focused on their attitudes and perception on environmental issues in their portfolios.

Visits to individual microenterprises were undertaken together with the MCO responsible for the enterprise. During the visits to the microenterprises information on nature of the enterprise and its associated environmental issues were collected through interviews with the owner of the business, and through observations of enterprise.

2.2.5. Formulation of conclusions and recommendations

Data collected during the field visits were collated and organized in such a way as to facilitate the formulation of conclusions and recommendations related to environmental impacts and environmental assessment methodologies. Recommendations were developed to address the requirement for an environmental assessment that was appropriate for the different classes of microfinance institutions.

2.2.6. Final consultation

A second and final consultation with government and banking stakeholders was held on February 14, 2001. The aim of the consultation was to present the preliminary findings and recommendations of the report, and to obtain feedback back from the stakeholders on the main conclusions and recommendations of the report. Participants to the second consultation are listed in Appendix D.
Comments and suggested changes to the preliminary report obtained from the second consultation with stakeholders were incorporated in to a final draft copy of the report.

3. RESULTS

3.1. Initial Consultations

Initial consultations with government and partner institutions, and with MFIs was undertaken on January 25 and 26th, respectively. Consultations were held at the offices of USAID, La Paz.

3.1.1 Government and partner institutions

The consultation began with a presentation of the results of an IFC study on the application of environmental and assessment procedures for microfinance institutions around the world (IFC 2000). This presentation focused on the challenges and opportunities of implementing environmental assessment guidelines in MFIs from the perspective of the MFI managers, loan officers and borrowers.

Following the presentation, participants were asked to comment on the feasibility of implementing similar environmental assessment guidelines with MFIs in Bolivia. During the ensuing discussion a several key opinions and recommendations came forward. These are summarized below:

- Environmental concerns are not necessarily a priority for a developing country with other economic and social imperatives;
- National policies are directed towards ensuring that microcredit interest rates will decline, in order to promote the microlending. Any additional overhead costs for banks (through implementation of environmental standards, for instance) will hinder this policy;
- In urban areas one of the most serious problems is that municipal infrastructure is inadequate and incapable of dealing with solid and liquid wastes from disperse microenterprises. One solution may be to assist in the development of microenterprise business parks where wastes can be grouped and treated on a larger, more economical scale;
- Implementation of environmental standards is hindered by a low level of environmental awareness among MFIs and borrowers;
- MFIs have no capacity or experience to deal with environmental problems; furthermore, MFIs must focus on financial activities, and not attempt to develop an environmental expertise; and,
- Training directed to borrowers on environmental issues should be administered and delivered by third-party institutions with experience or training in environmental issues (i.e. environmental NGOs).

3.1.2 Microfinance Institutions

The consultation with MFIs followed a similar format to the consultation with government ministries and partners. A presentation was made of the IFC study on environmental assessment in microfinance (IFC 2000), following which the participants were asked to comment on the feasibility of implementing similar environmental assessment guidelines with MFIs in Bolivia. Opinions and recommendations received during this consultation are summarized below:

- Environmental issues are a low priority for MFIs. Similarly, most borrowers are in 'survival mode', and do not see the environment factors influencing their business decision or behavior;
- From the point of view of MFI management, there are no loans that are at risk due to environmentally poor management practices, since legislation is weak and enforcement of environmental standards is poor or non-existent;
- An assessment of the environmental risks of microenterprises is required, since there is a perception among MFIs that the risk posed by microenterprises are minimal, or at least limited to a few specific sectors;
- Most MFIs are reluctant to get involved in training or delivering environmental programs since they feel they have no expertise in these areas. Such technical assistance should be channeled through a third-party organization such as Servicio de Asistencia Técnica (SAT) of the Vice-Ministry for Microenterprises;
- Some MFIs (such as the NGOs CRECER and PROMUJER) may be willing to incorporate environment training into their on-going education programs, since extension education in topics such as agriculture and health are already part of their mission; and
- For formal banks (i.e. BANCOSOL), credit is given to borrowers without any restrictions, and therefore linking loans to training is not possible.

3.2. Refinement and development of research models

Based on the comments and recommendations received during the initial stakeholder consultations, the project team re-evaluated the appropriateness of the CIDA model for assessment and mitigation of microenterprise. Given the predominant view among stakeholders that MFIs should not become involved in environmental training or assessment activities it was felt that an alternative model was required. In the alternative model, a third party organization (such as an environmental NGO) becomes involved in providing training to microenterprises where significant environmental issues are identified. This alternative model is described in greater detail in the Section 3.4.

3.3. Interviews and field visits

In this section we report on the results of interviews and field visits. A profile of microlending institutions and their lending practices are discussed in Section 3.3.1. In Section 3.3.2 we discuss environmental issues associated with microlending practices.

3.3.1. Lending Institutions

Micro-finance institutions (MFIs) in Bolivia can be classified into the following categories:

1. Banks - regulated by the Superintendent of Banks and subject to all legal requirements and regulations issued by the Superintendent;

2. Private Financial Funds (FFPs) - regulated by the Superintendent of Banks according to special regulations which are less rigorous than for commercial banks. They may offer both credit and savings, as well as other products such as transfers;

3. Savings and Loan Cooperatives - institutions which serve their members and are regulated by regulations and laws designed specifically for them by the Superintendent;

4. Non governmental organizations (NGOs) - institutions which are not regulated by the Superintendent, and accordingly, may not accept deposits; and,

5. Communal Banks - associations of people (usually from 20 to 40) to which an NGO lends money over relatively short cycles of four to eight months and then the "bank" on-lends these funds to its members, either in solidarity groups or on an individual basis. Members of the association may contribute savings to their "bank" to augment its portfolio.

Thirteen MFIs were selected for this study representing each of the categories described above. Preference was given to regulated institutions and to those with which USAID/Bolivia has had a history of collaboration. Accordingly, the selected institution are listed in Table 3.1 by category:

Table 3.1. MFIs Selected for Detailed Study

Category				
Banks	**Private Financial Funds (FFP)**	**Savings &Loans Cooperatives**	**Non-Government Organizations (NGOs)**	**Communal Banking**
Banco Sol	Caja los Andes	Coop la Merced	ANED	CRECER
	Eco Futuro		Funbodem	Pro Mujer
	FIE		IDEPRO	
	PRODEM		Sartawi	
	Agro Capital			

The sample represents institutions active in urban, rural and peri-urban areas, a variety of lending methodologies, and over 287,000 clients. Most of the clients represented in this sample are micro-entrepreneurs, but some are small- and medium-sized entrepreneurs. Most definitions of micro-enterprises specify a business in which the owner is also an operator, and the number of employees ranges from 1 to 10 (sometimes the maximum is five). Generally, microenterprises tend to belong to the 'informal' economy, and have relatively low technology, although these elements are subject to variation. Generally, the assessment team left the definition up to the MFI, and accepted what they designated as micro-enterprise, although the average credit range to this group was from $50 to $5,000.

Each of the selected MFIs was visited, and a series of questions was asked so that detailed profiles of each institution could be developed. These profiles are found in Appendix B. The institutional profiles include a general description of the institution, relations with other international donors, investors, banks, NGOs or networks, data on their current portfolio, number of clients by gender, technical assistance and training programs, lending methodologies. Specific inquiries addressed the perception and management of environmental issues, such as desegregation by sub-sectors of activities potentially risky to the environment, identification of environmental priority issues by the person interviewed, and a suggestion of the appropriateness of specific models developed by the team. Some of institutional profiles are incomplete due to difficulty in obtaining information.

One conclusion shared by most of the MFIs was that financial services and training/technical assistance services should not be offered together; a view consistent with feedback received during the stakeholder consultations. MFIs in the category of banks and FFPs, have opted to focus on the provision of financial services–. Their priority is to make "good" loans, defined as those which can be repaid on time, as well as to capture deposits, and offer an array of financial products. Some of these FFPs (i.e. Eco Futuro) have bought the loan portfolios of NGOs that did offer technical assistance; however, here is a consensus that the two activities should be kept separately, because the perceived conditioning of a loan on prior technical assistance does not contribute to the financial viability of the MFI. This significant conclusion influenced the development of the team's models for assessing and mitigating environmental impacts.

3.3.1.1. Summary of MFI Profiles

MFI profiles are summarized using the classification categories shown in Table 3.1

Banks

Banco Sol, which was formerly PRODEM, is the largest MFI in Bolivia and became a regulated bank in 1992. Banco Sol has a portfolio of $77,802,745 and 60,976 clients 62% of which are women. A total of 89% of its portfolio is credit for clients in the commerce and services sector, while only 7% is for production. Banco Sol has an urban focus, and

only 3% of its clients have loans in sectors identified as most likely to have negative environmental impacts (Table 3.2). It offers no technical assistance or training to clients, although it is not adverse to referring clients to other organizations for training.

