

Opportunities for Using Debt Investment to Link Livelihood Improvement and Environmental Conservation Initiatives

A Case Study Examining The Tropical Pacific



Suggested Citation: Donlan, C. J, C. Wilcox, J. Mandel, L. Rodriguez. 2009. Opportunities for using debt investment to link livelihood improvement and environmental conservation initiatives: A case study examining the tropical Pacific. Working Paper for CSIRO. Advanced Conservation Strategies. Midway, Utah.



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PART I: INTRODUCTION

A challenge in environmental conservation is to responsibly transfer high global values for environmental resources within local communities so that incentive structures exist to preserve those assets. Historically, conservationists have used either direct approaches, such as land purchases and payments, or indirect approaches such as the promotion of alternate industries like eco-tourism. We suggest capitalizing environmental assets locally in a conservation trust and making that capital available to local communities through collateralized lending (environmental mortgages), microfinance approaches, and access to affordable financial services. Tying the value of the capital in the trust to the global value for intact environmental resources will create values for environmental stewardship locally, while providing economic access to what is often a poor community's most valuable asset. In this report, we explore various aspects of environmental mortgages. While doing so, we focus on one geographic region: the tropical Pacific.

Oceania, which extends over 19 million km², is home to diverse cultures and globally important environmental resources. Approximately 25% of Pacific Islanders are believed to be living in poverty.¹ Those poor are largely made up of subsistence farmers and artisanal fishers, particularly those located in remote valleys and outer islands. While poverty throughout Oceania was previously mitigated by social safety nets within rural villages, those traditional systems are breaking down. As people move to other countries or to major towns within their own country, high migration rates are leading to increased poverty in rural and remote regions. Historically, Pacific Island nations are generally not associated with poverty and islanders themselves speak of "hardship" as opposed to poverty. Such language seems justified since hunger and starvation are generally absent in the region. Hardship issues relates to a lack of cash flow needed to buy basic goods and meet community obligations, and inadequate access to basic services, such as health care, transportation infrastructure, safe water supplies, and education. Hardship in the Pacific Island nations is predominately a rural problem.

We use tropical Pacific nations as a cases study to explore the complexities of linking livelihood improvement initiatives with environmental conservation. First, we present the concept of environmental mortgages. Second, we explore past experiences of conservation and development projects in the Pacific. We then go on review microfinance experiences in the region, including informational interviews we conducted in Samoa with two current programs. Lastly, we present three sample implementations of environmental mortgages and review how trusts (a key component of environmental mortgages) have been used to date in the environmental sector. Those sample implementations reveal how our proposed approach can be adapted to different socio-economic and environmental scenarios present on-the ground. They also reveal the risks and challenges in trying to use debt investment to successfully link livelihood improvement and environmental conservation.

¹ Source: International Fund for Agricultural Development, United Nations.

PART II: DEBT INVESTMENT AS A TOOL FOR VALUE TRANSFER IN BIODIVERSITY CONSERVATION

A fundamental gap often exists between the environmental and extractive value placed on an asset. Historically, the extractive value trumped conservation value. With the advent of biodiversity payments and environmental markets, the balance is shifting, particularly in low-income nations.² The lack of a functioning international exchange for environmental assets and services hinders the potential conservation value from being realized by local resource users or owners. As with any mispricing problem, environmental assets in those settings are subject to over-exploitation and misuse.³ This is particularly true in the case of biodiversity, as markets for these assets currently lag behind the development of markets for other ecosystem services (e.g. water, carbon offsets etc).

When the full economic value of an environmental asset is reflected locally, individuals can make resource use decisions that take into consideration the global externalities they generate. Due to the challenges of responsibly transferring environmental value in low-income nations, conservation practitioners have largely focused on indirect approaches to biodiversity conservation: ecotourism, non-timber forest product initiatives, and other development interventions. Those indirect approaches are increasingly recognized as yielding mediocre and economically inefficient biodiversity conservation outcomes.⁴

In response, some practitioners are turning to direct conservation payments schemes, economically efficient methods of transferring value from an institution to local stakeholders.⁵ A conservation group or government agency takes an equity stake in the use rights of an environmental asset from local stakeholders. Conservation easements, land purchases, performance-based payments, and other equity investments have been successful in the United States, Australia, and other nations with enforceable property rights and contractual laws.⁶ While direct payment programs, under conservation incentive agreements and direct payments, are being trialed in low-income nations, the lack of the enforceable property rights and contractual laws can present challenges to a direct payment approach.⁷

There are two chief challenges with direct-payment systems in developing countries:

- 1) Governmental and sovereignty concerns will likely limit the extent and scale of any system transferring use-rights out of the country, and

² Kindermann G, Obersteiner M, Sohngen B, Sathaye J, Andrasko K, et al. (2008) Global cost estimates of reducing carbon emissions through avoided deforestation. *P Natl Acad Sci Usa* 105: 10302-10307; Ferraro PJ, Simpson RD (2002) The cost-effectiveness of conservation payments. *Land Economics* 78: 339-353.

³ Kreman C, Niles JO, Dalton MG, Daily GC, Ehrlich PR, et al. (2000) Economic incentives for rain forest conservation across scales. *Science* 288: 1828-1832.

⁴ Ferraro and Kiss 2002; Kiss A (2004) Is community-based ecotourism a good use of biodiversity conservation funds. *Trends in Ecology & Evolution* 19: 232-237; Wunder S (2000) Ecotourism and economic incentives - an empirical approach. *Ecological Economics* 32: 465-479; Ferraro PJ, Kiss A (2002) Direct payments to conserve biodiversity. *Science* 298: 1718-1719.

⁵ Ferraro and Kiss 2002

⁶ Kiesecker JM, Comendant T, Grandmason T, Gray E, Hall C, et al. (2007) Conservation easements in context: a quantitative analysis of their use by The Nature Conservancy. *Frontiers in Ecology and Environment* 5: 125-130.

⁷ Niessen E, Rice R (2004) Sustainable forest management and conservation incentive agreements. *International Forestry Review* 6: 56-60; Ferraro PJ (2007) A global survey of sea turtle payment incentive programs. Working Paper: 40; Wunder S, The BD, Ibarra E (2005) Payment is good, control is better: why payments for forest environmental services in Vietnam have so far remained incipient. White Paper: 75.

2) Direct payment systems will often fail to create sustainable livelihoods.

