Executive Summary

Microfinance may be asked to do many things to support the conservation and sustainable use of biodiversity, especially in Hotspots. We believe that its most important role should be to support the income generation and vulnerability reduction strategies of the rural poor. Environmental projects can add minimalist technical assistance and training to ‘best practice’ microcredit in order to transfer eco-agriculture ‘best practice’, therefore generating a triple bottom line: sustainable use of natural resources, sustainable livelihoods for the rural poor, and sustainable microfinance institutions. Microfinance can also support the adoption of new technologies and the creation of ‘new’ enterprises that enhance the sustainable use of biodiversity, albeit, with significant caveats. And, finally, microfinance may be able to play a role in helping the rural poor administer conservation payments they receive in return for desisting from certain practices or engaging in others.

Too often, financial components of environmental projects are not sustainable. Financial sustainability is not an end unto itself; more important is that the fact that sustainable microfinance can be permanent. Poor clients are far more likely to invest in their own future if they feel that they have long term access to capital. If they feel that they will always be able to count on the lender to provide appropriate levels of liquidity as their economic activity expands, they become more inclined to invest in technologies that are initially costly, but that can pay off in greater incomes later on. This feature seems particularly important for integrated conservation and development programs that seek to introduce improved practice in sustainable agricultural production or forestry utilization, improved practice that will require long term access to finance to support greater production and productivity. The following paper identifies the manners in which best practice microfinance can assist projects to achieve their environmental goals, while avoiding common pitfalls.

Introduction

More than 1.1 billion people live within the world’s biodiversity “hotspots.” They are home to nearly 60 percent of the world’s poorest people. In 19 of these, population is growing more rapidly than in the world as a whole. Of the 955 million poor people

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2 Todd, Helen, 1996, Women at the Center: Grameen Bank Borrowers After One Decade, Westview Press

3 Cincotta and Engelman, 2000
living in rural areas of developing countries in the mid-1990’s, an estimated 630 million live on marginal agricultural forested and arid lands. Some 300 million people live in forested areas and another 200 million live around them, most of them poor. Currently, 146 major cities are located in or directly adjacent to a hotspot. Of those cities, 62 have more than 1 million inhabitants.

An increasing number of conservation projects include support programs that incorporate funding for micro and small enterprises that are located within environmentally sensitive areas. The Biodiversity Support Program looked at 3,489 conservation projects funded by 65 sources between 1990 and 1997. Together, the World Bank and the Inter-American Development Bank accounted for 28 percent of the total funding for biodiversity conservation in the region, lending a total of just over 900 million dollars. The inclusion of other multilateral organizations would bring the total to 1.34 billion dollars, or 47 percent of the total. Of the total of 3.256 billion dollars counted in this review, 2.8 percent of the funding was invested in sustainable enterprise components of projects, for a total of 91,000,000 dollars. It was estimated that the multilateral organizations fund over 55% of those projects that contain sustainable enterprise components, while bi-lateral organizations fund virtually all of the rest. NGOs, and foundations do not appear to be very active yet in adding in ‘business development’ components to their biodiversity projects in Latin America. The BSP review does not describe the types of activities undertaken as part of sustainable enterprise components of projects.

While this may seem to be a small portion of the total funds dedicated to biodiversity conservation, it represents a significant resource that, if invested wisely, could make an important contribution to the lives of poor families in affected areas. It is also the equivalent of about one fifth of the total funds that are invested annually by donors directly into microfinance projects globally. The financial sector department at the World Bank performed an internal review of projects granted between 1995 and 2000 that contained a microfinance component and concluded that 67 percent were divided among rural and agricultural development (27%), social protection (20%) urban development (13%) and others (7%). Discussions with the Bank staff that performed this review suggested that a number of environmental projects contained microfinance components, and that, for this tally, most had been classified as ‘rural and agricultural development’. Additional information suggests that environmental projects account for 4% of all World Bank loans containing a rural finance component.

6 Cincotta and Engelman, 2000
9 “Presentation to the Financial Sector Board,” February 26, 2001, Financial Sector Department
Integrated Conservation and Development Programs address a broad range of concerns through a single program implementation unit that carries out a number of sub-projects, of which microcredit is normally a relatively small element. Most of the organizations implementing microcredit schemes within the context of integrated conservation and development programs do not have the requisite experience base in finance to achieve high levels of loan repayments and financial sustainability. Yet, a successful microfinance program can contribute positively to fighting biodiversity loss, and achieving overall environment aims, especially in those hotspots where population pressure is greatest.

Many integrated conservation projects have incorporated some sort of credit component into their strategy for working with local communities. However, a quick review of biodiversity project documents suggests that these components consign microcredit to a relatively minor supporting role and operate according to the traditional rural development paradigm. Microcredit seems to be used primarily to assist in the purchase of particular inputs or equipment, or in support of new biodiversity based enterprises.

Designers of integrated program haven’t yet understood the far more powerful role that microcredit can play to alleviate pressure on biotic resources by reducing the vulnerability of the poor to catastrophic events, supporting their diversification of income-generating activities, and assisting them to migrate into other types of activities on the basis of acquiring new skill sets through education and apprenticeships in urban areas. Additionally, microcredit may be particularly well suited to supporting the practices that form the basis of a new “eco-agriculture” that will seek to balance sustainable use of natural resources with the sustainability of the families that inhabit areas rich in biodiversity.

Sustainable agricultural practices and the alternative uses of natural resources can be powerful tools to increase the incomes of the rural poor that live in and around protected areas and biodiversity hotspots and help them to escape the vicious cycle of predatory agricultural and forestry practices which impoverishes them. From this perspective we see that microcredit can contribute to the triple bottom line sought in so many biodiversity protection programs: 1) sustainability of the natural resource, 2) sustainability of the poor who depend on biodiversity for their livelihood, and 3) the sustainability of the institutions that serve those three objectives.

The remainder of this paper is divided into two parts. First we discuss the role microfinance can play in integrated conservation and development projects designed to protect the environment, especially in those areas facing intense population pressure on natural resources. Second, we discuss the manner in which microfinance should be operated in those areas to successfully obtain the expected results in relation to the project’s stated goals.

As far as we were able to determine, no systematic evaluation of microfinance components of integrated conservation and development projects yet exists. We have written this paper on the basis of a review of secondary sources and encourage donor
agencies to undertake such a review in order to establish more firmly the set of challenges and appropriate responses than has been possible in this initial approach to the topic.

**Part I: The Role of Microfinance in Integrated Conservation and Development Projects**

According to the Convention on Biological Diversity, biodiversity is defined as “The variability among living organisms from all sources including inter alia, terrestrial, marine and other aquatic ecosystems and their ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems.”

Biodiversity actually boosts ecosystem productivity where each species, no matter how small, all have an important role to play and that it is this combination that enables the ecosystem to possess the ability to prevent and recover from a variety of disasters. This is obviously useful for mankind as a larger number of species of plants means more variety of crops and a larger number of species of animals ensure that the ecosystem is naturally sustained. In addition, the richer the diversity of life, the greater the opportunity for medical discoveries, economic development, and adaptive responses to such new challenges as climate change. While species extinctions are an environmental tragedy, they also have profound implications for economic and social development. At least 40 per cent of the world's economy and 80 per cent of the needs of the poor are derived from biological resources. The variety of life is our insurance policy. Our own lives and livelihood depend on it.

While all areas of the globe have biodiversity, relatively few species live in extreme environments. The largest concentrations of biological diversity can be found in the rainforests of the tropics. While these tropical areas represent only 2.3 percent of the entire surface of the Earth, they probably hold more than 50 percent of all species. Biodiversity ‘hotspots’ are those areas with high degrees of endemism (the presence of species found nowhere else) and high degree of threat. Most of the areas designated as hotspots have been reduced to 30 to 10 percent of their original vegetation. These 25 areas are the highest priority areas for targeting biodiversity protection efforts. The hottest of these include Madagascar, Philippines, Sundaland, the Atlantic Forest and the Caribbean. Others on the list include the Andes, Mesoamerica, Brazilian Cerrado, the Mountains of South Central China, New Caledonia, Wallecea, Guinean West Africa, Chocó Darien, Cambodia, Burma, and Vietnam, Indonesia, Fiji and Pacific Islands, New Zealand, and the area between the Caspian and Black Seas.