FFPs

A total of five FFPs were contacted during this assessment (Agro-Capital is included, though not an FFP, because it is in the process of becoming an FFP). The Fondo Financiero Privado para el Fomento a Iniciativas Económicas, S.A. (FIE), has an urban focus, while Caja los Andes, Eco Futuro, and Agro Capital have clients in both urban and rural areas. PRODEM focuses on rural and peri-urban (defined as outside the cities of La Paz, Cochabamba and Santa Cruz) areas. Since the perception is that the urban market is saturated with credit organizations, most MFIs have plans to develop or expand activities in rural areas. For example, the General Director of Eco Futuro, said that although its portfolio was currently 60% urban and 40% rural, he expected those proportions to be reversed by the end of the year. This is an important consideration given that there is potentially more environmental risk in agricultural activities than in urban areas because of practices that contribute to deforestation, poor land management practices and use of pesticides. Accordingly, whereas only 1% of the FIE portfolio was designated as environmentally risky, the percentage increases to 6% for Caja los Andes, 26% for PRODEM and 69% for Agro Capital, which has primarily agricultural loans.

Another common characteristic of the FFPs is that none of them have technical assistance or training programs. Two FFPs, FIE and Eco Futuro, grew out of NGOs that did administer both financial and technical assistance programs. The process of selling their portfolios to the FFPs left the NGOs as the principal shareholders, and expected share earnings will contribute to financing their activities in the future. Accordingly, there is already an established linkage between FIE the FFP and FIE the NGO, and between Eco Futuro and IDEPRO, FADES and CIDRE. Two conclusions are the following:

1. The delivery of financial services and technical assistance has already been formally separated by institution; and,

2. The NGOs delivering technical assistance and training insist that it be demand driven, in other words, cover themes which the entrepreneurs want and for which they are willing to pay.

Table 3.2 SMALL AND MICROENTERPRISES BY ENVIRONMENTALLY REPRESENTATIVE SECTORS BY MFI

MFIs	Agro-capital	ANED	Banco Sol	Caja	Coop La Merced	Crecer	Eco Futuro	FIE	Funbo-dem	Idepro	Pro Mujer	Prodem	Sartawi	Total	% (*)
Total # Clients	2,545	45,106	60,976	44,180	6,800	21,198	15,515	23,402	2,800	8,336	26,000	26,096	4,427	287,381	100%
PRODUCTION															
Crafts	79	N.A.	366	513	68	N.A.		140	N.A.	267	650	167		2,250	0.95%
Metalworks	127	N.A.	152	742	68	-		70	28	167	-	248	112	1,714	0.72%
Tanneries	-	N.A.	26	29	-	-		-	28	250	-	117		450	0.19%
Construct. Mat.	25	N.A.	247	213	68			30		-	N.A.	37		620	0.26%
Wood	-		1,016	1,028	N.A.					-		936		2,980	1.26%
Not Tracked		22,147				12,719	15,515							50,381	21.26%
AGRICULTURE															
Primary Prod.	1,527	22,959			3,400	8,479						3,462	826	40,653	14.15%
Meat Proc.		5,052										584	888	6,524	2.27%
Milk Proc.		902			1							383	430	1,716	0.60%
Industry.		812			136							825		1,773	0.62%
Total Risky	1,759	29,725	1,807	2,525	3,741	8,479		240	56	684	650	6,759	2,256	58,680	20%
%	1	1	0	0	1	0		0	0	0	0	0	1	0	
Total Risky Non Ag														8,014	3.4%
Total Risky Agric.														50,666	18%

Savings and Loans Cooperatives

Savings and loans cooperatives have adopted some of the lending techniques of institutions such as Banco Sol and other MFIs. They operate in both rural and urban areas and provide financial products for their members. A recent publication of Finrural, which tracks nine of these institutions, found that 65% of the clients of savings and loan cooperatives were urban while 35% were rural; further, 46% of the clients were men while 54% were women. The cooperative interviewed for this assessment, La Merced, was headquartered in Santa Cruz and does not track clients by gender, although there was a consensus that most are men involved in agricultural production. Two significant items are noted in this profile. Firstly, all the credit officials, one for each of La Merced's 15 offices, are trained agronomists; and secondly, the officials in the cooperative did not recognize any significant environmental issues. Were negative environmental impacts to be recognized in the future, and were this to be recognized as a risk to loan payback by the coop administration, the loan officer/agronomist could be trained to suggest appropriate mitigation.

NGOs

Meetings were held with four NGOs that are involved with microcredit: Fundación Boliviana de Mujeres (FUNBODEM), Instituto para el Desarrollo de la Pequeña Unidad Productiva (IDEPRO), Asociación Nacional Ecuménica de Desarrollo (ANED), and Servicio Financiero Rural Sartawi. The first two have an urban focus; FUNBODEM is located in Santa Cruz and IDEPRO is headquartered in La Paz, but serving El Alto, Sucre, Potosi and Tarija.[1] ANED and Sartawi both are oriented towards rural areas.

FUNBODEM is an affiliate of the international network, Women's World Banking, and 94% of its 2,800 clients are women. What distinguishes it from the FFPs discussed above, is that it has its own unit to provide training and technical assistance in areas of business and health. While 90% of its clientele is urban (70% in commerce and services and 20% in production), 10% of its clients produce sugar cane. Environmental priorities noted by FUNBODEM personnel are primarily related to health and safety in the work place and water supply issues.

IDEPRO is in the process of transferring its portfolio to Eco Futuro. In the past IDEPRO has offered both financial and training services to its clients, but came to the conclusion that it would be better if financial services were consolidated in a regulated financial institution. It is included as an MFI because it still manages part of its portfolio serving 8,336 clients in urban areas. Under its agreement with Eco Futuro, IDEPRO will continue to provide technical services to their clients, financed in part, with earnings on its Eco Futuro shares. IDEPRO has developed some unique techniques for technical

[1] IDEPRO portfolios corresponding to La Paz, Oruro, Cochabamba, Santa Cruz and Trinidad have been transferred or are being transferred to FFP Eco Futuro.

assistance including direct consultancies, demand driven courses, a sustainable radio program directed towards entrepreneurs in Santa Cruz, and a newspaper supplement.

ANED is an NGO that works with an assembly of 21 institutions to provide credit and training for medium, small and micro entrepreneurs, primarily in rural areas (94%). It administers funds for other organizations that have specific programs, but lack the capacity to implement them. The largest programs (by level of funding) include ECLOF of the Swiss, NOVIB of the Dutch, the National Program of Seeds, and the Program to Develop Milk Producers on the Altiplano. ANED provides technical assistance, primarily in financial management to other credit NGOs. Its credit officials are trained agronomists who could give informal TA. ANED also uses the communal banking methodology (described below) in some rural provinces. They refer to banking groups as *Juntas de Ahorro y Crédito* or JACs and began to apply the methodology in order to reach women.

Sartawi also provides credit in rural areas (4,472 clients and a portfolio of $5,019,609) and expects its portfolio to move even more to agriculture in the future (currently it is about 48% in agriculture). Sartawi has recently expanded to Santa Cruz where a growing number of its clients are Mennonites and accordingly, require somewhat larger loans. Its loan assistants, who deal with agricultural loans, are trained agronomists.

Communal Banks

Communal banking is an approach to reaching very poor microentrepreneurs, and combines credit and education. Two MFIs fall in this category, Pro Mujer, which serves primarily urban clients, and CRECER whose clients are mostly rural. Groups of potential clients or members (usually women) are identified and organized into community banks. They usually live in the same neighborhood so that they can meet regularly, usually every one to two weeks, and the meetings generally include an educational module presented by the bank's promoter or a health trainer. The MFI/NGO gives a loan to the bank which is on-lent to members and repaid at the end of the cycle. Education is an integral part of the microfinance activities and deals with issues related to the management of the bank and improving businesses of the women, and health. CRECER is associated with the U.S. NGO, Freedom from Hunger, and is a member of the PRECOSI network. This strategy could be appropriate for incorporating Training modules on environmental awareness could easily be incorporated into the communal banking model.

Two conclusions based on the findings of this assessment can be noted.

1. Generally, institutions tend not to have information on the specific activities of their clients' businesses. Organizations representing over 20% of all clients in the study (50,381) were unable to give a breakdown by activity sector. Tracking this information by number of clients is important for institutions that wish to finance complete packages (credit for businesses as well as technical assistance). Having this sectorial information is also important for tracking environmental and financial risk.

2. While MFIs classified under both the NGO and communal banking categories offer technical assistance, only in communal banking is technical assistance made available to all members as a part of the lending methodology. Some NGOs, such as Sartawi, do not have a formal training unit, and accordingly, this advice is informally offered by loan officers. ANED offers technical assistance to organizations, but only under the communal banking methodology is it offered systematically to members. FUNBODEM and IDEPRO both offer training. FUNBODEM offers voluntary training provided by a different department than that offering credit. In 2001, IDEPRO will exclusively offer demand-driven training and technical assistance.