For example, restrictions on foreign ownership to prevent predatory investment will limit their potential in some low-income nations, while in other nations, governments will limit the length of contracts to prevent loss of future development rights. Transfer of rights from stakeholders in a low-income nation to a conservation organization in a high-income nation can present equity issues, and an influx of wealth to low-income communities can result in social dissonance.⁸ Secondly, direct equity-style payments for the provision of environmental assets in low-income nations may reduce incentives to seek alternative sustainable means of escaping poverty. The failure of many programs that have attempted to integrate biodiversity conservation and poverty alleviation often stem from a programmatic focus of a single time period for a specific problem. This can result in a gross oversimplification of poverty, biodiversity conservation and the strategies needed to simultaneously address both.⁹

We suggest an alternative approach combining the impact and efficiency of direct payments with the livelihood focus of indirect approaches. This approach, termed here 'conservation lending' and also referred to as providing access to affordable financial services, involves two steps:

- 1) Capitalizing community held environmental assets in a local trust, and
- 2) Making that capital available to local communities and individuals in them through microfinance approaches.

We suggest that intergovernmental agencies and conservation organizations scope potential programs to offer lines of credit based on and collateralized by a community's intact environmental assets. Access to affordable financial services, implemented by microfinance institutions, is a potential tool to sustainably protect environmental resources by responsibly leveraging the value for low-income communities and nations. Successful microfinance approaches to alleviating poverty have been well documented over the last two decades, with particular attention provided by awarding of the Nobel Peace Prize to Dr. Mohammad Yunus and the efforts of the Grameen Bank in Bangladesh. These microfinance endeavors have also shown to be cost-effective and enable capital support for them to recycle capital within a community and continue to provide benefits.¹⁰

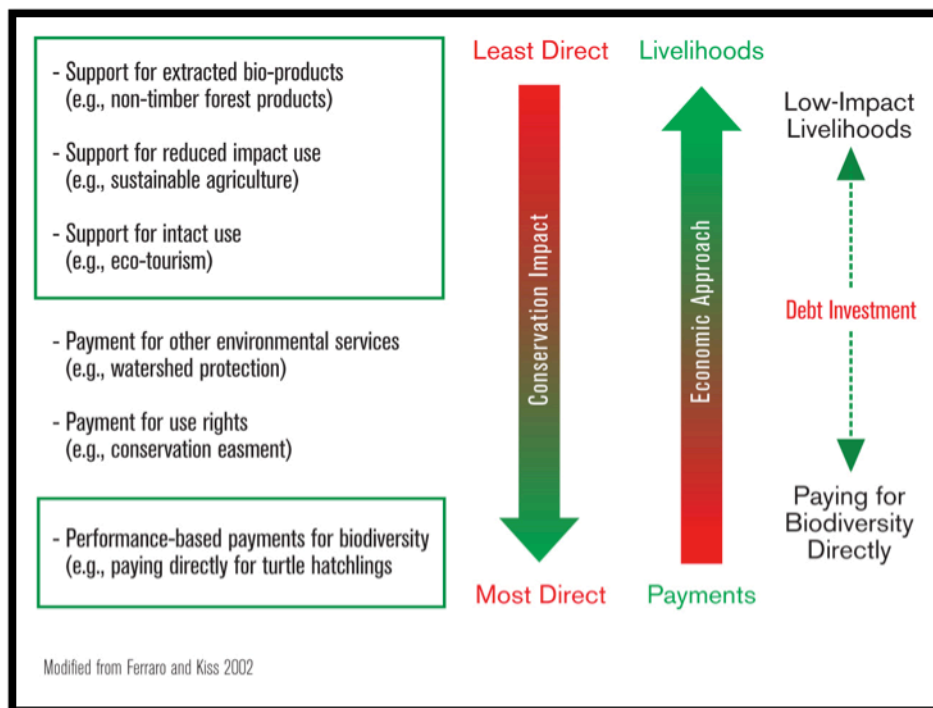
Building on those approaches, access to affordable financial services could be used to simultaneously address biodiversity conservation and poverty alleviation. Environmental mortgages could link a performance-based direct conservation scheme with a microfinance approach to economic development (Fig 1). In the many cases when direct equity investment is not strategic or socio-politically feasible, conservation lending and offering other community financing products may be the best alternative means to leverage value of biological assets for low-income nations and poor people.

⁸ West P (2007) Conservation is our government now: The politics of ecology in Papua New Guinea. Durham, NC: Duke University Press; Dowie M (2008) Wrong path to conservation in Papua New Guinea. The Nation.

⁹ Agrawal A, Redford K (2006) Poverty, development, and biodiversity conservation: shooting in the dark? Wildlife Conservation Society Working Paper 26: 1-58.

¹⁰ Davis S, Khosla V (2007) The architecture of audacity: assessing the impact of the Microcredit Summit Campaign. Innovations Winter/Spring: 159-180; Yunis M, Weber K (2007) Creating a world without poverty: social business and the future of capitalism. New York: Public Affairs; Schreiner M (2003) A cost-effectiveness analysis of the Grameen Bank of Bangladesh. Development Policy Review 21: 357-382.

Figure 1. Using access to affordable financial services to link low-impact livelihoods and performance-based conservation payments. The column on the left presents examples of conservation investments across a spectrum of direct-indirect and livelihood-payment approaches.



Environmental Mortgages

Environmental mortgages refer to a broader concept of collateralized debt investment in environmental resources. Under this model, a government, NGO, or foundation with environmental interests would assess the environmental value of community-held lands. This value would be capitalized in a trust and monetized to the community in the form of access to affordable financial services, which could be larger development loans to the community as a whole, smaller micro-finance style loans to individuals or groups within the community, and/or capitalizing other financial services like micro-insurance. These loans would provide incentives for communities to pursue less environmentally destructive forms of development, business, or livelihoods.

In practice, an organization would set up an environmental lending institution in a community or integrate an environmental mortgage framework within an existing microfinance institution. Environmental donors interested in the particular asset(s) would capitalize the lending trust. Communities could leverage their collateral - the environmental asset - to make business development loans, education financing, infrastructure loans, and/or finance activities requiring capital.