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10 Article 2, Convention on Biological Diversity, 1990
13 Term ‘biodiversity hotspots’ first coined by Norman Meyers who was working for Conservation International.
14 Information about these areas was taken from the CI website, [www.conservation.org/xp/CIWEB/strategies/hotspots/hotspots.xml](http://www.conservation.org/xp/CIWEB/strategies/hotspots/hotspots.xml)
The Convention for Biological Diversity was signed in 1992 to procure the conservation of biological diversity, the sustainable use of its components, and the equitable distribution of the benefits derived from its exploitation and preservation. Programs have been developed since the launching of the Convention to implement many of its articles and annexes. This is particularly noteworthy in the areas of identification and taxonomy, development of institutional capacity in national and local governments, methods for funding and protecting areas, economic valuation and national planning processes. But, a literature review reveals that relatively lesser attention has been given to the sustainable development of local and indigenous communities in and around protected areas.

In part this may be due to the ambivalence many have in the environmental community about the relationship between poor families and biodiversity. On the one hand, indigenous groups, local inhabitants and women were all included in the Convention on Biological Diversity for the role they have traditionally play in the utilization of the species found in these areas. Article (8j) of the Convention obligates governments to respect, preserve, and otherwise support the traditional practices of indigenous and local communities that have developed traditional lifestyles that utilize biodiversity in a sustainable manner. These groups have an important role to play in the conservation of biodiversity. They have, from time immemorial maintained a close relationship with nature based on spiritual values and an understanding of the interconnectedness and interdependence of the individual with his environment.

Additionally, these communities usually possess specific knowledge in the uses of plants and other elements of biodiversity for medicinal, industrial, and nutritional purposes. The convention establishes that these groups should share in the benefits that derive from the utilization of their knowledge, innovations and practice with the elements that have been protected. Article 8m encourages governments to recognize the important differences in how these communities organize their social and economic relations, when they extend financing. Programs should adapt their financing mechanisms to indigenous systems of interchange (i.e. barter, communal production or ownership).

On the other hand, it has traditionally been argued that the downward spiral of poverty causes further environmental degradation, which in turn contributes to ever increasing poverty. More specifically, the argument normally goes like this:

- Poverty is viewed as one of the primary causes of environmental destruction
- Poor people cannot in their present state practice sustainable development (they are short term maximizers)
- Then eliminating poverty and poor people through (economic) growth becomes key to saving the environment.

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15 See the website of the Global Environmental Fund for a list of projects that have been approved in support of the Convention, just from this facility alone.
16 Convention on Biological Diversity, 1990, Rio de Janeiro
A recent review performed by the World Bank on environmental improvement and poverty reduction suggests that relationships are more complex than this traditional paradigm suggests and that simply trying to eliminate poverty through economic growth is not sufficient:

“The very poor are often landless laborers. Relationships between poor people and natural resources are complex. Various macro and micro-level factors such as policy measures, markets and prices, local institutional arrangements, gender relationships, land distribution and tenure, and entitlements to natural resources matter.”18

McNeely and Scherr state in their forthcoming book Common Ground, Common Future, that “farming to feed the growing human population is one of the chief causes of extinction.” They draw the connection between biodiversity protection, agricultural production techniques, and poverty in the following way:

Almost half of the areas currently protected for biodiversity are in regions where agriculture is a major land use, and food production will need to increase in coming decades to keep up with population growth and increasing demand….. Nearly half of the world’s most threatened species-rich areas contain human populations plagued by extreme malnutrition, with one-fifth or more of local populations undernourished. Instead of working to alleviate hunger or increase sustainability, agricultural policies and research have often focused on designing high productivity systems to produce surpluses for export, with little or no regard for resulting pollution or habitat destruction that threaten wild species. Unless agricultural practices are improved – among smallholders and large scale agribusiness alike – habitats and species will continue to disappear at an alarming rate. Unless agricultural production in the tropics increases, poverty will deepen. The challenge is to protect wild species and conserve habitat while increasing agricultural production. …….. In order to accomplish all these important goals, both sides will have to recognize that endangered species, essential farmlands and desperately poor humans often occupy the same ground.19

Suggestions for just how to achieve eco-friendly agricultural intensification abound, ranging from subsidizing commercial fertilizer to reducing the incentives to engage in slash and burn agriculture, to labor intense organic farming that requires heavy labor application to small parcels of land.20 Many economic analyses have shown that increased agricultural intensification is positively correlated with lower levels of habitat destruction, at least in Latin America.” 21 This is because the returns to the extractive

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19 McNeely and Scherr, 2001, “Common Ground, Common Future: How Eco-agriculture can help feed the world and save wild biodiversity,” IUCN
activities small farmers engage in are meager, far less than those gains they would derive from increases in agricultural production. The process of agricultural intensification allows yields to increase without greater areas coming under agricultural use.\(^{22}\)

However, many of these economic analyses’ fail to adequately take into account the longer term impact of some traditional agricultural intensification practices on biodiversity, especially in terms of the degradation of biodiversity on that same farmed land and the land directly affected by its water run-offs. Fully addressing the issue of how to achieve biodiversity friendly practice will require substantial investment in research and development. McNeely and Scherr describe a myriad of measures that would develop the potential of ecological farming techniques, on land that is already under cultivation, as an important tool to relieve pressure on biodiversity from the world’s subsistence level poor. They call this type of agriculture, “eco-agriculture,” and it consists of:

1. Reducing habitat destruction by increasing agricultural productivity and sustainability on lands already being farmed
2. Enhancing wildlife habitat on farms and establish farmland corridors that link uncultivated spaces
3. Establishing protected areas near farming areas, ranch lands, and fisheries
4. Mimicking natural habitats by integrating productive perennial plants
5. Using farming methods that reduce pollution
6. Modifying resource management practices to enhance habitat quality in and around farmlands.\(^{23}\)

But, even more important may be the lack of investment in human capital in rural areas.

“Rural poor who acquire skills can be counted on to seek out and to find jobs that pay better than what could be earned along agricultural frontiers, either from sustainable activities of the sort examined in this report (sustainable enterprises utilizing biodiversity) or from nutrient mining…… Because spending on education, public health services, and the like have been deficient in the Latin American countryside, millions of households now find their options limited to migrating to the slums that ring the region’s cities in the hope of finding some sort of employment, informal more often than not, or moving to remote hillsides or jungles to engage in what Schneider (1995) terms nutrient mining.”\(^{24}\)

Southgate also speaks to the lack of social capital; institutions that would permit rural poor to organize their agricultural production more effectively, and add non-farming sources of income (that wouldn’t be based on use of biodiversity necessarily). He found in El Salvador that more well-off families, ones that had multiple sources of income were

\(^{22}\) Southgate, Douglas, “Assessing tradeoffs and Synergies Among Agricultural intensification, Economic development and environmental goals: Summary and Conclusions,” Chapter 24 of , with Lee, Barret, and Hazel

\(^{23}\) McNeely and Scherr, 2001, “Common Ground, Common Future: How Eco-agriculture can help feed the world and save wild biodiversity,” IUCN.

actually more likely to adopt soil conservation practices.\textsuperscript{25} In this context, he draws the connection between the creation of opportunities for farming households to generate income from activities other than direct crop exploitation, and the development of rural financial markets and other social infrastructure.\textsuperscript{26}

Although it does not mention microfinance specifically, the major report “Linking Poverty Reduction and Environmental Management” prepared by DFID, UNDP, the World Bank, and the EC as a contribution to the upcoming World Summit on Sustainable Development recognizes the importance of building social infrastructure and social protection.\textsuperscript{27}

“Social protection policy needs to strike a balance between measures designed to prevent shocks that will adversely impact the poor, and ex-ante measures that reduce the impact of such shocks on poor and vulnerable groups or enhance their ability to cope”.