3.3.1.2. Lending Methodology

MFI methodologies for lending to microentrepreneurs share similar techniques, although variations occur, especially as loans increase in size. In the past, the solidarity group methodology was widely used although now organizations seem to be moving more towards individual loans. Under the solidarity group methodology, a group of four or five entrepreneurs would each receive a loan, but the group would form the guarantee for each other; if one member missed a payment, the other members would cover it. The motivation was a continuing flow of credit, which was not otherwise available. However, as the number of MFIs has grown, the solidarity group methodology has become less popular. This is because frequently one entrepreneur will develop more quickly and have a loan that is disproportionate to that of other members of the group. When there is recession or credit over-extension, the group guarantee methodology does not function as well. Organizations that continue to use the solidarity group methodology, although with less importance, are ANED, Banco Sol, CRECER, Eco Futuro, IDEPRO, PRODEM and Pro Mujer.

Individual loans are used exclusively by Agro Capital, la Merced, FUNBODEM, Caja los Andes, FFP-FIE and by all the organizations mentioned under solidarity group methodology, except for CRECER and Pro Mujer. Guarantees are required for individual loans, and the type of guarantee depends on the amount of the loan. Possessions may be appropriate guarantees for small loans; however, as the amount increases, registered possessions, liens on property or mortgages may be used as guarantees. Individual loans tend to be larger than those for members of a group and, whereas solidarity group methodology may be more appropriate for commerce, individual loans are more appropriate for those in production. Accordingly, a conclusion is that individual loans are more frequently used for categories identified as environmentally at risk.

Communal bank methodology has been generally described under the institutional profiles. It is modeled after the Grameen Bank and is differentiated from the other modes because 1) the MFI/NGO makes a loan to the communal bank for a specified cycle, leaving the bank to determine the loans to its clients; 2) education is a critical element in the methodology. During a loan cycle, the bank can make internal loans with the repayments as they come in, and that interest accumulates in the bank's portfolio. The bank foments development as members receive instruction in basic health, empowerment, and nutrition as well as on business practices. The education modules are presented by

the promoters at regular meetings. These presentations are more effective since the promoter usually speaks the community's native language in addition to Spanish. . This can be an expensive labor-intensive methodology and to reduce costs, each promoter has about twenty banks of twenty women and meetings may only take place once every two weeks. Pro Mujer, CRECER and ANED all use communal bank methodology.

Loan officers have an important role in all methodologies described above. Potential borrowers visit the office of the MFI and may fill out a preliminary loan application form or only solicit a visit. A loan officer visits the entrepreneur at the site of the business to verify information on the application, the net assets, the family income and the viability of the business. The loan officer then generates a cash flow and determines an appropriate loan amount. Subsequently, the application is sent to a credit committee, which may be local, regional, or national, depending on the size of the loan. Follow-up visits depend on the size of the loan, the sector of the activity, and delinquency of the borrower. All organizations are vigilant of delinquency and if a loan is even one day overdue, the borrower can expect a visit from the loan officer. Some organizations such as PRODEM program visits every month or two. Others have less frequent visits: IDEPO clients with loans less than $5,000 do not receive visits unless payments are delinquent; FIE clients normally receive visits every six months unless evaluators fear delinquency. In the agricultural sector visits coincide with critical activities in the growing period as loan officers visit to assure that loans are being used for specific purposes. The communal bank methodology includes bi-weekly meetings in which promoters and clients come together. The number of clients assigned to a loan officer depends on the zone and the type of loan and can range from 80 to about 400.

Criteria considered for approving the loan is strictly based on the ability of the business to pay back the loan. They do not include such factors as safety or health in the work place even though these may impinge on the ability of the client to pay back the loan. These factors are not viewed as significant, especially in an almost no growth economy where selling products and staying in business are currently the most important considerations in paying back the loan. Some MFI managers are concerned that using environmental criteria in the lending process, that is refusing a loan to a business with high negative impact (like a tannery) could lead to directed credit, a strategy which failed in the 1980s and led to the current strategies of the 1990s. They believe, however, that loan officers might be able to collect some basic environmental information and then pass it on to appropriate institutions that could provide assistance. Some managers of MFIs using the communal banking approach and active in the agricultural sector, believe that basic environmental training could be incorporated into current methodologies if funds were provided to cover additional costs.

3.3.2. Environmental awareness of Lending Institutions

Bolivia's environmental regulations have been in place for approximately five years, considering the regulatory decrees for Law 1333 of 1992 were not official until 1996. In general terms, new projects and productive activities established after that date have

registered and followed the environmental procedures outlined in the regulations. Industries established before that time are expected to register and present an Environmental Manifesto this year. As of February 2001, a very low percentage of industries and economic activities have registered.

The Vice-ministry of the environment, which has focused its activity on big and medium enterprises, does not consider Microenterprises a priority.

The level of public environmental awareness is in most cases very general and the lending institutions are not clearly aware of problems that may be generated by the activities they finance. Some MFIs such as IDEPRO promote training courses where some environmental and health & safety issues are developed. These courses are not necessarily linked to credit. FONDECO works with CEPAC (Centro de Promoción Agropecuaria Campesina) in rural areas, but are not fully aware if environmentally friendly practices are carried out by their clients. AGROCAPITAL does not finance certain industries such as tanneries due to their potential as polluters. This policy follows pressure by some of their lending supporters.

The general attitude towards the environment is passive due to the fact that they consider it an area outside their scope of interest and work.

3.3.2.1. Priority Sectors from an Environmental Standpoint

In order to focus on environmental impacts generated by microenterprises with access to microcredit, it is important to understand the coverage of credit for the different sectors. Some research in this area has been carried out basically with support from the Interamerican Development Bank (IDB).

More than half of all microcredit is dedicated to commercial activities and services, which, under Bolivian law, are not required to present environmental impact assessment studies and have the right to apply for a Dispensation Certificate.

A study done for IDB in 1998 (BID BO-071) concludes that credit to microenterprises is concentrated mainly in urban areas and over two thirds is targeted towards commercial activities considered to have minor or no impacts.

This study identifies textiles as the main sector of concern for La Paz followed by food processing and restaurants. Cochabamba's main problem sectors are similar. This is true for urban areas where credit is concentrated.

Another study financed by the IDB, in 2000, (ATR BID 929/SF-BO) focused on the productive sector and attempted to classify the industrial sector from a technical and environmental standpoint. The highlights of this study conclude that for La Paz the most environmentally risky sectors, in order of importance within the range of microenterprises, are: textiles leather, metal industries and food processing. For

Cochabamba, the most important is food processing followed by textiles and leather goods, paper and printing and metal works. For Santa Cruz the order of importance is textiles and leather, followed by paper and printing and metal industries. Table 3.3 presents a summary of data from the IDB study.

The IDB has suggested a guideline with reference to the Uniform International Industrial Classification. (CIIU) codes. The IDB's classification establishes four categories.

- Category I includes microenterprises involved in activities that generate positive environmental impacts;

- Category II includes those with neutral environmental impact; and,

- Categories III and IV are the ones the IADB suggests should be closely monitored during the credit process; these are microenterprises with moderately negative potential environmental impacts or significant negative potential environmental impacts respectively.[2]

Given the wide range of economic activities pursued by micro and small enterprises, the Chemonics group initially selected seven different categories as environmentally risky, and therefore as target for this study:

- Agriculture and related industries,
- Crafts including ceramics, jewelry and textiles
- Metal works
- Tanneries
- Brick manufacturing, lime kilns and construction materials,
- Wood products, and
- Small mining

During the information gathering phase, it became clear that mining is not subject to financing as a micro enterprise by the entities that were selected for study, this left six categories.

These categories were selected after looking at the panorama of industries and discussing with USAID staff. The information is summarized in Table 3.2

[2] Guías para la Aplicación de Procedimientos Ambientales en Operaciones de Crédito para Microempresas" Banco Interamericano de Desarrollo – Segundo Borrador.