Development services supporting environmental goals could readily be wedded to these services. For example in the case of small business loans, as in other microfinance efforts, education could be offered via what is called credit plus (e.g. groups such as Freedom from Hunger and ProMujer), providing financial literacy and business education to encourage responsible borrowing. And, wraparound services can also be offered, such as

environmental and conservation efforts as a loan requirement.¹¹ Microfinance interest rates can be quite high. Annual percentage rates (APRs) approaching 100%, even from established institutions are seen, because that is what the market can bear. Because loans in this way are collateralized, made as part of a larger pool of money, and originate from a novel source of capital (environmental groups), loans made via environmental mortgages could be offered at preferential interest rates with rewards given for good environmental behavior.¹²

An institution that specializes in microfinance would best do the lending. The environmental group involved would audit performance of the financial institution according to microfinance best practices and industry standards. The environmental asset would also be audited annually, and the size of capital made available could be adjusted accordingly. While it is likely that the collateral could not be seized upon default, explicitly linking the environmental asset with the line of credit available aligns incentives of borrowers to maintain or improve the state of the collateral. Loan default or wholesale degradation of the collateral would result in ineligibility of future loans. Repeat access to capital is a key factor for the community to benefit from their asset and reduce poverty.

Like successful microfinance institutions, environmental mortgage initiatives would rely on solidarity approaches (e.g., lending to small groups of women such as used by the Grameen Bank or community banking used by FINCA, Opportunity International and others) that tap into existing social capital to encourage high repayment rates. That same social capital is likely to have a positive impact on environmental and common pool resources.¹³ For example, a group of fishers could borrow against a local intact coral reef to raise the necessary capital to transition toward a more sustainable and profitable offshore fishery. Similarly, a group of women from a coastal village might borrow against the value of an important sea turtle nesting beach to fund the salary of a teacher to improve the education of the village's youth, with loan repayment coming from an education fee.

Environmental Perspective

Lending to low-income communities, as opposed to either indirect approaches or direct investment, makes sense from several perspectives. Indirect methods, a common approach, include support for alternative livelihoods that reduce the use of local natural resources, such as non-timber forest products, sustainable agriculture, or eco-tourism (Fig. 1). These indirect methods, while focusing on livelihoods, have been shown to be frequently ineffective and more expensive than more direct approaches.¹⁴ Direct approaches involve either direct payments for conservation behavior or some form of equity ownership of the natural resource. Payment for ecosystem services, conservation easements, and performance-based biodiversity payments are all examples of direct approaches. While too early in implementation for evaluation, environmental payments will likely present a suite of challenges that may impede performance, such as issues around long-term financing, long-term incentive structures, and social equity. Under some scenarios, those challenges might limit the long-term effectiveness of many direct payment approaches.

¹¹ Brau JC, Woller GW (2004) Microfinance: a comprehensive review of the existing literature. *Journal of Entrepreneurial Finance and Business Ventures* 9: 1-26.

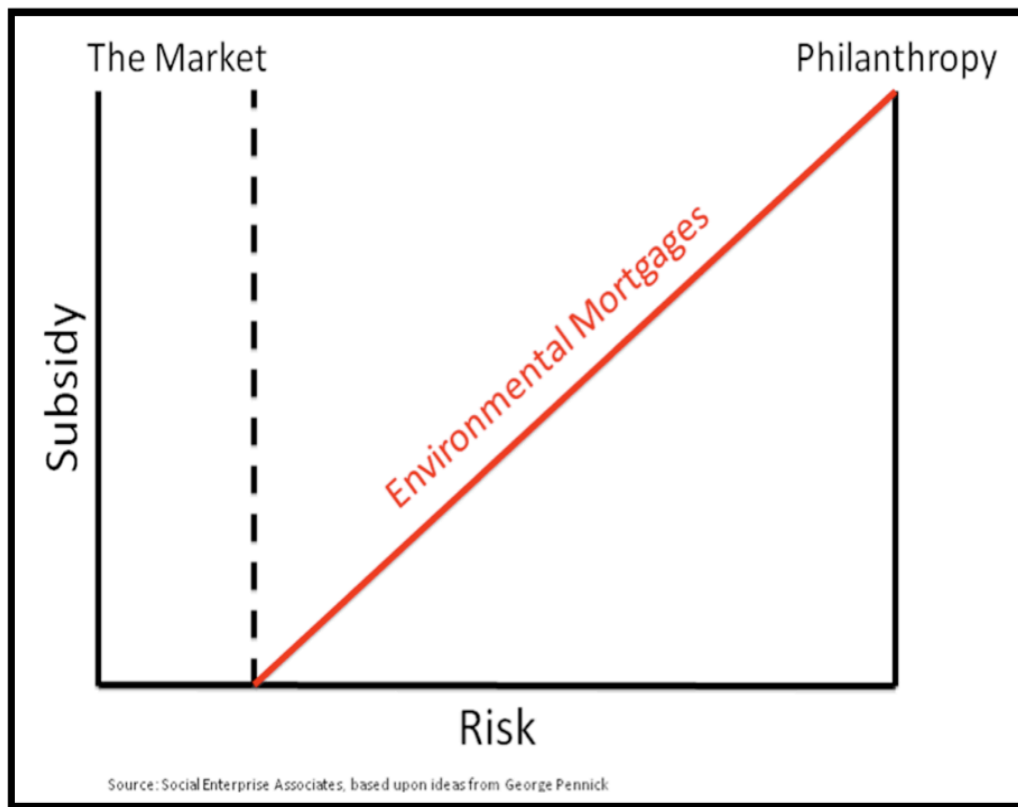
¹² Morduch J (2000) The microfinance schism. *World Development* 28: 617-629.

¹³ Pretty J, Ward H (2001) Social capital and the environment. *World Development* 29: 209-227; Anderson CL, Locker L, Nugent R (2002) Microcredit, social capital, and common pool resources. *World Development* 30: 95-105.

¹⁴ Ferraro and Kiss 2002; Agrawal and Redford 2006.

Crediting communities with assets they hold and rewarding the value they create through environmental stewardship by allowing those communities to borrow against this value in a financing framework could bridge the gap between cost-effective direct payments and the long-term sustainability of the livelihoods approach (Fig. 1). The long-term incentive of preserving this valuable line of credit to a community should facilitate adding value to natural resources in local, low-income communities, which is an important if not fundamental step toward ensuring that long-term, sustainable decisions are made regarding use of local resources and development.