Simultaneously to the evolution in the way some in the environmental community have come to think about the link between poverty and impact on natural resources, rural finance scholars and credit scheme operators have come to an important new understanding about poor rural households, and their economic and financial activities. Contrary to the traditional paradigm, rural households do not have one source of income or livelihood. As Hulme and Mosley indicate, “depending on season, prices, health and other contingencies, they pursue a mix of activities that may include growing their own food, laboring for others, running small production or trading businesses, hunting and gathering, and accessing loans or subsidies (from the state, friends, or NGOs). In terms of economic behavior, they are closer to the manager of a complex portfolio than the manager of a single product firm.”\textsuperscript{28} Wright suggests that “The poor are too smart and too risk averse to put all of their eggs in one basket and invest exclusively and heavily in one enterprise. They are managing their portfolio so that if one activity or “enterprise” fails, it only has a limited, manageable impact on total household income.”\textsuperscript{29}

Finance plays a vital role in the coping strategies of the poor. What we learned about poor families and how they use informal finance (rotating savings and credit clubs, loans from family and friends, and in kind savings mechanisms) has been confirmed by recent studies about the link between poverty and finance in microcredit programs.\textsuperscript{30} Cohen and

\textsuperscript{26} Douglas Southgate, 1998, “Tropical Forest Conservation: An economic assessment of the alternatives in Latin America,” Oxford University Press, pg 145
\textsuperscript{27} DFID, UNDP, the World Bank, and the EC, January 2002, “Linking Poverty Reduction and Environmental Management,” prepared as a contribution to the upcoming World Summit on Sustainable Development
\textsuperscript{29} Wright, Graham, 2000, “Microfinance Systems, Designing Quality Financial Services for the Poor,” The University Press Limited, pg. 10
Sebstad recently published the results of their five-year evaluation of the impact of micro enterprise credit. This report was prepared for inclusion into the World Development Report for 2000. Their principal findings came as a surprise to many in the microcredit community who had always assumed that the purpose of microcredit was to grow enterprises.

“The results of this study support the proposition that microcredit helps clients protect against risks ahead of time. Clients use their loans (1) to improve and smooth incomes through enterprise and other productive investments; (2) to accumulate or retain physical assets, such as investments in housing, vehicles, and equipment or physical assets used as a form of liquid savings such as jewelry or livestock; (3) to build financial assets such as savings of livestock; (4) to build human assets through investments in children’s education and family health care; or (5) to strengthen social assets by helping out friends and relatives in need, taking in orphans, or fulfilling social obligations such as contributing to funerals, weddings, and birth ceremonies……. The World Development report field studies found that clients go to great lengths to repay their loans, even when they are hit with a shock or economic crisis event….. Maintaining access to multiple sources of credit, including microfinance institution credit, is a key money management strategy to protect against risk and cope with loss.\(^{31}\)

Besides supporting the process of eco-agriculture, microcredit can play an important role in reducing the vulnerability of the poor to shocks that threaten their income and drive them deeper into protected areas and even more marginal income generating activities. We are starting to understand the dynamics of poverty. We now understand that families move in and out of extreme poverty. They accumulate for some time, rise a bit, and then are set back by illnesses, poor harvests, or some other catastrophic life event.

Another of the most important effects of microfinance is to mitigate the income volatility associated with these shocks. Access to a broad range of financial services can protect the vulnerable poor from the full effect of these events, and in many cases reduce their incentive to fall back on natural resource extraction. Impact studies across countries and programs show positive impacts on variables related to reduced vulnerability: diversified income sources, increased assets of all kinds (including human and social assets), and women’s empowerment. Maintaining access to credit is an important risk management strategy for the poor. Most rural poor living in remote areas do not receive formal microcredit from any source, as existing programs have mostly remained in areas that are densely populated.

In conclusion, a robust microfinance program component in an integrated conservation and development program may contribute in multiple ways to the success of the overall effort. Microloans can support or reinforces the adoption of eco-agricultural practices by financing the adoption of proven technologies, incorporating appropriate messages about improved cropping practices into the pre- and post credit process, and by supporting

income diversification through building up additional economic activities. Microfinance can reduce the vulnerability of the very poor to life’s shocks, thereby reducing pressure on biotic resources, by providing a safe, accessible, savings deposit account or quick access to emergency loans. All of these roles for microfinance are potentially more important than the common tendency to view small and microfinance simply as a means to support the creation of eco-businesses that are built around the sustainable use of biodiversity.

PART II: Suggestions for Deploying Microfinance in Integrated Conservation and Development Programs

Microfinance may be asked to do many things to support the conservation and sustainable use of biodiversity, especially in Hotspots. We believe that its most important role should be to support the income generation and vulnerability reduction strategies of the rural poor. Environmental projects can add minimalist technical assistance and training to ‘best practice’ microcredit in order to transfer eco-agriculture ‘best practice’, therefore generating a triple bottom line: sustainable use of natural resources, sustainable livelihoods for the rural poor, and sustainable microfinance institutions. Microfinance can also support the adoption of new technologies and the creation of ‘new’ enterprises that enhance the sustainable use of biodiversity, albeit, with significant caveats. And, finally, microfinance may be able to play a role in helping the rural poor administer conservation payments they receive in return for desisting from certain practices or engaging in others. We now turn to a discussion of how to build effective microfinance services that can also contribute to the multiple aims of integrated programs.

Understanding the New Microfinance Paradigm

In the traditional rural lending paradigm, loans are usually considered as a sort of ‘input’ to be used by the poor family to buy improved seed, an alternative technology, an increased inventory of raw materials, or a capital improvement to the workplace. The ‘input’ purchased with the proceeds of the loan will increase sales or decrease costs, allowing the family to generate a higher profit, which can then be used to improve its income and repay the loan that enabled it to improve its productivity.

Normally, the loan is TIED to a complete intervention strategy. If it accompanies the introduction of a new technology, the families are trained in the use of that technology and receive technical assistance throughout the year. If there are marketing bottlenecks, the families are often encouraged to form associations to jointly sell their production at more favorable prices. In the case of environmental projects, credit may accompany community meetings that seek to change the production patterns in protected areas so as to reduce their impact on biodiversity. In many cases, the loan may be part of a scheme to generate a new income-generating business within the protected area where poor families actually use the biodiversity in a sustainable manner to improve their living
standards. In all of these cases, access to microcredit is tied to that family’s participation in other project activities, and usually, the adoption of some ‘new’ technology or practice.

Unfortunately, most of these programs fail to incorporate the lessons learned about how to implement successful microcredit schemes, primarily because the organizations that operate them have a social orientation and do not have the requisite experience base in finance. Consequently they suffer from high levels of late payments and low levels of financial sustainability. The growing microfinance movement has successfully moved away from this traditional view and developed an approach that is sustainable in the long run.

**High Repayment Rates Key to Financial Sustainability**

While these traditional programs have often disbursed large amounts of targeted loan funds, one of their chief weaknesses has been that they suffer from very low repayment rates. Whatever success an integrated program may have in its other activities, repayment rates on loans of between 25 and 75 percent are problematic. At the very least, low repayment levels favor those borrowers who take loans and default, compared to those who repay and then can’t access further loans because the loan fund has been ‘used up’. In other words, those clients who were unsuccessful with their activities and ‘lost’ their loans are let off the repayment hook, while those who were successful must repay. This approach arises out of the charity mentality that still pervades work with the very poor.\(^{32}\)

Traditionally, we think that clients don’t repay either because they can’t repay due to a lack of sufficient funds, or they won’t repay, due to a lack of appropriate character.

Let’s analyze the first case, that of a failure to repay due to insufficient funds. Project evaluators usually report that clients are unable to repay their loans because of factors outside of their control. Floods destroyed crops, new technologies failed to produce expected results, prices for agricultural products fell, they were robbed, roads were impassable. They also report that clients are unable to repay loans because of factors that may have been under their control at some point, but now are not. Clients’ businesses may have failed, or, they may simply have become over indebted.

In all of these cases, evaluators suggest that the cause of poor repayment performance lies in the roots of the very problems they are trying to address through these loans. This has the added advantage of ‘excusing’ poor repayment as a natural feature of any project that works with low-income families.