Table 3.3 PRODUCTIVE INDUSTRY SECTOR IN THE BOLIVIAN CENTRAL AXIS [1]

Number of Industries

TYPE OF INDUSTRY	La Paz		Cochabamba		Santa Cruz		SUBTOTAL		TOTAL		IMP
	Micro	Small	Micro	Small	Micro	Small	Micro	Small			
Food Processing and similar industries	622	83	303	59	201	86	1126	228	1354	17.5%	4
Textiles and Leather manufacturing	1196	101	234	40	493	23	1923	164	2087	26.9%	1
Wood	395	36	144	86	200	89	739	211	950	12.3%	5
Metal	863	60	197	54	404	67	1464	181	1645	21.2%	3
Others [2]	493	159	337	93	555	75	1385	327	1712	22.1%	2
Total	3569	439	1215	332	1853	340	6637	1111	7748	100.0%	

Employment

TYPE OF INDUSTRY	La Paz		Cochabamba		Santa Cruz		SUBTOTAL		TOTAL		IMP
	Micro	Small	Micro	Small	Micro	Small	Micro	Small			
Food Processing and similar industries	1441	545	568	361	700	528	2709	1434	4143	53.5%	4
Textiles and Leather manufacturing	2277	833	484	356	994	164	3755	1353	5108	65.9%	2
Wood	947	255	358	597	520	674	1825	1526	3351	43.2%	5
Metal	1805	505	528	379	1200	430	3533	1314	4847	62.6%	3
Others [2]	1157	1235	724	624	1327	575	3208	2434	5642	72.8%	1
Total	7627	3373	2662	2317	4741	2371	15030	8061	23091	298.0%	

[1] - "Clasificación del Sector Industrial desde el Punto de Vista Técnico Ambiental" - Ing. Fernando Sanabria C. Proyecto ATR BID 929/SF-BO, Febrero 2000

[2] - Printing & paper, chemicals, Non metallic minerals and Others - Printing is the most representative of the group

3.3.2.2. Environmental Impact of Microenterprises

If the IDB approach were to be used as the main criteria for defining the sectors that require more detailed environmental screening, most of the microenterprises involved in production would fall under categories III and IV.

Although the characteristics of micro enterprises vary from one to the other, in order to get a first hand perception of real problems related to microenterprises, the Chemonics team visited a series of small and micro enterprises both urban and rural, covering the following economic sectors:

- Field agriculture - (soy, citric, rice, vegetables, potatoes, corn and others)
- Intensive agriculture (strawberries and vegetables)
- Agro industry – Rice mill
- Milking cattle farms
- Milk processing industry
- Carpentry – furniture and shoe production moldings
- Shoe making
- Leather goods
- Mattress industry
- Jewelry (gold and silver)
- Brick industry
- Lime kilns
- Alpaca wool processing and dyeing
- Lamb hide tanning and manufacturing of leather goods
- Pewter crafts shop
- Ceramics
- Electrical coil and auto repair shop
- Clothing confections
- Iron works

Table 3-4 summarizes the main environmental issues related to each of these visits, classifies the impacts, and suggests approaches to solve the problems they generate.

TABLE 3.4 – ENVIRONMENTAL IMPACTS OF SMALL AND MICRO ENTERPRISES_

TYPE OF INDUSTRY	MAIN ENVIRONMENTAL ISSUES IDENTIFIED	IMPACT	PROPOSED APPROACH
Field agriculture - (soy, citric, rice, vegetables, potatoes, corn and others)	Land degradation -erosion potential, Non point pollution (pesticides, fertilizers), H&S	Medium – high	Training and awareness – follow up
Intensive agriculture (strawberries and vegetables)	Solid wastes (pruning, packaging), leachate from solid wastes (fertilizer & pesticides), H&S	Medium	Training and awareness – follow up
Agro industry – Rice mill	Air pollution (particulate matter), Noise, H&S	Low	Training and awareness – follow up
Milking cattle	Non point pollution (manure) water pollution (washing and cleaning)	Medium – high	Training and awareness – follow up
Milk processing industry	Water pollution, odors, H&S	High	Training and awareness – follow up
Carpentry – furniture and shoe production moldings	Solid waste handling, H&S – Indirect - deforestation	Medium low	Training and awareness – follow up
Shoe making	Solid wastes, chemicals handling, H&S	Low	Training and awareness – follow up
Leather goods	Solid wastes, water pollution (chemicals handling, dyes) H&S	Low	Training and awareness – follow up
Mattress industry	Solid wastes, H&S	Low	Training and awareness – follow up
Jewelry (gold and silver)	Chemicals handling, H&S	Low	Training and awareness – follow up
Brick industry	Land degradation, Air pollution, Solid wastes, H&S – Indirect deforestation	High	Fuel substitution, Expert review of soil stability, Training and awareness – follow up
Lime kilns	Air pollution, Solid wastes, H&S – Indirect deforestation	Medium	Fuel substitution, Training and awareness – follow up
Alpaca wool processing and dyeing	Air pollution (particulate matter), water pollution (washing and dyeing), Solid wastes, H&S	Medium low	Training and awareness, wastewater management – follow up
Lamb hide tanning and manufacturing of leather goods	Water pollution (heavy metals, etc), Air pollution (paint spraying), Solid wastes	High	Expert review, siting review, wastewater treatment and reuse of raw materials, training and awareness, - follow up
Pewter crafts shop	Air pollution (foundry), solid wastes, H&S	Medium low	Ventilation, training and awareness – follow up
Ceramics	Air pollution (Wood burning), Indirect deforestation, H&S	Medium low	Fuel substitution, training and awareness – follow up
Electrical coil and auto repair shop	Water pollution (solvents, gasoline), Solid wastes, H&S	Medium low	Training and awareness – follow up
Clothing confections	Water pollution (washing) Solid wastes, H&S	Medium	Training and awareness, follow up
Iron works	Air pollution, Solid wastes, H&S	Low	Training and awareness, follow up

3.3.2.3. Results

Analyzing the data presented in Table 3.4, it is clear that there are some activities with higher impacts and therefore higher risks. A common denominator in all microenterprises visited is the lack of awareness regarding safety and health issues, which are closely tied to environmental impacts.

It is important to analyze rural and urban activities in a separate way. Rural activities are generally classified in the medium to high impact range for several reasons: Peasants involved in these activities are generally poorly educated, are easily influenced by retailers of agro-chemical products, and are not aware of the environmental problems related to their activities. Education and training using agronomists or veterinarians could modify most of their practices.

Urban activities are generally wider range of environmental impacts. Those industries classified as having a high or medium high impact, are sectors that require special attention and will most likely need financial support for improving their environmental management practices. Those classified as medium-low will probably need minor investments, which could possibly be addressed by microcredit lending; while those considered as having low environmental impacts, will basically require education, training and awareness building efforts.

Medium to high impact generating activities include tanneries, meat and other food processing industries, brick and lime kilns, ceramic and metal industries employing heavy metals, chemical industries using petroleum based solvents and other hazardous materials, and some others.

Medium-low and low impact industries make up the bulk of micro and small enterprises. Combination of technical assistance to modify certain practices along with a well-designed program of training and awareness may contribute to effectively solve their problems.

3.3.2.4. Perception of Problems among stakeholders

Environmental awareness is generally very low among the microentrepreneurs that were visited. Only few microentrepreneurs had some concern over health and safety issues. An example was the owner of the pewter crafts shop who knew about the risks of using lead.

MFIs have not given serious attention to environmental issues although their staff is aware of issues relating to some of their clients. However this attention has been at a general level, and it is only NGOs involved in both credit and educational issues which have incorporated some minor aspects of environmental awareness into their programs.

Government officials involved in environmental protection consider the micro enterprise sector as generally non-polluting due to the size of their activities and therefore are attempting to work with larger industries as a priority.

Some NGOs have strong capabilities in dealing with environmental issues and are well suited to support the pilot projects recommended in this study.

3.3.3. Collaborating Institutions

Field visits included governmental and non-governmental institutions that could potentially become involve in providing environmental training and assistance to MFIs in Bolivia. Profiles of these institutions are given in the following sections.

3.3.3.1. Institutional Profiles

From a social and organizational standpoint, microfinance and development institutions that provide services to microenterprises are not homogeneous. As can be seen in Table 3.5, they reflect a wide diversity of objectives, methodological approaches, mission statements, target populations, degrees of environmental awareness, geographical coverage, and specific programmatic emphasis. Their legal status and definition range from NGOs (CEDETI, CEPAC, PAAC), credit NGOs (CIDRE, FONDECO, CRECER, IDEPRO) already discussed earlier in this report, private institutions, state related institutions an other support organizations. In his part of the study our discussion of relevant social and institutional aspects will concentrate on NGOs, Private and state support institutions.

NGOs

NGOs have played, and continue to play, an important role in supporting the rural and urban poor, by developing financial and non-financial services. However, if we look at the characteristics of the institutions visited, we see that although CEDETI, CEPAC and PAAC share a common interest in the preservation and management of natural resources and sustainable development, and work with local development approaches with the municipalities, they also show some interesting differences. While CEDETI emphasizes its contribution to the development of the human, personal and associative potential of men and women in general, CEPAC focuses on family units, peasant organizations and NGOs, and local development dynamics through peoples´ participation. PAACs' mission, on the other hand, includes the provision of technical assistance and support to rural inhabitants while, at the same time, involving LIDEMA´s support, and that of international development agencies such as HIVOS.