Figure 2. The available continuum of the type of conservation investments, ranging from a complete market with zero subsidies to a complete charity model. The risk of investment often drives the structure of the investment. Environmental mortgages would allow the environmental sector to move away from a charity model, and thus leverage dollars spent on biodiversity conservation resulting in increased return on investment for conservation dollars.



Financially self sufficient approaches to conservation through an investment paradigm help the environmental sector move away from a charity framework and leverage conservation dollars toward increased financial, social, and community oriented returns on investment (Fig. 2). Further, by integrating into existing international microfinance networks, environmental mortgages could deliver high, cost-effective impacts in local communities around the world. Recent research at the nexus of social systems, governance, and natural

resource management can help identify socio-political conditions where environmental mortgages are most likely to succeed.¹⁵

Economic and Social Perspective

Over the past two decades, the microfinance sector has demonstrated that providing access to affordable financial services can be an effective mechanism to bring individuals and communities out of poverty. Over that same period, the scalability of this mechanism has been demonstrated. The microfinance industry has maintained annual growth rates above 30% for the last decade and is present in nearly every country in the world. The MicroCredit Summit Campaign tracked progress of microfinance reaching more than 100 million of the poorest people.¹⁶ These institutions have been successful in bringing new communities into the financial system, and in speeding the pace of economic development. A top and continued barrier to microfinance expansion into new territory for microfinance institutions is access to affordable investment capital. Providing an additional source from environmental donors and using community-held environmental assets as collateral helps overcome these challenges.

Access or *de facto* property rights to an environmental resource are often the rural poor's most valuable assets. Many rural communities are in desperate need of poverty relief, and have few *in situ* livelihood alternatives in a time of widespread deruralization.¹⁷ Low-income rural communities often have substantial environmental impacts that are underappreciated.¹⁸ Often those communities have the social capital to sustainably manage their environmental resources more effectively than outside institutions.¹⁹ On-going opportunities to leverage their equity in an environmental asset could transform that asset from being perceived as an unlimited exploitable commons to a long-term source of wealth and wealth creation.

Access to affordable financial services linked to environmental assets as collateral can provide a mechanism to reduce the unwanted or unexpected outcome of increased environmental degradation with respect to biodiversity conservation investments (Fig. 3). Known as the environmental Kuznets curve, this phenomenon presents an early hazard to poverty alleviation. While controversial for some specific pollutants, evidence exists of the inverted U pattern with respect to household income and many forms of environmental degradation. For example, tropical forest clearing in Peru has been shown to increase initially with household income, attributed to a household preference for the creation of new farmland with additional capital. With further increases in income, however, fertilizer purchases and more intensive farming techniques lead to decreased land clearing.²⁰ In

¹⁵ Ostrom, E. T. Dietz, N. Dolsak, P.C. Stern, S. Stonich, and E. U. Weber (eds). (2002) *The Drama of the Commons*. National Academy Press. Washington, DC.

¹⁶ Forster S, Reille X. (2008) *Foreign Capital Investment in Microfinance: Balancing social and financial returns*. CGAP Focus Note No. 44

¹⁷ Araghi FA (1995) Global depeasantization. *Sociological Quarterly* 36: 337-368.

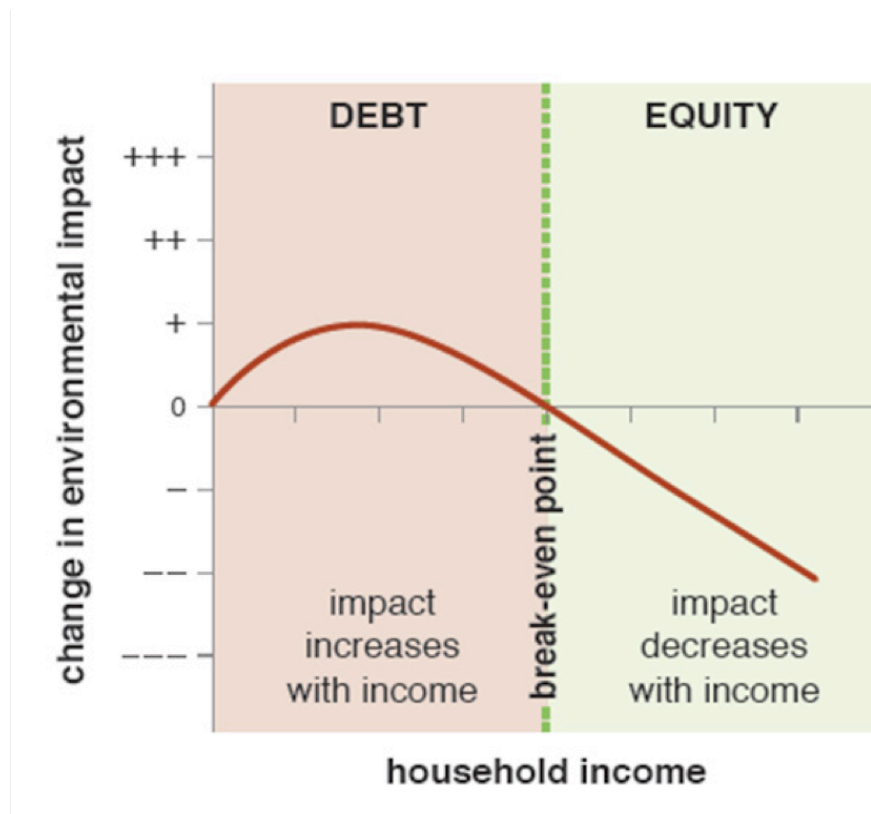
¹⁸ Peckham SH, Diaz DM, Walli A, Ruiz G, Crowder LB, et al. (2007) Small-scale fisheries bycatch jeopardizes endangered loggerhead turtles. *PLoS One* 2: e1041; Brasher JS, Arcese P, Sam MK, Coppolillo PB, Sinclair ARE, et al. (2004) Bushmeat hunting, wildlife declines, and fish supply in West Africa. *Science* 306: 1180-1183.

¹⁹ Basurto X (2005) How locally designed access and use control can prevent the tragedy of the commons in a Mexican small-scale fishing community. *Society and Natural Resources* 18: 643-659; Cudney-Bueno R, Bourillón L, Sáenz-Arroyo A, Torre-Cosío J, Turk-Boyer P and Shaw WW (in press). *Governance and effects of marine reserves in the Gulf of California, Mexico*. *Ocean and Coastal Management*

²⁰ Zwane A (2007) Does poverty constrain deforestation? Econometric evidence from Peru. *Journal of Development Economics* 84: 330-349.

early stages of development, explicitly linking environmental resources to sustainable development with access to affordable financial services might play a role in reducing environmental impacts.