There will be some situations where the causes of borrower default are beyond their control. Clearly, floods will wash out some farmer’s fields, some clients will have their production stolen, and some business decisions will prove disastrous. But, even many of these seeming tragedies need not inevitably result in large numbers of defaults. A flood

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\(^{32}\) Undermining Rural Development with Cheap Credit, Adams, D, Graham, D, von Pischke, J.D.; Westview Press, Boulder, Co. 1984
rarely wipes out everyone’s crops, if fact rarely wipes out all of the crops of every borrower affected. When natural catastrophes strike, and reduce yields, the price tends to go up on the remaining production, and incomes may actually rise in relation to a bumper crop, for those only partially affected.

In addition, ‘can’t repay’ arguments about borrower default do not explain very well why clients of one lender repay 98 percent of the time while those of another lender only repay 30 percent of the time, especially when the clients of both seem to be quite similar otherwise. This brings us to the ‘won’t repay’ discussion; when borrowers can repay, but choose not to.

In fact, most default in lending programs comes from borrowers’ evaluation of the convenience of repaying that particular loan. In most circumstances borrowers make choices about which financial obligations to fulfill in any given moment. Like us, they face any number of debts and bills in any given moment. In this, they are not different from middle class borrowers. Some regard credit obligations with a great sense of moral duty, while a great many others decide among obligations based on more practical considerations. Like most of us, they don’t always have sufficient funds to pay everything every single month. Unlike us, they don’t have easy access to overdrafts, credit cards, and other means to rapidly access liquidity. So they choose what to pay, and what to let go for the moment.

They choose on the basis how severe they think the negative consequence for default will be, for each obligation. In most cases, the most severe sanction for default is simply to cut the borrower off from that service for a very long time. This sanction can be quite serious if the lender refuses to provide seed for the next cropping season or if the late payment of the school fees means that the child can’t attend school that season. Most poor see education as THE primary way out of poverty for their children. The farmer may not have many choices for where to get the necessary seed. In some regions of the world, money lending is used as a means to acquire the assets of the poor. Moneylenders wait for an inevitable default and seize land held as guarantee. This can have devastating consequences for the future of an entire family. Default carries fewer consequences if a family member to whom a payment is owed doesn’t really need the funds and can wait a month or two to be paid.

To the extent that some clients feel they are entitled to credit as means for social re-vindication, as in the case of returning political exiles, they have less incentive to repay. To the extent that they view credit as a one-time opportunity, they have less incentive to repay. Student loan programs traditionally have high default rates since students generally don’t plan to borrow again. Programs that lend to clients to start their own business may discover that a client whose business isn’t doing very well has little incentive to repay since he senses that he will probably not continue with the activity. Clients who receive credit associated with the adoption of a new technology, as in the case of many rural and environmental projects, will feel less motivated to repay as they

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may view this technology as a one-time investment.\textsuperscript{34} Institutions that provide credit primarily as a means for social redress usually fail to achieve high repayment rates, and ultimately fail to sustain themselves.

Most of the time we accept ‘can’t repay’ justifications for high levels of borrower default when in reality, clients are simply choosing to pay other obligations rather than their program loan. In well functioning microcredit projects, borrowers repay over 97 percent of the time (even in rural areas). We will talk about how those projects achieve those levels of repayment in the next section. If a substantial number of poor clients in any given credit program truly \textbf{cannot} repay their loans, then they probably should not have received loans in the first place. There is something fundamentally wrong with the design or execution of the credit program if, absent some catastrophic event, most of the clients are not repaying. Perhaps the program has been poorly designed, clients have been over-indebted, forced to adopt inconvenient technologies, or in other ways compromised by the credit arrangements.

Successful microloans go to families that are engaged in profitable economic activities, no matter how small these might be. By this we mean that these activities generate significant returns in relation to the capital invested in them. For example, a typical microentrepreneur might have a stock of 200 dollars worth of merchandise she is selling in her kiosk. In many parts of the world, she can probably mark up the price 50 percent over her cost of buying that inventory. This means she can generate 100 dollars of ‘profit’, out of which she needs to pay herself a wage. In this case, a loan of another 100 dollars allows her to double her stock, and maybe even double her ‘profit’. We have discovered that many, many of these tiny enterprises are capital constrained, which means that if she can get that loan, she can increase her sales almost immediately, because there is sufficient demand from her clients. In this case, her ‘profit’ doubles and she can either pay herself more, and increase the family income, or choose to reinvest some of the proceeds back into increased stock as she pays down the loan.

If, there is no unmet demand from her clients, she doubles her inventory, and, adds the cost of borrowing to her cost of purchasing inventory, she actually eats into her original profit and is worse off than before she borrowed. This gets to the heart of successful lending. You must lend to clients who have unmet demand for their products and services. By extension, microlending works much better in dynamic local economies where entrepreneurs see opportunities they can profitably exploit.

It is no accident that the ‘best practice’ microlending started in the markets of large urban centers, and only gradually moved out into more rural areas. Even those microcredit programs that have reached into rural areas have tended to focus on those clients engaged in petty trading, services such as repair shops, and industrial production of farm equipment rather than on those engaged in agriculture as a principal activity, because of their high turnover. Only recently have some microcredit organizations attempted to lend

to families whose principal source of income comes from agricultural or livestock production, and who have low diversification in their sources of income.\textsuperscript{35}

Virtually all programs stipulate that clients must have been engaged in their tiny business for at least a year before they can be eligible to receive a loan.\textsuperscript{36} This ensures that the clients have the entrepreneurial ability that is so hard to evaluate on any other objective basis.

They also stipulate that the enterprise must be the principle source of family income, though all programs recognize that low-income families have multiple sources of income. This ensures that clients are committed to generating income from that business, above all other activities. And finally, virtually all of these programs lend on the basis of current income flows, not projected outcomes. This ensures that clients have the income flows today to respond to the credit obligation and that cash for the repayment is not dependent on increased levels of income that have not yet been produced. These are all critical program elements that lie behind the 97+ percent repayment rates of best practice microcredit.

Lending techniques employed by leading microcredit organizations, with the exception of those located in South Asia, utilize short loan terms, frequent payments, and incremental increases in loan amounts from loan cycle to loan cycle as the basis for establishing borrower’s creditworthiness over time. Programs provide clients with an opportunity to demonstrate their willingness to repay through repeat small transactions that carry a low level of risk before proceeding to larger, riskier loans. The short terms also allow both clients and programs to adjust loan amounts to changes in the client’s activities due to seasonality or other cyclical events.\textsuperscript{37}

Some programs complement this strategy with group lending techniques where risk is shared among a client’s peers. If one member of the group fails to make a payment, the others must cover or no one gets the subsequent loan. This technique proves to be an excellent manner for sorting out whom should get a loan from those who local communities feel are not either trustworthy or capable of certain repayment. Some think that organizing poor clients into groups reduces the lender’s administrative costs. This has not proven to be the case. So the principle argument supporting group-lending techniques continues to be increased effectiveness in the process of borrower selection and peer-enforced collections.\textsuperscript{38}

\begin{footnotes}
\item[35]Navajas, Sergio, and Claudio Gonzalez Vega, June 2000, “Innovative Approaches to Rural Lending: Financiera Calpia in El Salvador,” The Ohio State University
\item[36]In those cases, such as Grameen Bank where some clients are receiving loans to initiate an activity for the first time, other group members vote on whether the client has the potential to carry out this activity successfully. The activities are absolutely rudimentary and consist of such things as raising a half dozen hens, or husking rice and selling it to neighbors.
\end{footnotes}
Financial Sustainability as a Means to Permanence of Outreach

Another issue that has plagued credit components of larger social or development projects has been their lack of financial sustainability. A credit component that recovers less than 80 percent of the loans it makes in any given year will soon enough run out of funds and will cease to operate if it doesn’t get continual new infusions of fresh capital. While an environmental project may be quite willing to extend a relatively permanent subsidy to the economic activities of the very poor in a particular protected area, permitting high default rates is not probably the best way to distribute that subsidy. As mentioned previously, default ‘rewards’ the failure of those who are shrewder about the consequences of default and penalizes those who have strong commitment to the program.