The differences among NGOs are perhaps best reflected in terms of their programs' geographical coverage: PAAC works in Cochabamba, CEPAC and CEDETI´s actions cover different municipalities in the Departments of Santa Cruz: rural Yapacani

(CEPAC), and rural and urban organization development agencies, and local and regional development groups (CEDETI).

State Institutions

Within this category we have included only the Servicio de Asistencia Técnica (SAT). SAT is a "public institution that provides non-financial entrepreneurial development services", to the industrial manufacturing sector in BOlivia, both in urban and rural areas. It is part of the Ministry of Economic Development and the Vice Ministry of Internal Commerce. Its objectives are oriented towards the support of the development and strengthening of entrepreneurial capacities of the industrial, manufacturing and receptive tourism sectors., with an emphasis on the micro and small industry, and the production of arts and crafts.

SAT provides enterprises with technological Assistance, training, co-financing, and commercialization support. All of its programs incorporate the cross sector dimensions of Gender and environment. A particularly attractive feature that distinguishes SAT from other institutions is the financing of 75% of the projects costs approved, while the project manager has to finance the remaining 25%. An additional strength of SAT is its nation wide coverage. One of its main drawbacks, however, is that historically, SAT has traditionally concentrated more on consulting services rather than monitoring and follow-up of projects approved.

Private Institutions

Amongst private institutions environmental programs that of CPTS, Centro de Promoción de Tecnologías Sostenibles, was selected for this section of the study. Based on successful experiences of previously established USAID/Bolivia Pollution prevention Program (BP3), CPTS´ mission is to: "establish in Bolivia the practice of cleaner production" (PML), to benefit the Bolivian Industrial sector.

Cleaner production attempts to make a more efficient use of raw material, inputs, water and energy, consequently reducing production costs and requirements for the final treatment of effluents. : Both environmental and economic benefits are to be generated, as a result of reduced pollution as well as due to the energy and economic savings involved in the production process.

One of the additional benefits associated especially with the industrial sector is the creation of incentives within the Bolivian banking system of a loan portfolio with very competitive interest rates, in order to pay for costs associated with cleaner production practices, with the additional advantage that loans can be paid later on with the savings generated by cleaner production.

An additional strength of CPTS is its association with the National Chamber of Industries (Cámara Nacional de Industrias, CNI), under the sponsorship of USAID/Bolivia and the

World Bank's ESMAP project, under the monitoring of the Vice Minister of Energy and Hydrocarbons, and with the coordination with the Cochabamba and Santa Cruz Chambers of Industry: CDIC and COINCO, respectively. Therefore, CPTS could be considered as a potential partner for micro and small industries, to support cleaner production practices, if a Bolivian pilot project is generated in the future.

A possible limitation of CPTS, however, is its lack of experience with small and micro enterprises, their activities and production practices. Hopefully its association with PCDSMA, Programa de Cooperación Danesa del Sector Medio Ambiente (Danish Environmental Cooperation Program), with the Bolivian government could provide additional support and incentives for CPTS to start cleaner production practices with small and micro entrepreneurs.

There are also differences in terms of their relative strengths and weakness. CEDETI´s strength lies in its institutional experience in the handling of rural development plans and environmental education programs, as well in their recent experience with biomass substitution programs for natural gas, in association with the World Bank ESMAP program. CEPAC, on the other hand, has acquired considerable experience with micro-enterprises and environmental issues, a characteristic shared with PAAC, which has specialized in the management of microenterprises, human and an integral approach to resource management in Cochabamba.

CEDETI, CEPAC AND PAAC, despite their collective experience all seem to share one weakness, the lack of economic resources to systematize and disseminate their institutional experience.

NGOs have shown that “lending to the poor engaged in informal activities can, and has, become a flourishing activity, profitable and of great social impact for an important part of Bolivian society” (FUNDA-PRO 1998: 13), At the same time, institutional development to confront the fact that markets need to be sensitive to peoples demands, and above all, respond to the normative requirements and regulations of the financial system”, required that some NGOs specialize themselves in micro-finance. At the same time these organizations must maintain support for the neediest sectors of the poor population (FUNDA-PRO 1998: 15).

TABLE 3.5

Entity	Legal organization	Mission	Target population	Training/ Educational Programs in Place	Active clients	Year founded	Applicability / Model	Model Strengths	Model Constraints	Geographical Coverage
AGROCAPITAL	Credit institution in process of becoming FP		Small and microenterprises	Occasional informal advice	2,545		II	Strong support to client	No formal training provided	El Alto, Cochabamba, Santa Cruz
ANED, Asociación Nacional Ecuménica de Desarrollo	Non for profit Credit NGO	To achieve adequate financial services for low income population working in activities that generate income	Small peasants / Urban and rural microenterprises	7% communal bank, training in health, literacy, TA to lending organizations	45,106	1978	I,II	Experience, knowledge of target groups, diversified services, experienced in administering credit funds, professionalism	Lack of resources, financial restrictions, low leverage potential	
BANCOSOL, Banco Solidario	Bank	To offer financial services to promote socioeconomic development of micro and small enterprises and promote auto employment	People with unsatisfied basic needs and near poverty threshold	No formal, occasional references	60,976	1992	II	Solidity, liquidity, high profit levels, willingness to diffuse information, trained personnel, motivation, strategic locations,	High operational costs, disperse organization	
Caja los Andes,	FFP	To promote efficient financial intermediation by promoting the integration of socially and economically disadvantages sectors before the formal financial system	Low income urban population	No formal, occasional references	44,180	1995				La Paz, Cochabamba
CAPIA Santa Cruz-Centro de Apoyo a la Pequeña Industria y Artesanía	Autonomous non for profit institution	To develop participative activities for small industry, developing easy access to credit lines, technical courses targeted to cover the needs of its participants and to support entrepreneurs with on site technical assistance.	Small and microenterprises involved in production, maintenance, crafts and services in Santa Cruz					Support of Prefectura de Santa Cruz and the autonomous University Gabriel René Moreno, works closely with CADEPIA, supported by BID, SAT and Swisscontac	Courses are not subsidized. Cost average US$35 per day	Santa Cruz
CEDETI, Centro de Tecnología Intermedia	NGO	To contribute to the development of the human, personal and associative potential of men and women, based on the local development dynamics through participation, equity and sustainable development of natural resources	Municipalities, rural grassroots organizations, women's organizations, youth organizations, development agencies, local and regional development groups			1988	II	Experienced in regional development plans and environmental programs, educational programs		
CEPAC, Centro de Promoción Agraria Campesina	NGO	To promote the participation of productive family units, peasant organizations, government and NGOs oriented towards the management of Natural resources and Municipal Environmental Management.	Yapacaní's rural population				II			
CIDRE, Centro de Investigación y Desarrollo Regional	Credit NGO	To reinforce collective consciousness on the regional and national needs, formulation and implementation of alternative development programs and projects, generate means of public participation, gather and systematize information on national and regional level	Credit for Rural and Urban Micro and small enterprises			1981	I, II	Experience with microenterprise and environmental issues		
Cooperativa La Merced S.A.	Credit Cooperative	To satisfy the needs of its associates and improve their quality of life and living conditions	Rural and Urban population	Occasional informal advice	6,800	1961	II		Rely on agro chemical commercial entities to provide technical support	
CRECER, Crédito con Educación	Credit NGO	To provide Village banking and education to its clients in rural areas and support their enterprises	Rural women	Business and health	21,198	1990	I, II	Rigorous information collection, personnel is experienced in field work, bilingual and works in educational training		La Paz and Cochabamba
ECOFUTURO, S.A. F.F.P.		To provide earnings for supporting the NGOs that created the institution and finance technical assistance to clients	Small and micro enterprises	No formal program reference to NGO to provide TA	15,515			Support from several NGOs that can give technical and environmental awareness support	New	La Paz, Oruro, Cochabamba, Santacruz and Trinidad
FIE Centro de Fomento de las Iniciativas Económicas F.F.P.		To provide quality services to promote sustainable development of small and micro enterprises with limited access to conventional credit and training systems	Periurban population with productive activities	No formal, reference to FIE NGO	23,402	1985	II	Individualized method, low costs, competitive interest rate, closeness to clientele.	Lack of resources	