Figure 3. An example of the environmental Kuznet's curve, with household income on the X-axis and environmental impact on the Y-axis. This graph shows where debt investment, through environmental mortgages, might make sense to reduce the impact of the early increases in environmental degradation. Once communities have progressed farther along the income spectrum, simple equity investments in either environmental protection or social well-being might be preferred.



Linking microfinance to environmental stewardship could also bring new sources of capital to the social development community. Furthermore, it can provide a mechanism to have capital re-cycled and re-used in a community, rather than just expensed and then gone. To achieve self sufficiency, this effort would need to cover associated transactions fees, asset audits, wrap-around services, and the depreciation of capital. Encouragingly, many government and environmental NGOs and foundations are spending large amounts of capital on environmental protection globally without a means to ensure their sustainability or impact. Current initiatives often lack a mechanism to spend effectively and efficiently within low-income communities.

Potential Challenges

Environmental mortgages will not be without challenges, including the dangers of irresponsible lending. For example, presenting a poor, rural community with a line of credit equal to the full carbon offset market value for a forest they control via real or *de facto* property rights may be a staggering sum that could easily lead to social disruptions. A proactive role of financial officers, strong vetting of loan proposals, and management of financial institutions are core program components. On the environmental side,

environmental audits and line of credit adjustments will be necessary for the successful application of environmental mortgages for biodiversity conservation.

Ultimately, poor performance and environmental degradation must result in a reduction or elimination of the line of credit to the community, which might be easier stated than executed. Along with the successes and benefits of microfinance initiatives, the current criticisms and challenges also would apply to environmental lending schemes.²¹ Careful biological and socio-political assessments of potential scenarios will be necessary to determine when conservation lending is most likely to be successful and productive.

Determining who the recipients of lines of credit are also poses an operational challenge. Throughout this paper, we have broadly made reference to “local communities” that own and/or have use rights over environmental assets as being the recipients of credit. However, the definition of “community” and the boundaries of rights over use of natural resources is often contentious and riddled with power dynamics. In addition, local communities may show that they can do everything in their power to be stewards of their natural resources. But these local efforts can be undermined by pressures from roving bandits who, responding to regional or global market demands, can deplete local resources and move on to other areas to do the same.²²

Conclusions

Collateralizing microfinance services with the goal of melding poverty alleviation and biodiversity conservation is a logical next step in the microfinance movement. Strong management strengthens local institutions, while institutional decay promotes natural resource degradation and overexploitation. Poor communities and poor people have been shown to be good credit risks, with good microfinance institutions consistently achieving repayment rates better than banks in any/all economic conditions. In short, microfinance services to the poor can be economical sustainable and also generate positive social outcomes.

Lending institutions are also becoming more experienced with attaching social and environmental measurement to their activities – the so called triple bottom line. Hundreds of banks follow the global reporting initiatives (GRI). Banks are making environmental-based loans. Some institutions are attaching environmental consequences to their loans: the widespread adoption of the equator principles by the world’s largest banks and the advent of green mortgages are two example.²³ If properly designed and executed, environmental mortgages could provide a mechanism to help protect environmental assets while also helping the rural poor climb out of poverty.

²¹ Agrawal and Redford 2006; Murdoch 2000; Dichter TW (1996) Questioning the future of NGOs in microfinance. *Journal of International Development* 8: 259-269.

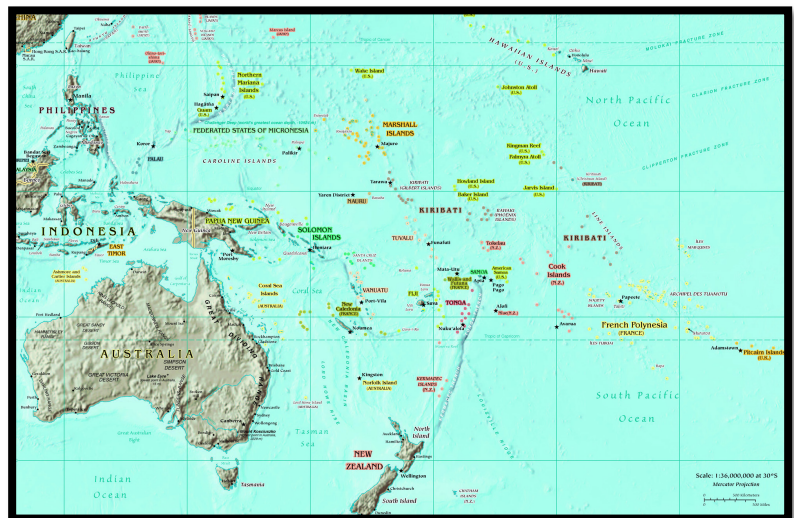
²² Berkes, F., et al. 2006. Globalization, roving bandits, and marine resources. *Science*. 311(17):1557-1558; Agrawal, A. and C.C. Gibson. 1999. Enchantment and disenchantment: the role of community in natural resource conservation. *World Development* 27(4): 629-649.

²³ Nevin R, Watson G (1998) Evidence of rational market valuations for home energy efficiency. *The Appraisal Journal* 401-409; Wright C (2009) Setting standards for responsible banking: examining the role of the international finance corporation in the emergence of the equator principles. In: Biermann F, Siebenhüner B, Schreyrogg A, editors. *International Organizations and Global Environmental Governance*. London: Routledge. in press.

PART III: PAST EXPERIENCES ON LINKING LIVELIHOODS AND ENVIRONMENTAL PROTECTION

In this section of the report, we review past programmatic interventions that attempt to link livelihood improvement with environmental conservation. We do so with the goal of learning from past successes and failures in order to shape a long-term sustainable strategy that concurrently improves livelihoods and secures environmental assets. We focus on the geographic region of the tropical Pacific for a number of reasons:

- The tropical Pacific contains high numbers of threatened species and ecosystems.
- Preserving that biodiversity poses many challenges, including that the 200-mile exclusive economic zone established under the Law of the Sea Convention has given a small number of Pacific Island people responsibility for managing the biological resources of vast areas.
- Those stewardship responsibilities are further complicated by the on-going challenges facing Pacific Island nations, including poorly planned development, inadequate natural resource management, and rapidly growing populations that are depleting the resource base.
- There have been a number of documented, region-wide conservation programs undertaken in the region over the past decade that can help to inform improved conservation strategies.