But even if the credit program attains high levels of repayment, it may not be financially sustainable. Most often, the credit components of larger integrated projects carry low interest rates, rates that are lower than those of the commercial banking sector. This is why they are called ‘subsidized’ interest rates. Interest rates on these microloans are generally set quite low, whether from the ‘ethical’ position that the very poor should not be asked to pay higher rates than the wealthy, or whether out of a concern that the marginal profitability of their economic activities would not provide high enough returns to repay loans.

Lenders tend to set interest rates in these large integrated projects below levels that would ensure that all of their costs can be covered. Of course, lenders’ costs in many of these multi-service projects can be quite high, indeed; especially if we were to add in the costs of the non-credit services. It can also be difficult to separate those costs that relate to the provision of credit from those related to other activities, even if we just wanted to cover the finance costs with the interest charged on loans. Subsidy may be required in a microcredit program, especially in a particularly rural area. But, that subsidy should not be channeled through interest rates to end borrowers; these just don’t work very well.

Study after study has shown that among the poor, relatively better off families gain more access to subsidized loans. They view these loans as a good financial opportunity and use their influence to take a disproportionate share of the funds available. Once attained, they more often use their political muscle to put off repayment. On the other hand, unsubsidized interest rates generally make small loans unattractive to local elites, who usually have access to other sources of capital.

Even unsubsidized interest rates can be very attractive to poor members of local communities. After all, they would pay far higher rates to informal moneylenders for access to capital. Let’s compare. A subsidized interest rate on a 100 dollar loan might run at 12 percent a year (for a total annual cost of 12 dollars). An unsubsidized rate might

39 Interest rates for credit schemes that make small loans are almost always higher simply because loans are so small in relation to the cost of making them, compared to much larger loans.
40 For a good discussion of the traditional agricultural lending paradigm see J.D. Von Pischke’s *Finance at the Frontier*, 1991, World Bank, Economic Development Institute
run at 36 percent a year (for a total cost of 36 dollars). A moneylender might charge as much as 20 percent a day (for a total cost of up to 6,000 dollars (or an annualized rate of 6,000 percent). This might seem incredible, but market stall vendors in many parts of the world borrow 5 dollars for merchandise in the morning and must repay 6 at the end of the day. These same vendors can sell that merchandise with a mark-up of 50 to 100 percent, which makes this seemingly absurd interest rate work for them. In other words, they can sell a tin of tea that cost them $1 that morning, for $1.5 or $2 during the course of the day. Clients in remote areas may not have this lucrative an economic opportunity; but, even in these more remote rural areas, informal rates can be far higher than unsubsidized formal sector rates.42

Low interest rates generate less income for the lender. It is costly to make very small loans in urban areas and, is especially costly in areas with a dispersed and low-income population. If a lender doesn’t generate enough revenue to cover its costs, it naturally seeks to minimize its own costs. Usually this means that it passes more and more costs on to the borrower group. It increases the paperwork requirements, asks borrowers to come to its offices to negotiate and transact, and asks clients to organize disbursement and collection during group meetings. On small loans, the total cost to the borrower of taking a loan includes all of these costs. After all, time spent in meetings, trips to the lender offices, and getting necessary documents is time NOT spent generating incomes. For small loans, these transaction costs frequently exceed the financial costs of borrowing even for rural farm loans. Institutions that charge higher rates of interest can generate the revenue necessary to offer a high quality service to low-income clients, and therefore reduce their transaction costs to such a point that the higher financial cost is more than offset. Higher revenue also permits institutions to increase staffing levels, which can improve loan collections, in addition to improving service.43

Today, about 150 of the top microcredit programs in the world report to the MicroBanking Bulletin. They represent 10 billion dollars in total assets and have a combined 13.5 million microcredit clients, out of the total of 30 million clients reported by CGAP. For those microfinance institutions that report to the Bulletin, poor families borrow on average about 450 dollars, though this ranges from 116 dollars in Africa to 1,600 dollars in Eastern Europe. Loan recovery is very high for this group of top MFIs, averaging 2.2 percent of loan portfolios, and seldom exceeding 4 percent. On average, these MFI’s cover all of their cash expenses and the cost of any borrowing they do to fund their portfolios.44 This success represents a significant departure from failed credit programs of the past.

But financial sustainability is not an end unto itself; more important is that the fact that sustainable microfinance can be permanent. Poor clients are far more likely to invest in their own future if they feel that they have long term access to capital.45 If they feel that they will always be able to count on the lender to provide appropriate levels of liquidity

42 Robinson, 2001, chapter 6
as their economic activity expands, they become more inclined to invest in technologies that are initially costly, but that can pay off in greater incomes later on. This feature seems particularly important for integrated conservation and development programs that seek to introduce improved practice in sustainable agricultural production or forestry utilization, improved practice that will require long term access to finance to support greater production and productivity.

‘Best practice’ microcredit operations are quite efficient and agile. Although many impose significant transactions costs by insisting that clients participate in certain meetings, by and large, the rest of the loan process is taken to the client’s place of business and does not represent undue burden. In addition, the time elapsed between when a client first shows up with her group and actually receives a loan can be relatively short. Repeat loans are almost automatic if the group has paid promptly. Thus, clients do not mind interest rates that are higher than the subsidized rates that are so common to government credit schemes, or even those charged by banks to their middle and corporate customers.46

The Vital Role of Savings

Rural inhabitants, especially those whose livelihoods are based on agriculture have always saved; it is the manner in which they are able to live from one crop cycle to another, or through periods of poor harvests. Normally, they have not been able to save in financial form, because deposit accounts have not been made available to them in a fashion that would be convenient and safe to use. They have been excluded from the banking system, so they have developed informal financial mechanisms such as rotating savings and loan associations to service their needs. These ROSCAS are extremely prevalent throughout the world and constitute the primary organized financial service to which the poor have some sort of access.

Savings can serve many of the same purposes as borrowing. In both cases, clients access lump sums of cash for specific needs and make frequent periodic cash set-asides or ‘savings’ to re-accumulate the lump sums.47 Savings are used to prepare for emergencies, accumulate for old age, send children on to higher education, and to build wealth. But, compared to loans, savings accounts offer very little risk. If the client has a bad week, she simply doesn’t save, whereas a loan must always be paid. Even the very, very poor can and do save tiny amounts. In those few instances where deposit services for the poor have been aggressively developed, the number of small depositors far outstrips the number of borrowers willing and able to take a loan.48

In keeping with our new understanding of the importance of loans as a source of liquidity in the mix of financial relations of low-income families, we have also come to understand the importance of providing other types of financial products. Deposit accounts, insurance, remittances and payments services can also facilitate the financial

47 Rutherford, Stuart, 2000, The Poor and Their Money, Oxford University Press
management in ways that may be even more desirable than adding debt, especially to the 
poorest whose incomes may be too volatile for sustained participation in credit 
programs.\textsuperscript{49}

Recent research has discovered that even in Bangladesh, the poorest sectors of the local 
economy self-exclude from microcredit programs.\textsuperscript{50} The loan terms are too long and the 
poor’s income is too uncertain to sustain participation. Current microcredit products 
would need to become even more flexible in order to prove attractive to the very poor.\textsuperscript{51} 
Increased flexibility adds to the costs of administering a product. Microcredit is already 
expensive in its current iteration, so we may be starting to see the frontier where current 
lending technology simply cannot cross.\textsuperscript{52} This may be especially true in more difficult 
to serve rural areas that may be attractive to environmental projects. Although there has 
been, however, some success with specialized lending products in these areas that builds 
on the best practice techniques developed initially in urban based programs, building 
deposit services may provide a vital financial service that is more appropriate to the cash 
flow of the very poor and is far less expensive to operate.\textsuperscript{53}

Microfinance Plus……

Microfinance may be asked to do many things to support the conservation and 
sustainable use of biodiversity, especially in Hotspots. We believe that its most 
important role should be to support the income generation and vulnerability reduction 
strategies of the rural poor. But, environmental projects can add minimalist technical 
assistance and training to ‘best practice’ microcredit in order to transfer eco-agriculture 
‘best practice’, therefore generating a triple bottom line: sustainable use of natural 
resources, sustainable livelihoods for the rural poor, and sustainable microfinance 
stitutions. Microfinance can also support the adoption of new technologies and the 
creation of ‘new’ enterprises that enhance the sustainable use of biodiversity, albeit, with 
significant caveats. And, finally, microfinance may be able to play a role in helping the 
rural poor administer conservation payments they receive in return for desisting from 
certain practices or engaging in others.