TABLE 3.5

Entity	Legal organization	Mission	Target population	Training/ Educational Programs in Place	Active clients	Year founded	Applicability / Model	Model Strengths	Model Constraints	Geographical Coverage
FONDECO,	ONG Crediticia	To provide direct credit to peasants individually and solidary group	Small business in rural areas of Santa Cruz				II	Are working in close contact with CEPAC (technical assistance) Are aware of some environmental problems (deforestation)		Santa Cruz, - Ichilo Mpio. Yapacaní
FUNBODEM, Fundación Boliviana para el Desarrollo de la Mujer	Non for profit Credit NGO	To empower Bolivian women's initiatives to improve themselves and their households by supporting their drive to transform their living conditions. To offer tailored financial solutions, learn from them and help extend their experience.	Microentepreneurial women	Training & technical unit offers courses	2,800		I, II	Is involved in training, awareness and marketing		
IDEPRO La Paz, Instituto para el Desarrollo de la Pequeña Unidad Productiva	Credit NGO	Contribute to the integral and sustainable development of urban microenterprises through the offer of specialized and efficient financial and development services	Urban microenterprises	Consultancies, short courses, radio programs, newspaper supplements	8,336	1988		Wide coverage, credit technology, experienced in training and awareness	Lack of resources	
PAAC, Programa de Asistencia Técnica y Bioenergética al Campesino	NGO	To provide technical support and assistance to rural inhabitants promoting sustainable development and the preservation of the environment	Small rural peasants			1984	II	Are working in the environmental field, have experience working with municipalities, have environmental training programs	Lack of resources	
PRODEM, Prodem Oportunidad, S.A. F.F.P.	FFP	To support national development by expanding the supply of permanent, viable and accessible financial services	Rural microenterprises	No training	26,096	1986	II	Quality of human resources, experience, clear vision, credit technology	High cost of working with rural microenterprises	
PROMUJER, Programa para la Mujer	Credit NGO International	To empower Bolivian women, key to sustainable development of society and promote knowledge as a basis to achieve qualitative changes in them, their families and communities	Poor women	Business and health courses at bank meetings	26,000	1991	I, II	Provides training and education to women		La Paz, Cochabamba, Tarija and Sucre
SARTAWI, Servicio Financiero Rural	Credit NGO	To promote economic and social development of Bolivian rural and periurban family units that have no access to credit, in order to improve their living conditions. To provide accessible, timely and adequate lines of credit to strengthen economic activities	Retail commercial micro enterprises	No formal TA or training, informal advice by loan assistants	4,472	1990	II		Does not provide technical assistance	La Paz, Oruro, Cochabamba and Santa Cruz
SAT Servicio de Asistencia Técnica,	Public Institution	To support the development and strengthening of business capabilities of the industrial, manufacturing and tourism sectors with an emphasis in micro enterprises, small enterprises and arts and crafts.	Private sector micro and small enterprises				II	Co financing of up to 75% of approved projects, Has as a general objective to involve environment and genre in its projects	Has been involved mainly in consulting services and not in following up on the development of actual projects	La Paz, El Alto, Sucre, Tarija, Santa Cruz, Cochabamba, Oruro, Potosí

3.4. Proposed Models

As described in Section 2.0, a model developed for use in Vietnam was used a starting point for the development of suitable environmental assessment and mitigation models for Bolivian MFIs. Based on the results of institutional interviews and the round table consultations with stakeholders, the 'Vietnam' model was modified to create two alternative models in order to accommodate the concerns and operational differences between the MFIs.

All three models share a common objective of strengthening the capacity of MFIs to address environmental problems in their loan portfolios. They differ in the way in which the environmental issues in the portfolios are identified, and in the manner in which mitigation of the impacts are addressed. The three models are described in the following sections.

3.4.1. Model 1: Internal assessment and mitigation

This model was based on an assessment and mitigation framework developed for the State Bank in Vietnam for the Canadian International Development Agency By Drs. Gordon Beanlands and Richard Donald (CIDA 2000).

3.4.1.1. Elements and characteristics of the model

The fundamental principal of the Vietnam model is the training of microcredit officers to identify environmental problems among the microenterprises they service. Microcredit officers are trained in the basic principals of environmental management in microenterprises, and are equipped with simple, plain-language technical guidelines, which allow them to identify environmental issues. The technical guidelines also enable the microcredit officers to either provide their clients with simple mitigation measures, or refer the clients for technical guidance to another source of advice.

An example of technical guidelines for land clearing is shown in Table 3.6. This example shows the series of questions that are asked when the loan is being used to clear a new parcel of land. The microcredit officer leads the applicant through a series of 'Yes and No' questions, each of which has an associated action and a concept in environmental management which should be imparted to the applicant. There is also a suggested mitigation measure. In the example shown below, the first question alerts the applicant to the fact that land clearing can lead to erosion and contamination of water bodies, and that this can be avoided through several simple mitigation measures outlined in the last column of the table. Subsequent questions address the need to maintain buffer strips between water bodies and cleared land.

Table 3.6. Example of Technical Guidelines (Land Clearing)

Question	Answer	Action	Applicant Needs to Understand	Improvement Measures	Benefits for Borrowers
1. Do you need to clear some land?	YES	Inspect location	Land clearing leads to erosion. If the slope is more than 30 % there is a high risk that rainwater will run off instead of going in the soil. This will erode the land and carry large amounts of soil in the nearest stream or pond. If the slope is between 10-30%, you should talk with agricultural extension worker for advice on erosion control practices. Land should not be cleared within 30 meters of the edge of a stream or pond because runoff from erosion (silt, pesticides, fertilizer) will reach the water. This can kill fishes.	*Simple erosion measures are:* • *Leave slash on the ground until new grass or crops are grown.* • *Plant rows across the slope of the field* • *Use breaks or strip planting.* • *Do not clear land too close to ponds or streams.*	Long-term soil productivity Better soil moisture conditions Improved soil fertility
	NO	Go to next question			
2. Do you know how far back form a stream or pond you should stay when clearing land?	YES	Ask applicant what distance did s/he leave from the edge.	Land should not be cleared within 30 meters of a stream or pond. Clearing land too close to streams and ponds increases the risk of silt, fertilizer or pesticides reaching the water and killing the fish or other animals.		
	NO				
3. Do you know how much land you need to clear?	YES	Ask the applicant to show the area that is to be cleared.	Clearing more land than can be immediately planted can lead to unnecessary erosion and siltation of water bodies. This will decrease soil productivity.		
	NO	Applicant needs to talk to extension worker to assess how much land is needed.			

The environmental risks of a new loan are assessed during the normal loan approval procedures, when the financial assessment of the prospective client is undertaken. Experience has shown that this assessment adds approximately 20 minutes to the loan approval procedure.

There are several important principals inherent in this approach: Firstly, the goal training of microcredit officers is to enable them to identify the most serious environmental or human health issues and to refer the client to technical source for further help: It is not expected that the microcredit officers will become technical experts in all sectors. Secondly, it should recognized that, at the very least, interventions on the part of the microcredit officer will help raise the consciousness of the clients, and may not immediately lead to a change environmental management.

The are several issues implicit in this model; namely

- Microfinance officers must be trained in concepts of environmental management;
- Technical guidelines must be developed which are appropriate for the various polluting sectors in the loan portfolio;
- There must be program of continuing education for the microcredit officers to keep them current with environmental issues; and
- Resources must be available, either from government or NGO sector to assist in environmental mitigation when necessary.

The International Finance Corporation (IFC 2000) consulted with their MFI partners in several regions of the world on this approach to assess and mitigate environmental problems. Their primary concern related to the increased cost inherent in any assessment model, which puts the onus on the microcredit officer and the MFI to carry out the assessment. This cost would inevitably result in an increase in interest rate and a competitive disadvantage for the implementing institution. This concern was also expressed by microfinance institutions consulted during the present study as well.

3.4.1.2. Application and Implementation of Model 1

Model 1 is most appropriate for organizations, which currently provide internal technical assistance, training or education to all clients. Included are those using the communal banking methodology or NGOs which would like to offer environmental courses from an on-going program. Communal banking services are provided by CRECER, Pro Mujer and ANED (uses communal banking for approximately 7% of all clients or about 3,150). The Sartawi manager believes it might be possible to set up a systematic training program provided funds were available to train loan assistants (already trained agronomists) and purchase equipment for monitoring. The Cooperative La Merced has loan officers who are agronomists who currently give informal advice on agricultural issues; they could be trained to provide assistance on environmental impact.

Applying Model 1 will require external funding to train loan officers and develop technical field guidelines. There would be no additional time required by promoters who could introduce the material at regular bi-weekly meetings. The Director of Pro Mujer explained that credit officials and their assistants provide only business training and training in health is provided by health representatives. Accordingly, health representatives would need to be trained to teach environmental awareness and health and safety in the workplace. Costs of developing materials and purchasing equipment for monitoring would be additional. Sartawi concurred that if credit officials were trained and monitoring equipment financed, they could provide regular advice to clients.

3.4.1.3. Strengths and Weaknesses

A significant strength of Model 1 is that is has been implemented in Vietnam (CIDA 2000) and therefore the elements of the model and the intricacies of implementing the model have, to some extent been, tested. Another advantage of Model 1 is the outreach to potential clients provided through the microfinance officers. Furthermore, loan officers may have already developed a level of credibility with the borrowers, having delivered other health and agronomic programs to them.