The socioeconomics of the South Pacific is highly variable, ranging from highly developed and competitive economies such as Australia and New Zealand to much less developed nations; the latter is more common. Over 10 million inhabitant the 30,000 islands bordered between Asia and America (excluding Australia and New Zealand). The majority of those inhabitants rely on agriculture and fishing for livelihoods. Many communities lack efficient access to nearby or distant markets. Many Pacific Islands nations rely heavily on foreign aid and remittances. For example, foreign aid accounts for 50% of government spending in the Solomon Islands. A large fraction of the aid in the region comes from Australia and New Zealand.

Historically, efforts to establish nature reserves and conservation programs in the region have been met with mediocre success. Protected areas have often sparked social conflicts with local communities that hold traditional tenure of resources. International NGOs have implemented explicit conservation programs throughout the region that have often been viewed by locals as a path to economic development as opposed environmental conservation. This dynamic has resulted in tensions and misaligned incentives in many

cases.²⁴ From an ecological standpoint, protected areas in the region are commonly too small to be ecologically viable. And from an economic perspective, environmental programs have relied solely on ephemeral donor aid, which is in the end an unsustainable model. In response to those challenges, the South Pacific Biodiversity Conservation Program (SPBCP) was established in 1993 with the goal of indentifying, establishing, and managing conservation area projects in fourteen countries. Funded by the Global Environment Facility (GEF) and others, total financing for the project was US\$13.8 million over five years.²⁵ The SPBCP implementing agency was the South Pacific Regional Environmental Programme (SPREP), an independent, intergovernmental environmental agency. Specific SBPCP objectives included the following:

- Establish a series of conservation areas that demonstrate protection of biodiversity, ecologically sustainable use of natural resources, and community economic development;
- Protect terrestrial and marine species that are threatened or endangered in the Pacific region;
- Identify new areas important to conserving biodiversity and constituting potential conservation areas;
- Improve awareness in Pacific Island countries of the importance and means of conserving biodiversity; and
- Improve capabilities and cooperation among different sectors of society and agencies contributing to the conservation of biodiversity of the Pacific Islands.²⁶

An important premise of the SPBCP was that if people earned income directly from biodiversity they would then have an incentive to preserve it. Fourteen conservation areas were identified, established and initiated as part of the program, whose participants encompassed Cook Islands, Fiji, Kiribati, Marshall Islands, Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, and Vanuatu. The projects developed a conservation coordinating committee as a vehicle for engaging local communities in the planning, decision-making, and implementation of the conservation areas and livelihood improvement strategies. The program resulted in the development of seven ecotourism ventures, along with other income generating activities such the selling of handicraft and agricultural products.

The SPBCP process required proponents for each conservation area to develop a planning document providing background on the biodiversity status of the site, the relevant threats, economic status of the communities, their social and institutional structures, and the available livelihood options. In addition, GEF funded projects require mid-term and final evaluations to assess project success. Therefore, while some documents are missing and the GEF evaluation was not done on a project-by-project basis (i.e., conservation area project), SPBCP documents provide a relatively coherent set of case studies describing the characteristics and challenges involved in linking economic development and biodiversity conservation in the Pacific region. Here, we briefly analyze the overall outcomes and results

²⁴ West, P. 2007. Conservation is our government now: The politics of ecology in Papua New Guinea. Duke University Press, Durham, NC.; Kinch, J. 2006. Socio-economic assessment study for the Huon coast. Final technical report to the Western Pacific Regional Fishery Management Council. Page 60. Western Pacific Regional Fishery Management Council, Honolulu, Hawaii.; Dowie, M. 2008. Wrong path to conservation in Papua New Guinea. The Nation. September 10, 2008.

²⁵ <http://www.gefweb.org>

²⁶ <http://www.gefweb.org>

of the SPBCP, and take a closer detailed look at specific conservation area projects with the goal of elucidating the many challenges of linking improved livelihoods with environmental conservation.²⁷

The Pacific Island communities involved in the SPBCP illustrate a number of positive aspects of working on conservation projects in the region. First, extended family and community control of local resources is relatively common in the Pacific region, as illustrated by the Pohnpei (Federated States of Micronesia) and Oafatu (Somoa) Conservation Area projects. Even in areas where traditional authority has declined, it is sometimes possible to rejuvenate traditional mandate and strength. Such dynamics were observed in Vanuatu at the Vatthe Conservation Area. The majority of the communities included in the SPBCP depend directly on wild resources for food, income, and ceremonial practices. Their rural existence ensures a close relationship with local natural resources, and in some cases, communities independently pursue more sustainable management practices.

As to be expected, obvious challenges and setbacks occurred with SPBCP. Many SPBCP efforts were led by national or regional government agencies, which sometimes resulted in preferential investment in government priorities over those of local communities. For example, investment in improving the livelihoods of the communities living inside the Takimutu Conservation Area (Cook Islands) was limited due to resources that were spent on a rat control program that was high priority for the government. In other cases (e.g., Koroyanitu, Fiji and Vatthe, Vanuatu), a lack of on-the-ground leadership led to poor community relationships and challenges in reaching consensus about resource use limitations and the distribution of economic benefits resulting from the project endeavors. The Vatthe Conservation Area Project also illustrates the challenges that immigration can bring to programmatic success: new immigrants clashed with a newly established community with poor local governance, which led to disagreements on appropriate livelihoods, natural resource management, and income distribution inside the Conservation Area. Another apparent challenge is the difficulty in developing economic opportunities in these isolated island nations, particularly opportunities that are not based on traditional activities for which there is social acceptance and existing markets.

SBCP Conservation Area Case Studies

To briefly illustrate the socio-economic and environmental settings of the SPBCP conservation area projects, take three separate projects in Palau, Tuvalu, and the Solomon Islands.²⁸ All three projects illustrate the complexities and challenges with respect to environmental setting, community structure, and local economies.

²⁷ The analysis of SCBP projects is based on a suite of personal interviews and project documents (proposals, conservation plans, mid-term evaluations, and final evaluations). All documents were accessed at the SPREP headquarters in Apia, Samoa.