Many ‘best practice’ programs successfully combine financial and non-financial services 
with microcredit. From it’s inception, Grameen Bank has placed its “Sixteen Decisions” 
at the center of its relationship with its clients. Women were expected to learn and act on 
these actions for a better life.\textsuperscript{54}

\textsuperscript{49} Robinson, 2001
\textsuperscript{50} Anton Simanowitz, Ben Nkuna and Sukor Kasim, “Overcoming the Obstacles to Identifying the Poorest Families: Using Participatory Wealth Ranking (PWR), the CASHPOR House Index (CHI), and other Measurements,” Institute of 
Development Studies, Brighton, UK
Ohio State University
\textsuperscript{52} Wright, Graham A.N.; Imran Matin, and Robert P. Christen, 2001, “ASA’s culture, competition and choice: 
introducing savings services into a microcredit institution,” MicroSave-Africa, Nairobi, Kenya
\textsuperscript{53} Christen and Pearce, Agricultural Microfinance, CGAP, forthcoming
\textsuperscript{54} Grameen Bank website: www.gdrc.org/icm/grameen-16.html
Box 1: Sixteen Decisions of Grameen Bank, Bangladesh

1. We respect the four principles of the Grameen Bank – we are disciplined, united, courageous, and workers – and we apply them to all our lives.
2. We wish to give our families good living standards.
3. We will not live in dilapidated houses. We repair them and work to build new ones.
4. We cultivate vegetables the whole year round and sell the surplus.
5. During the season for planting, we pick out as many seedlings as possible.
6. We intend to have small families. We shall reduce our expenses to a minimum. We take care of our health.
7. We educate our children and see that they can earn enough money to finance their training.
8. We see to it that our children and homes are clean.
9. We build latrines and use them.
10. We only drink water drawn from a well. If not, we boil the water or we use alum.
11. We will not accept a marriage dowry for our son and we do not give one to our daughter at her marriage. Our center is against this practice.
12. We cause harm to no one and we will not tolerate that anyone should do us harm.
13. To increase our income, we make important investments in common.
14. We are always ready to help each other. When someone is in difficulty, we all give a helping hand.
15. If we learn that discipline is not respected in a center, we go along to help and restore order.
16. We are introducing physical culture in all centers, We take part in all social events.

Grameen is particularly concerned that its female borrowers change behavior in ways that empower them, encourage healthier practices, and generate increased incomes to allow them to invest in their own and their children’s future. Poverty alleviation cannot be separated from women’s health, reproductive, power, and security issues.

Freedom From Hunger combines microcredit successfully with classes on maternal and child nutrition, and women’s’ reproductive issues. In programs located in the Philippines, Ghana, Mali, and Bolivia, Freedom From Hunger (FFH) recovers 98 percent of the funds it lends to very poor women, while at the same time claiming improvements in child and women’s health indicators.

Many microcredit programs incorporate classes of some sort in improved business practices, how to manage family expenses, or basic health and safety. All of these non-credit features operated by highly successful ‘best practice’ microcredit organizations share two common features – the quality of the credit service is outstanding, and the non-credit feature is ‘minimalist’. ‘Minimalist’ does not mean small and insignificant. Rather, ‘minimalist’ means that the lender realizes that the client’s primary interest is credit, and that the non-credit service must be fit in and around the credit in a way that clients don’t mind receiving, and that does not radically increase the overall cost of obtaining the loan.
FFH estimates that the cost of adding on the non-credit feature is about 10 percent of the expense of administering the credit component. “Minimalist” does not mean, that because the non-credit feature is secondary to clients, it is secondary to the lending organization. Most microcredit programs that offer these non-credit services might even state that their primary goal is not actually to provide a financial service, but rather, to generate empowerment and other changes in the health, education, and status of women.

Leading thinkers about the protection of biodiversity recognize the particular importance of attending to the nutritional, health and social needs of the poor that inhabit hotspots. In this, they might be quite comfortable with the approach taken by some microcredit organizations that also incorporate non-credit features. It even seems quite reasonable that some of the non-credit ‘lessons’ that could be transferred by an environmentally focused microcredit scheme include encouragement to adopt eco-agriculture practices. In this, a microcredit scheme can go beyond merely providing a financial service with all of the corollary benefits that naturally accrue. It can serve broader social change objectives in a targeted and direct manner.

It is important to note, however, that the microcredit community is divided on the importance and advisability of offering non-financial services. Many feel that clients prefer not to have their time taken up with these classes and other activities. They take the position that credit program should stick to financial services, and do no more. The other group takes the position that credit is just one tool in the arsenal to fight poverty. Since their overriding objective is to improve health, education, social status, and long term security of the target group, they believe that with a bit more effort, these goals can be accomplished without detracting from the credit service. Most would suggest that their clients actually see these other services as an additional benefit to their participation in the program.

As clients begin to have more alternatives for accessing financial services, they will choose their suppliers on the basis of the value they feel they are getting in relation to the time, effort and cost of obtaining those services. They may stay in a program that they consider to be costly (in terms of time taken in meetings), but that they feel improves their lives in other tangible ways. But, environmental programs that wish to use credit as ‘bait’ to bring clients to the table, should understand that clients will ultimately decide whether to stay with the program on the basis of the value they perceive from the total package, versus a credit only approach. In some markets, both types of programs co-exist simultaneously.

New Business Development

One of the most common business support activities found in Biodiversity conservation projects is a finance component to establish small-scale enterprises that make, or would potentially make, sustainable use of Biodiversity. These businesses range from eco-

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55 Dunford, Chris, 2002, Presentation to CGAP by Executive Director of Freedom From Hunger
tourism, to collecting herbs, and packaging wild nuts for resale abroad. Some of these activities build closely on previous skills and experience of the local inhabitants, while others must be regarded as experimental. Most of these initiatives represent the creation of an economic activity which is either entirely new, in that no part of it was ever undertaken before by its owner/operators, or, an economic activity which has important new or changed elements in it.

For example, collectors of certain seeds may have been selling them locally for years before the project intervened. The project organizes the collectors to repackage these seeds in a different manner and sell them to an export market. This would constitute a new enterprise in that something basic about the business has changed; in this case, the entire marketing and pricing strategy. Projects that seek new markets for old products or seek to create new products for older markets are particularly vulnerable, no matter how skilled the owner/operators are in the basic production techniques. This is potentially one of the most difficult areas in which to apply microfinance successfully.

Traditionally, most microenterprises service the needs of low-income communities, not the market for exports. Microenterprise lending has flourished when local economies do well, like in Indonesia during the 1980s and Bolivia during most of the 1990s. Microcredit can help clients increase their incomes, if and when they have the economic opportunity to grow their enterprises. It doesn’t do as well in severely depressed areas since profit margins can be quite small, even on the tiniest of economic activities. This has clear implications for the usefulness of microcredit if those areas that have been included in Biodiversity protection zones are remote, particularly if they have very little economic activity. Microcredit can facilitate the growth of those enterprises that are primarily capital constrained. But it can’t help much if the limit to growth is the inability to get a product to market, high production costs due to distance from input suppliers, or the undesirability of the final product from the perspective of the potential client. While microenterprise credit will always serve the income smoothing needs of the very poor, it might be less effective in actually supporting additional income generation in these more difficult environments. Organizations that are planning to operate under these extreme conditions should evaluate carefully whether these other constraints are being effectively addressed outside of the credit component.