Weaknesses of the model related to the amount of effort involved in developing the technical field guidelines and training materials for the training of loan officers.

3.4.2. Model 2. Externally-supported assessment and mitigation

This second model was developed to address the concerns expressed by several MFIs for the perceived impact on transaction costs of Model 1, and their desire to focus to financial aspects of microfinance.

3.4.2.1. Elements and characteristics of the model

Model 2 shares many similarities with Model 1, with the fundamental difference that the microfinance officer does not assist the borrower with mitigation information. Having identified the environmental problem, the microfinance officer refers the borrower to an organization (NGO, or governmental department), which has been designated to support the MFI with mitigation of environmental problems. Alternatively, environmental problems within the portfolio are brought directly to the attention of the supporting organization, which in turns delivers technical assistance or advice to the microenterprise.

There are several issues implicit in this model; namely,

- Microfinance officers require training to be able to, at the very least, identify environmental issues in the microenterprises they service;
- Training guidelines need to be developed;

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- Training and financial support is required for NGO or other organization which are asked to address the environmental problems;

3.4.2.2. Application and Implementation of Model 2

Externally supported assessment and mitigation requires the microfinance officer to be environmentally aware and trained to identify environmental problems, and qualified to refer his/her clients to a particular external advising agency, so that they be assisted with prevention and mitigation environmental impacts of their particular microenterprise.

Model 2, which requires collaboration between MFIs and other organizations capable of providing technical assistance and environmental awareness programs to MFI clientele is applicable to those institutions which offer financial services, but not technical assistance or training; namely, Agro Capital, ANED (in most of its programs), Banco Sol, Caja los Andes, Eco Futuro, FFP-FIE, and PRODEM. It is convenient to divide these organizations into two classes: 1) those MFIs which grew out of NGOs that continue to provide assistance (Eco Futuro, FFP-FIE) or those which offer technical assistance from a separate unit in the organization (FUNBODEM, ANED and IDEPRO while it still manages a loan portfolio); 2) those MFIs without such linkages (Banco Sol, Caja los Andes, Eco Futuro). PRODEM-FFP is in a category apart from the other MFIs because although it grew out of PRODEM the NGO, there is no agreement between the two organizations under which the NGO would provide services to the FFP.

Both Eco Futuro and FIE are owned in part by shareholding NGOs which provide technical assistance and services and these will be financed in part with share earnings. Eco Futuro has this kind of relation with IDEPRO, FADES and CIDRE. FIE has a similar arrangement with its parent NGO of the same name. The Manager of Eco Futuro believes it benefits the organization to finance technical assistance because better managers make better clients. If it were demonstrated that improving environmental impact (including safety and health in the work place), would improve profits, then courses addressing the issues would be developed, and could be offered by the technical assistance NGOs mentioned above.

Three MFIs in this assessment, FUNBODEM, ANED and IDEPRO, have units in their organizations that offer technical assistance and training. FUNBODEM and IDEPRO offer demand-driven programs and have already incorporated some basic environmental awareness into their courses. ANED has a training unit that consists of three people and could expand its training to include some environmental components. In Sucre, ANED finances clients of PROAGRO and PROAGRO provides technical assistance. Under this model, credit officers of the MFIs could identify businesses with negative environmental impacts and courses or interventions could be designed to address those issues. Other environmental NGOs could be called upon to train or develop materials for those in the NGO training departments.

PRODEM-FFP does not have an agreement with PRODEM the NGO to provide technical assistance. The NGO has the objective of working on sustainable development activities for the country, and as such, has two major projects: irrigation and commercialization of llama fur. The development of environmental programs in PRODEM NGO would have to be discussed. The manager of PRODEM said that credit officers could facilitate information to another NGO, as long as it did not result in directed credit.

Implementing Model 2 has various cost implications for the MFIs. The first implication is the cost of supporting and building the capacity NGOs to deliver environmental advice to borrowers. Technical experts within the NGOs would have to be trained in identifying and mitigating environmental problems in the main polluting sectors. These experts would also have to be aware of the current technology trends related to cleaner production in microenterprises.

3.4.2.3. Strengths and Weaknesses

One of the strengths of model 2 is that it allows for specialization and concentration of both external advising agencies and microfinance institutions in their own fields. That is to say, it lets them both do what they are best qualified to do, without unnecessarily diverting them from their own field of activities and interests.

Additionally, allowing for growth, development and specialization of environmentally concerned institutions and/or NGOs, and credit NGOs already working in the field of environmental impact assessment and mitigation of impacts, in the long run will be healthy both for micro-finance agencies and their clients, as well as for the environmental institution, and Bolivian citizens.

The downside to this model is that many of the environmental institutions already working within this “cooperation” paradigm lack financial resources, to be able to engage in technological assistance to MFIs, and neither MFIs nor their clients may want to finance costs implied in technological assistance required.

3.4.3. Model 3. Passive intervention and assistance

Several MFIs reject the concept of microfinance officers being involved in anyway in the identification or mitigation of environmental problem. For this reason a third Model is proposed.

3.4.3.1. Elements and characteristics of the model

Model 3 envisions no involvement of the MFI or the microcredit officer in identifying or mitigating the environmental concerns in the portfolio. The distinguishing element of the Model 3 is that the microcredit officers do not facilitate the linking of the polluting

industry with a technical expert; rather, the single NGO, or a group of NGOs are supported in giving technical assistance to the clients of a particular bank. The supporting NGO works independently to visit the bank's client, and works with those clients to address environmental problems. The supporting NGO could be aided by a list, provided by the bank, of microenterprises broken down by sector.

There are several issues implicit in this model; namely,

- The cost for identification and mitigation are borne by the supporting institution;
- Success relies upon the ability of the supporting to NGO identify the polluting microenterprises; and

3.4.3.2. Applicability of Model 3

Model 3 would depend solely on the proactiveness of the NGOs that would provide technical assistance. Since there are no incentives for the NGOs, for the MFIs to collaborate or for the small and micro entrepreneurs, this model was discarded for further analysis.

3.4.4. Summary of Models

3.4.4.1. Model 1

Model 1 is based on the CIDA Vietnam Model. The Vietnam model basically incorporates an environmental screening methodology into the loan review process. The loan officers are trained on basic environmental awareness and are given a series of technical guidelines to cover some pre-determined priority sectors (i.e. tanneries, dry cleaners, agricultural practices). Environmental information and recommendations for mitigation of environmental problems are imparted during the loan approval process.

Model 1 is applicable to MFIs involved in communal banking, due to the fact that education is a basic component in their delivery of microfinance services. Consideration must be given to sociocultural differences of different geographical regions and factors such as language, educational level and gender. Health and safety awareness campaigns can easily be implemented as additional educational modules.

For rural areas, an extension module targeted to extend environmental awareness to the family circle and the neighborhood of the clients should complement this model. This module is important given the fact that the clients are generally women who work their agricultural plots with their families and neighbors. If awareness were not extended to their circle, the objectives of the program could not be accomplished.

3.4.4.2. Model 2

Model 2 involves the cooperation of an MFI with other institutions capable of providing technical assistance and environmental awareness programs to the MFI clientele. A matching process between different NGOs, government support entities, business and industrial associations and international support groups would eventually be required to cover the wide range of small and micro enterprises.

The model involves the MFIs providing information on their client's profiles to the associated support organization. The support organization would take the lead to organize the means of providing technical assistance to the micro and small enterprises and involving them as well in educational and awareness courses. Additionally certain mechanisms used at present by organizations like IDEPRO (radio programs, newspaper supplements) could be used to widen the reach of the programs.

General programs that could become standard for all the MFIs could include safety and health issues and general aspects of environmental friendly practices (Reuse, Reduce, Recycle, etc).

Model two would not be suitable for industries that are considered as having medium high and high environmental impacts associated with their activities.

3.4.4.3. General conclusions

All of the MFIs that participated in this study appear to be willing to participate in schemes to test and implement the models.

A pilot project should be implemented to test both models and to provide input on how they could be modified for application in Bolivia.

4. CONCLUSIONS

The following points summarizes the main conclusions of the report:

1. Bolivia's micro and small enterprise sector is well developed but no consideration has been given to environmental issues as part of the credit acquisition process or as technical assistance.

2. Microenterprises are a significant source of employment in Bolivia and, for the most part, have very small profit margins. Potential additional costs associated with environmental assessment and mitigation would be unacceptable to MFIs and borrowers due to the fact that they would result in reducing even more the profit margins, unless environmental issues are linked to higher production efficiencies and lower costs.

3. International lenders are looking for ways to introduce environmental assessment and mitigation procedures into the microcredit lending programs. The IDB has proposed restricting credit to high-risk environmental sectors, unless impact assessment is done and mitigation measures implemented.