²⁸ Based on the following documents: Community Marine Conservation Area, The Arnavon Islands, Solomon Islands. 1995. Project Preparation Document. South Pacific Biodiversity Conservation Program; Funafuti Marine Conservation Area Project Tavlatu. 1995. Project Preparation Document. A submission to the South Pacific Biodiversity Conservation Programme. Environment Unit, Ministry of Natural Resources, Government of Tuvalu; Ngaremeduu Conservation Area Palau. 1996. Project Preparation Document. South Pacific Biodiversity Document. Division of Conservation and Entomology, Ministry of Natural Resources. March 1996.

Environmental Setting

The Ngarmedua Conservation Area (Palau) is considered one of Pacific's most biologically diverse areas with respect to species and habitats. The area includes important fish nursery grounds, high coral abundance and diversity, and large populations of dugongs and freshwater species. There is clear pressure from the local community on the local terrestrial and marine resources. Impacts include fishing, pineapple and taro cultivation, and degradation from intentional burning. Over 50% of the Palau mangrove crab harvest comes from the Conservation Area.

The Fanafuti Conservation Area (Tuvalu) is important both from a biodiversity and natural resource perspective. The atoll contains 20% of the Tavalu's reefs and 40% of the threatened broadleaf vegetation. Fanafuti is also one of the countries most productive fishing grounds. The major biological impacts to the Conservation Area are directly connected to the local community. While no baseline is available, all of those impacts can be measured and monitored, and include harvesting of fish, giant clams, and *Trochus*; coconut crab and plant harvesting, and hunting of sea turtles and birds.

The Arnavon Conservation Area (Solomon Islands) holds one of the world's most important nesting sites for Hawksbill turtles. In addition, the Conservation Area has intact coral reefs, populations of commercially important marine species, and significant terrestrial biological diversity. The community relies heavily on the natural resources of the Conservation Area, both for subsistence and economic revenue.

Community Structure & Setting

In the case of Ngarmedua, the conservation area falls within three states of Palau. Potential complications over property rights exist in Palau, particularly over title and land rights that are suspected to hinder development and likely lead to environmental degradation. In marine resource management, the role of traditional authority and compliance with traditional laws appears to be declining. Despite changing land tenure, there is *de facto* occupation and use of land, and the degraded lands inside the Conservation Area are evidence of environmental quality and land tenure issues.

In Fanafuti, the conservation area is made of private and communal lands. Twenty-one landowners privately own all but the two smallest islets. Communal land is administered by the island council, and is used traditionally for growing food in time of hardship for the entire community. However, all surrounding residents can access the area. While there are some temporary fishing camps within the Conservation Area, there are no permanent settlements. The elected Fanafuti town council is charged with managing the Conservation Area, and is made up of 5 men and one woman.

The Arnavon Conservation Area is uninhabited, but a number of communities claim traditional ownership and exercise use rights. While two provinces claim traditional rights to the area, an additional community with no legal claims to the area is the main resource users of the Conservation Area. This on-going human conflict threatens the Conservation Area.

Economic Setting

In Ngarmedua, Palau, the community that uses the proposed Conservation Area relies on the area for subsistence and economic revenue, largely through fishing activities. While the local community of 413 people stated they were interested in new economic opportunities,

none we explicitly scoped nor identified, with the exception of eco-tourism. Given the county's investment in the tourism sector, ecotourism development projects hold potential for local economic opportunities. Palau's tourism is recovering following the early 2000s, and received 80,000 visitors in 2004. Yet, eco-tourism was not explicitly addressed in Ngarmedua project as potential revenue stream, and no resources were devoted to developing its potential.

In Fanafuti, the challenging situation of heavily reliance on the natural resources inside the Conservation Area coupled with the lack of alternative economic opportunities is even more apparent. Here, the 1000-person community relies heavily on the marine and terrestrial resources of the Conservation Area. Over 20% of the local community fish within the area, and 25% collect plant materials and hunt birds. In many cases, over 50% of fishers total catch come from the Conservation Area. There are no unrealized economic opportunities that are apparent for the community. Ecotourism is relatively non-existent in Tuvalu, with only 1,000 visitors a year.

There are three communities that rely on the Arnavon Island Conservation Area in the Solomon Islands. Subsistence and economic opportunities are largely focused on fishing (sea cucumber and *Trochus*). No additional economic opportunities are known.

PART IV: MICROFINANCE IN THE SOUTH PACIFIC

Past Microfinance Initiatives

While microfinance institutions (MFIs) and efforts are rare in the Pacific Islands compared to the rest of Asia,²⁹ there has been an increase in microfinance operations in the region, with the most common programs being development bank schemes, credit unions, and programs based on the Grameen microfinance model. This includes microfinance programs in Samoa, Papua New Guinea, Samoa, Fiji, Solomon Islands and Tonga. Of the microfinance programs in the region to date, the majority has been unsuccessful or is still in the early stages of development.³⁰

With few exceptions (e.g., Liklik Danau Abitore Trust, Papua New Guinea), microfinance programs in the Pacific do not strongly target the most disadvantaged borrowers: the rural communities in remote areas or outlying islands. A review of microfinance efforts in nine Pacific Island nations during the mid 1990s establish the lack of lending opportunities for the rural populations in the region (Table 1).

Table 1. Estimated number of Pacific Island borrowers in microfinance programs (4 types of programs) during the mid 1990s. The total number of borrowers (14,303) makes up 0.3% of the rural population in the region.²⁸

<i>Country</i>	<i>Development Banks</i>	<i>Credit Unions</i>	<i>Grameen Replications</i>	<i>Revolving Funds</i>	<i>Total</i>	<i>Rural Population</i>
Fiji	0	1,719	150	0	1,869	474,000
Papua New Guinea	0	1,000	334	500	1,834	3,359,000
Solomon Islands	0	6,802	0	0	6,802	320,000
Tonga	1,595	0	0	30	1,625	76,000
Vanuatu	0	2,000	0	10	2,010	135,000
Western Samoa	133	?	20	10	163	129,000
Total	1,728	11,521	504	550	14,303	4,492,000

That same review concluded that Pacific Island commercial banks provide few services outside main city centers, and government-owned development banks do not engage in microfinance (with a few exceptions, including the Tonga and Cook Islands Development Banks). Microfinance programs modeled after Grameen Bank are relatively new in the region, and include Liklik Danau Abitore Trust in Papua New Guinea, the Women's Social and Economic Development Programme in Fiji, the South Pacific Business Development in Western Samoa.³¹

In terms of the types of services offered with microfinance programs in the Pacific, those that failed to offer technical and business training to borrowers have routinely failed. And in many cases savings services are just as important to programmatic success as loan services.