On top of this, microcredit doesn’t work very well as a primary vehicle for establishing new microenterprises. To be able to sustain a repayment flow, the activity must be able to generate the required payments, at the required payment times, more than 97 percent of the time. Even a new enterprise that everyone expects will one day become profitable, will experience early volatility in its income flows. New business ventures should normally be financed by patient capital. This means that the entrepreneur needs investment capital that can wait until the enterprise is capable of generating consistent returns before taking money out of the business to service owners or creditors. If the proposed activity is large enough to require tens of thousands of dollars in up-front investment, then it should probably be financed through a joint venture arrangement where the entrepreneur and a venture capital fund become partners who eventually share in anticipated profits. If the activity is at the level of a microenterprise, with a few
hundred or even a two or three thousand dollars of up-front investment, the costs of managing a joint venture operation become prohibitive and the program should simply consider making grants.

And finally, microcredit is not an appropriate tool for someone who has to establish that they have the entrepreneurial skills to successfully manage a microenterprise.  For example, a lending program that seeks to establish new business start-ups among downsized factory workers will inevitably experience high levels of default. Even if all of the downsized workers faithfully tried to engage in new business ventures, many would fail, consuming the proceeds of their loans in the process. Most of the downsized workers have never previously administered their own microenterprise. Entrepreneurial ability is a special ability that not everyone possesses. Having a skill such as sewing is not the same as running your own sewing business. Most microenterprises fail because their owners manage their costs and finances poorly, not because they don’t know how to make their product.

Programs may wish to finance new start-up enterprises, despite these important warning. One alternative is to design a grant making facility that would offer a grant to qualified proponents of an enterprise to get established, to be followed subsequently with loan funds if it were to become successful. These programs have worked in some instances, and their administrative cost can be quite low when compared with the ongoing loan portfolio administration of a small number of relatively small loans. Project Creame in Chile, operated by the Kast Foundation is a small, but good example.

We recommend that projects that incorporate grant-making to establish new microenterprises work with individuals or organizations that have already had an excellent track record in ‘best practice’ microfinance. Staff of these organizations understand very well what it takes for the recipients of these grants to be successful in their businesses – since their job has been to make these types evaluations in the light of credit risk. To meet the challenge of supporting new enterprise development in biodiversity hotspots there is NO substitute for having worked previously and successfully in microcredit.

Financing the adoption of new technologies

Many biodiversity projects will want to use microcredit to support the adoption of new technologies intended to transform production, either to reduce impact on the environment of the activity itself, or to increase the profitability of that activity so that subsistence level families feel less need to go into the forest and engage in extractive activities that have low returns and cause high levels of depletion. As previously discussed, microcredit can support the adoption of new technologies one of several ways.

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57 In those microcredit programs that finance some new activities, those activities are rudimentary (like raising chickens or husking rice), have virtually certain outcomes, are common, have pre-existing local demand, and known profitability
58 Joan Parker and Douglas Pearce, 2000, “Microfinance, Grants, and Non-financial Responses to Poverty Reduction: Where does microcredit fit?, CGAP Focus Note 20
59 Southgate, 1997
First, if the technology to be adopted can be successfully transferred through a ‘minimalist’ training approach (consisting of short talks, or visits to the client’s place of business) then microcredit can be a useful device for attracting and maintaining the interest of the target audience. This approach may well be sufficient for transmitting messages about utilization of natural resources, practices that damage the environment, and techniques for eco-agriculture. This approach may also potentially be self-sustaining, depending on the intensity of the messages and interventions that are required to produce the desired behavioural changes.

However, if the technology to be adopted requires capital expenditures on the part of clients, the role of microfinance may change. If the target clients know that they can increase their incomes, then they might be willing to access microcredit to obtain the new technology. This will depend on their familiarity with the technology (have they seen others in the community use it successfully?), its cost, ease of use, and the increase in profits it can generate, and the terms and conditions of the credit. To all of these factors they will assign probabilities when evaluating their decision. It is more likely that they will pay commercial rates of interest for hybrid and/or heirloom seed, or an irrigation pump, than for an improved cook-stove, since the benefits of the cook-stove may be harder to see, although they may be just as important from a social cost benefit perspective.

If the new technology alters the production in a way that is more experimental in nature, is proven but unknown to the local community, or generates a less certain outcome, then the program should provide some non-credit type of financial support. The adoption of new technologies can have unexpected consequences. While a new cropping practice may double yields, the farmer may not have enough available labor to work the crop and harvest that increased yield satisfactorily. He may actually end up worse off financially if he has borrowed to finance improvements that didn’t pay off. On the other hand, not all technologies fundamentally transform a business and therefore disqualify for credit funding. A carefully designed pilot test of a technology can provide enough certainty about its impact on low-income families to determine whether its introduction should be financed through microcredit.

**Channeling income support grants into microfinance**

Sometimes, environmental projects make outright grants to the poor to provide support that will substitute for income they would have received had they continued to engage in extraction activities or land clearing. In these cases the conservation of biodiversity is of greater value to the national or global community than the value of the agricultural or forestry uses to which it is being put.60 While the efficacy of these programs in motivating these families to cease their extraction activities has been questioned, in some

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cases, where other economic activities can be initiated, this grant program may be used as a first step towards incorporating clients into a microcredit program.

One example of this type of arrangement is the assistance payments made to small farmers in Chiapas, Mexico to shift from unsustainable, low-income land use patterns that require constant clearing of new forest lands, to sustainable forestry, agro-forestry, and agricultural systems that support more biodiversity. The payments come from revenues derived from an international greenhouse gas mitigation agreement with the International Federation of Automobiles, which is committed to offsetting the carbon emissions resulting from sponsored car races. These payments are needed because during the period required for this shift, the incomes of poor families would otherwise decrease.\textsuperscript{61}

Another example is the Costa Rican National Forestry Financial Fund that provides funding directly to landowners who protect ecosystems for one of four reasons: carbon fixation and sequestration, hydrological services, biodiversity protection and scenic beauty. The Fund contracts for three land use categories, reforestation, sustainable timber management, and forest preservation. Each category is associated with a fixed annual payment per hectare and payments are made upon verification of compliance with the terms of the contract.\textsuperscript{62} While the bulk of landowners in the Costa Rican example may not be poor, this type of project may become more prevalent in the future.

The existence of these income support payments may offer a special opportunity to help the poor capitalize themselves and diversify their portfolio of income-generating activities.

In Bangladesh, BRAC manages the IGVGD, a collaborative food security program with the national government and the World Food Program. This program is targeted towards destitute rural Bangladeshi women who have few or no income-generating opportunities. This program has provided food grain assistance and savings and credit services to almost one million persons over a ten-year period. Syed Hashemi reports that two thirds of these women have ‘graduated’ from absolute poverty to becoming microfinance clients.\textsuperscript{63} BRAC uses food grain relief to attract the hardcore poor and cater to their immediate consumption needs, but then adds skills training and savings and credit services to build their development capacity.

When the cycle of free food grain ends, participants are able to engage in income-generating activities and become clients of regular microfinance and earn at least the same money equivalent of the wheat they received previously. The clients are trained in basic skills including raising poultry and livestock, vegetable gardening, etc. for about six months and are asked to save the equivalent of 50 cents on a dollar weekly. They do not

\textsuperscript{61} McNeely and Scherr, 2001
\textsuperscript{63} Syed Hashemi, 2001, “Linking Microfinance and Safety Net programs to include the poorest: The case of IGVGD in Bangladesh,” CGAP Focus Note No. 21
borrow until they have been saving for at least six months. They get a 50 dollar loan if they have been disciplined in their savings. This allows them to purchase hens that lay eggs, or some other minimal income-generating asset. The program also experimented with involving the women in certain aspects of silk production and weaving.

While the IVGVD program doesn’t appear to relate to biodiversity protection, it illustrates an intervention approach that leads with grants, helps tiny, tiny, income-generating activities get established, and follows with credit once these activities have been going long enough to become sufficiently capitalized. In this, it does exactly what some biodiversity programs would wish to do with very poor clients engaged in low level subsistence activities, especially those of an extractive nature. The women served by this program are welfare recipients in one of the poorest countries in the world! A lot of this program’s success lies in the fact that the women are being provided with skills in activities that serve the needs of their local market. The income-generating potential of egg-laying, raising goats, and rice husking is known and there is local demand for these products right in the same communities where these women live. Perhaps the provision of microfinance (both savings and loans) to these communities who are receiving these transfer payments could allow many of these same families to capitalize new and different sorts of economic activities as they perceive new opportunity arising. At the very least, it will allow them to administer income support payments more effectively.