4. Most of the MFI managers believe that financial services and training/technical assistance services should not be offered together. They perceive that conditioning a loan on prior technical assistance does not contribute to the financial viability of the MFI.

5. MFIs do not have reliable information as to the sectors serviced by their microlending portfolios..

6. While MFIs classified as either communal banks or NGO offer technical assistance, only in communal banking is the technical assistance made available to all members as part of the lending methodology.

7. Criteria considered for approving a loan is strictly based on the ability of the business to pay back the loan. They do not include such factors as safety or health in the work place, even though these may impinge on the ability of the client to pay back the loan. Health and safety factors are not viewed as significant, especially in a no growth economy where selling products and staying in business are currently the most important considerations in paying back the loan.

8. Some MFI managers were concerned that using environmental criteria in the lending process, (that is refusing a loan to a business with high negative impact such as a tanneries) could lead to directed credit (defining who is or who is not

eligible for loans), a strategy which failed in the 1980s and led to the current strategies of the 1990s.

9. A model whereby credit officers review certain specific environmental issues in relation to specific productive sectors has been developed for Vietnam by CIDA. This approach has also been considered by the IFC.

10. The CIDA model is not considered applicable for the Bolivian microcredit sector without some modifications to account for regional and organizational circumstances.

11. Three alternative models were discussed for Bolivian conditions.

12. Model 1 is based on the Vietnam CIDA model whereby trained credit officers use technical guidelines to identify specific problems and help mitigate environmental problems. Only in some instances would additional technical expertise be required.

13. Existing educational and awareness models used by organizations such as CRECER and PROMUJER can easily be adapted to include environmental awareness as a new module.

14. Implementing Model 1 will require external funding to prepare appropriate materials, train current personnel or even create new positions and provide equipment for software and monitoring.

15. Model 2 creates a link between the MFI and another organization in charge of environmental training and awareness as well as technical support. The MFI would join efforts to make sure that the programs are delivered to their clients with the purpose of improving the working conditions and reducing environmental impact.

16. Model 2 will require close working relationship between MFIs, NGOs and support from other entities such as the CTSP and SAT.

17. In Model 2, initial support for the NGOs which are giving technical assistance to MFIs will be required, so as to increase their capacity to address the environmental issues in microfinance

18. Implementing Model 2 has various cost implications for the MFIs including developing environmental check lists and processing forms, turning them over to appropriate collaborating organizations, additional time gathering information, costs of monitoring systems, equipment and others.

19. Model 3 is a passive model whereby NGOs and other technical assistance institutions would provide support to microenterprises by offering them solutions

to their environmental problems. This model was discarded because there are no mechanisms to ensure the model could be implemented.

20. Environmental impacts of micro enterprises can't be analyzed separately from health and safety issues, which have been identified as a generalized problem.

21. More than 50% of the microenterprises are dedicated to commerce and services, areas that are regarded as having very little impact if any upon the environment. This is specifically mentioned in Bolivian environmental regulations.

22. Only certain specific industries within the scope of the productive small and microenterprises could be considered as having significant impacts on the environment. These activities represent around 20% of all those subject to micro credit.

23. Out of this percentage, the great majority (90%) are linked to rural enterprises. Impacts in rural areas are related to deforestation, erosion due to inadequate cultural practices, and non-point pollution and health issues related to pesticide and fertilizer use. Changing these practices requires technical assistance and environmental awareness programs targeted at different levels and tailored to different types of peoples.

24. Urban microenterprises include a wide variety of industries and services some of which generate toxic and hazardous wastes, air pollution, chemical discharges and other problems. These however add up to less than 5% of all clients served by the micro credit sector.

25. A wide range of environmental problems may be solved if microenterprises receive adequate training, support and follow-up.

26. There is a lack of environmental and health & safety awareness at all levels. Target audience for any program should consider all levels of the MFIs and not only the micro enterprises

27. Health and safety programs could be partly covered by the MFIs understanding that it will reduce the percentage of loan defaults due to a reduced accident rate.

28. Many international agencies are trying to support similar efforts. For costs to be shared and efforts optimized, major lender organizations and international aid programs should join efforts and create unified environmental criteria linked to the mocrofinancing sector.

29. The solution of environmental problems for the high environmental risk enterprises requires specific assistance and will most likely involve costs that can't be assumed by the microentepreneurs. The solution to their problems requires a joint effort of government, credit agencies, environmental programs and

international support to address issues such as land use planning, concentrating and organizing of similar industries in order to dilute the cost of individual wastewater, air pollution or solid and hazardous waste issues.

30. Additional sources of financing will be required:

    - Financing which would allow microenterprises to purchase clean technologies, on longer terms and for amount larger than which are normally available to microenterprises (example of gas conversion in lime kilns). This financing would be for technology for which there is a economic benefit to the microenterprise;
    - Production fund for medium and large enterprises. Perhaps one component of this could be directed towards microenterprises; and
    - International grants and funds for clean/appropriate technology implementation

31. There are funds and grants available for pilot projects seeking solutions to environmental problems. Working together will increase the possibility of success.

32. There is a large number of NGOs already working out schemes that involve land use planning, municipal development, alternative fuel use, energy efficiency and other appropriate technology application schemes. The linkage between these programs and the micro finance sector can generate opportunities to work towards the common goal of improving our environment.

33. Training and awareness programs by themselves will not succeed. Common policies by major lending institutions, incentives and subsidies will be required in order to make the implementation of environmental programs feasible, considering microenterprises have low profit margins.

5. RECOMMENDATIONS

Any future efforts to support environmental assessment and mitigation in microenterprises supported by USAID should take into consideration the following recommendations:.

1. MFIs should be encouraged to track portfolios by number of clients in specific activities. MFIs representing over 20% of all clients in the study (i.e. 50,381) were unable to give a breakdown by activity sector. Tracking this information by number of clients is important for institutions that wish to finance complete packages (credit for businesses as well as technical assistance) and for tracking risk, whether environmental or financial.

2. USAID must build collaboration and coordination among bilateral and multilateral donors, since presently there is no consistent and coordinated approach to address environmental issues in microlending portfolios in Bolivia. As an example, The IDB is continuing on with the development of environmental guidelines and criteria for environmental assessment for the MFIs they support throughout Latin America. The IFC is actively seeking partners for the implementation of an environmental pilot project with the MFIs they support in Bolivia and Latin America. The German and Dutch bilateral development agencies (DEG and FMO) are also seeking support for furthering environmental assessment work in microfinance programs. Also, DANIDA is continuing with its support for environmental management in microenterprises in Bolivia. Not only would a coordinated approach lead to more efficient use of donor dollars, but would also ensure consistency in the application of environmental criteria.

3. Only the most polluting sectors within the range of microenterprise activities should be the target of any assessment and mitigation programs.

4. USAID should move to design and implement and environmental assessment and mitigation pilot project to test the implementation and effectiveness of Models 1 and 2. The pilot project would require the matching of the selected institutions, and the definition of representative groups both in urban and rural areas where to test them. Elements of the pilot would be:

    - Monitoring of cost and time required;
    - Development of technical guidelines and training materials;
    - Building the capacity of support organizations and loan officers; and,
    - Monitoring of outcomes of the pilot (i.e. environmental gains)

5. Model 1 for rural areas should be designed with a multiplying factor in perspective. If existing village banking models are used, this can be accomplished by using the women themselves as trainers of their own families

and neighbors. This implies materials need be designed not only for the trainers themselves but also for the trainees.

6. Development of an environmental assessment for microfinance should be accompanied by lending program for purchase of clean production technology for microenterprises. This financial support must be accessible to microenterprises on longer terms, and for larger amounts than what is normally available to microenterprises.

6. FOLLOW UP

This project is a first step in the implementation of mechanisms to include the evaluation of environmental impacts into the microlending practices. As such, it has identified some alternatives that are worth pursuing.

Follow up activities to be done are basically the following:

1. Pursuing a second phase of this study in order to accomplish the following objectives
    - Selection of MFIs and support organizations willing to develop a pilot project;
    - Selection of representative rural and urban target populations;
    - Selection of geographically representative areas that allow addressing of the cultural differences that will be encountered in Bolivia;
    - Identification of specific international aid programs that could support the pilot project technically and economically; and,
    - Selection of specific topics to be included in courses and training materials;

2. Developing at least four pilot projects two in rural communities and two in urban areas, and using models 1 and 2 in both. The pilot projects would include the following phases:

    - Design of training materials;
    - Production of training materials;
    - Selection of credit officers and members of support organizations requiring training;
    - Training of trainers;
    - Selection of target microenterprises;
    - Training of clients;
    - Data collection, interviews and visits to MFIs involved in training; and
    - Follow up review and analysis.

3. Pursue a third phase study intended to develop a Model 3 targeted to high environmental impact microenterprises that would include the identification of mechanisms to tackle the solution of these small and micro enterprises and sources of credit.

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