**Building a Sustainable Microfinance Component**

Most current microcredit programs have not yet reached out very far into more remote rural areas because of their emphasis on attaining and maintaining acceptable levels of financial sustainability. In many countries, the density of the rural population is so sparse and its economic activities so marginal, as to make them unattractive as eventual clients. The poor may be dependent on very few economic activities, which creates covariant risk for the lender. Microcredit is expensive even in densely populated areas, without trying to take on the additional challenges of those who live in and around protected regions.

The microcredit industry is becoming more interested in reaching more rural clients. Competition has heated up in many large cities among principal suppliers of loans to the poor. There is also a lot of pressure from policy makers and donor organizations to service the rural population as part of a poverty alleviation strategy, given that such a large percent of the world’s poor continue to live outside cities. The microcredit industry is starting to experiment with new lending products that might be better suited to clients whose principal income is derived from agriculture.\(^{64}\) And, one characteristic of the world’s biodiversity hotspots is that their rural populations may be relatively dense. Some of the most important microcredit programs in the world can be found in tropical areas such as Indonesia, Bangladesh, Thailand, and Cambodia.

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\(^{64}\) Christen, Robert and Douglas Pearce, Agricultural Microfinance, CGAP, forthcoming
Get established microfinance institutions involved

The way successful microcredit programs keep repayment high is to be tough-minded and understand that individuals make choices about whom they will pay first; that there are relatively few instances when clients simply cannot repay. This lesson is extremely hard for more socially-oriented programs to learn. If a program’s staff is engaged in training, developing markets for clients, community organizing, and other types of activities, they will have a tough time transmitting the seriousness of the repayment obligation. This is why, over time, multi-purpose NGOs like BRAC have tended to separate their community development work from their microfinance work into distinct business units. If we add to this mix the triple-bottom-line sought in environmental projects - that of financial sustainability, poverty alleviation and environmental protection - the challenge becomes more extreme.

The most important recommendation in this entire paper would be that the organization charged with executing the microfinance component of an integrated conservation and development program should seek the direct, close, and permanent involvement of an experienced MFI. Specifically, this means obtaining the services of qualified staff that have worked in microfinance in that country, in relevant languages and, most importantly, to best practice performance standards. These standards include recovery rates on loans above 95% over a sustained period, and financial sustainability close to 100%. Compliance with these standards should be independently verified.

For top microcredit organizations in any given country, the provision of microcredit in rural areas of biodiversity hotspots may well be unattractive from a financial perspective. These areas would be the last place an organization would normally service because of the characteristics we have already mentioned. The unmet demand for microcredit in urban areas will require all of that organization’s efforts over the next few years. So, how can a biodiversity project gain access to the relevant expertise? And how should the project think about financial sustainability?

While a top microfinance institution might not want to take the financial risk of serving the designated areas, it might be willing to second staff or engage in a consulting arrangement in support of the microcredit component. From a career development perspective, high quality microcredit professionals may not find the biodiversity project’s income-generating activities particularly interesting, so the project should probably concentrate on seeking institutional arrangements to obtain the required expertise. There will of course be notable exceptions, those individuals who might share the environmental agenda and also have the microcredit skill set.

Build on Pre-existing Rural Financial Infrastructure

If a financial NGO were to establish traditional rural branches to reach out into more remote areas, it might find that it costs as much to lend to the poor as they have in the
value of loans outstanding – with no scale economy in sight. Under these conditions microfinance is not sustainable. To address this, the microcredit unit of the project should seek to put the financial services into pre-existing infrastructure available in the area, credit unions, branches of savings or agricultural banks, post offices, lottery outlets, or any other type of organization that carries out a financial function. In more remote areas, there may not even be any of this type of infrastructure and the project will have to layer its own infrastructure on top of the nearest alternative. For example, the microcredit function might be administered through a credit union in a town 100 or 200 miles distant. In this case, the loan officer might need to develop a series of agreements with local groups that will allow her to meet clients and transact business in multiple locations during any given month. She might only go to the credit union once a week, or once a month, as needed.

To encourage established microfinance organizations to take their services out to rural areas, environmental programs should consider providing an operating subsidy that decreases over time in direct relation to the increasing profitability of microfinance operations. In some more extreme cases, the program might need to consider a permanent subsidy. If this is required, the project should structure this subsidy in such a manner as to generate positive incentives for the staff to increase productivity and keep loan portfolio quality high. This would ensure that the basic principles of sustainable microfinance remain in place, irrespective of whether the program actually has the potential to become so. Eventually, the credit component might even surprise its founders and reach higher than expected levels of profitability.

The all cases, subsidy should be structured on a per loan basis. The loan officer (and by extension the microcredit granting organization) should receive an operating subsidy for each loan they make, that is of a high quality. This will encourage them to aggressively pursue growth in their portfolio, while maintaining a disincentive to let quality slip. In addition, the project might want to provide a minimum guaranteed base subsidy to cover fixed operating costs. Interest rates should be set above local prime commercial rates, and should reflect rates smaller clients would be paying elsewhere in the country to microfinance institutions. The subsidy for providing the financial services (in most cases microcredit) should be kept independent of subsidy for other community development work, unless the loan officer is carrying out minimalist training or technical assistance as part of the loan servicing process.

**Conclusions**

In this document we have addressed the following key points that integrated conservation and development program designers might wish to keep in mind when developing microfinance components:

- There are areas that have been designated as biodiversity hotspots that are extensive in nature and contain substantial numbers of low-income families.
• Removing these families from the designated area is unacceptable or impractical, therefore environmental projects must consider the manner in which these families generate their livelihood.

• Agricultural exploitation and the vulnerability of the very poor are factors that most threaten habitats where biodiversity is most concentrated.

• Microcredit has demonstrated itself to be a very powerful tool for reducing the vulnerability of the poor to the shocks of life events, and as such can have an important role to play in protecting biodiversity.

• Microcredit can play an important role in improving the income generation and diversification strategies of the rural poor, especially when those poor have economic opportunities that are capital constrained.

• Sustainable microfinance that clients can rely on provides an important incentive to families to invest in income-generating activities that will grow over time.

• The burden for changing farm practice to eco-agriculture and attaining other behavior modifications will lie primarily with non-credit interventions that may or not be linked with microfinance. Microfinance may prove particularly helpful when the adoption of new technologies is retarded by lack of funds. Microfinance programs may add ‘minimalist’ non-credit training and technical assistance successfully and still remain sustainable if these services are designed appropriately.

• There will be many cases where a non-credit approach to providing financial support (grants) will be preferable and should be considered.

• The provision of other financial services to the poor, savings accounts, insurance, remittance management, and payments systems may ultimately be as important as vulnerability reduction strategies as the provision of microcredit.

• Transaction costs are often far greater than interest expense for very small loans, and must be taken into account – the poor do take it into account.

• Commercial interest rates are not a major problem for microcredit clients. Subsidizing interest to clients introduces perverse incentives that do not serve the client well.

• There will be cases where the provision of microfinance requires a permanent operating subsidy to cover part of the cost of delivering the service, but NOT to cover credit risk. This subsidy should be provided to the lender on the basis of attaining operational success.

• High levels (above 5%) of borrower default indicate that microcredit has failed – Microcredit will most likely fail because it is being asked to do something it can’t
(create economic opportunity where none exists) or it is poorly designed and executed (fails to incorporate international best practice).

- The failure of a credit component is not just important because the loan funds will be lost, it is also an important indication that other aspects of the income-generating component are probably also failing.

Achieving the goals of sustainable use of natural resources, sustainable livelihoods for the rural poor, and sustainability in microfinance operations presents particularly difficult challenges that must be carefully thought through before proceeding with project design. Microfinance can play an important role in the conservation of biological diversity, as one more tool in the box.