²⁹ Source: The Microfinance Information Exchange, <http://www.mixmarket.org>

³⁰ McGuire, P. B. 1996. Microfinance in the Pacific Island countries. Study prepared for the Asian and Pacific Development Centre. BANK POOR '96. Regional Workshop on Microfinance for the Poor in the Asia-Pacific. The Foundation for Development Cooperation.

³¹ <http://www.spbd.ws>

They are a number of barriers and challenges to implementing a successful and sustainable microfinance program that appear to be systematic to the Pacific region. Those include,

- High cost structures,
- Shortage of qualified workers,
- Low population densities,
- Remote communities,
- Low repayment rates, and
- Poor program management skills.

Some have suggested that given due to the characteristics mentioned above and others in the region, that the standard timetable for achieving self-sufficiency in the microfinance sector is unrealistic for the Pacific (3-7 years for operating self-sufficiency and 5-10 years for financial self-sufficiency).³² Donors and governments should be realistic about necessary time frames and resources needed to reach self-sufficient programs. Concurrently, programs should scope partnerships with commercial banks and other private-sector institutions.

A review of recent experiences in the Pacific concluded a single model of microfinance is unlikely to be appropriate, and programmatic flexibility would likely lead to more successful outcomes. Grameen replications tend to be expensive and most successful in areas with large, dense populations and reasonable infrastructure. Yet, the model has experienced the most success. The inherent structure of Developmental Banks makes microlending to the most disadvantaged citizens challenging (Developmental Banks are historically structured to give larger loans for more typical development projects). Credit Unions and their accompanying structures (as our revolving funds) may be particularly appropriate for microlending in more remote and isolated communities of the Pacific. Revolving funds, however, tend to be less effective than credit unions. Lastly, trusts could also be used to engage in microfinance lending. While we know of no programs that have used trusts in this fashion, we feel it may be an appropriate structure in many cases (and similar to a credit union). We review trusts and their use in the environmental sector in Part VI of this report. In sum, the type of financial institute chosen to engage in microfinance operations is critical, and should be dictated by the local socio-political circumstances.

Designing Linkages Between Microfinance and Environmental Conservation

The design and implementation of microfinance interventions to promote biodiversity conservation and livelihood improvement should consider the environmental, economic and social context of the beneficiaries in order to identify sites and conditions where improved access to credits will be a cost effective action in comparison with other conservation and development mechanisms.

The literature and knowledge gained from informational interviews suggest that realistic and thorough market assessment should be undertaken prior to implementing any microfinance scheme. In the Pacific Island nations, this would likely include,

- The size of the target population and their livelihood needs/hardships.
- The availability of resources in the community.
- The social-political structure of the community.
- The status of entrepreneurship and a cash economy within the community.
- The presence of alternative income generation options.

³² McGuire, 1996

Previous experience in enterprise development and sustainable income generating activities in the Pacific islands offer a number of characteristics that are often common and influence strategies for linking livelihood improvement and environmental conservation. At the individual level, a rural villager 1) often has a suite of ill-defined activities that make up his livelihood, has no clear separation between business and personal assets, and 3) gains to increase his social status by opening a business. At the community level, a number of interrelated characteristics define the local socio-political landscape. Often a cash economy is a new concept to Pacific Island nations (in contrast to a subsistence economy). Consequently, the community often does not place great value on businesses, and the wider community often holds the perspective that all businesses should be accountable to the community. Additionally, the community (and often the local church) expects benefits from businesses in the local community via larger donations and contributions.

An evaluation of the different resources available to the individual and the community is required to generate a typology of sites where microfinance interventions that link livelihoods and the environment. Within a Pacific Islands context, this assessment would include at least three main categories.

Natural capital. Considering that environmental conservation is a major goal of the intervention, the assessment and scoping of environmental assets and their threats is a critical first step with respect to site selection. Without an intact environmental asset that is both desirable and measurable, all other factors that influence the potential for debt investment are irrelevant. Interventions in areas that will not generate additionality will be inefficient, and interventions in degraded areas with low conservation value will often be produce low return on investments. The one exception to this rule may be the presence of latent conservation potential in a community (e.g., restoration activities).

Physical Infrastructure. The availability of infrastructure is often a major constraint for economic development and livelihood improvement. Larger investments in roads, ports, schools are out of the scope of microfinance interventions at a family or individual level. However, financial institutions could allocate larger money transfers at the community level, if appropriate arrangements could be implemented to minimize free riding and ensure liability. Further, larger financial transfers to a community for infrastructure development may hold a number of key advantages for linking livelihood improvement and environmental conservation. Such transfers are often exactly what a community needs to escape poverty,³³ and may result in a larger (and thus more ecologically viable) environmental assets used as collateral for the loan.

Social & Human Capital. The level of social capital in a community is an important consideration for the selection of sites. Not surprisingly, social cohesion, leadership, and social norms will all heavily influence the outcome of any program that focuses on livelihoods and environmental interactions. Because building social capital is a complex, timely process requiring many resources, selecting sites with strong social capital already in place that will encourage a successful program would be strategic. High levels of bonding social capital facilitates the enforcement conditions and management practices required to

³³ For an example, Kinch, J. 2006. Socio-economic assessment study for the Huon coast. Final technical report to the Western Pacific Regional Fishery Management Council. Page 60. Western Pacific Regional Fishery Management Council, Honolulu, Hawaii.

implement successful microfinance programs in a community, while high levels of bridging social capital facilitate the links between the community and external agents or organizations. Naturally, the stock of skills and knowledge embodied in a community to produce economic value will heavily influence the success of any microfinance initiative. Agricultural and fishing skills, tourism-related services, and the building and selling of crafts dominate current human capital among the Pacific Island nations. Past initiatives in the region have demonstrated that the microfinance programs that lack business and technical training consistently fail.³⁴

Financial Capital. Appropriate levels of funding are critical for the success of programs that are attempting to link livelihood improvement with environmental stewardship. Too little funding fails to empower individuals or communities to overcome entry barriers and engage in alternative income generation activities. Too much funding can lead to social dissonance within communities and perverse incentives and attitudes such as the “cargo culture” observed already in the region.³⁵

Interview-based Case Studies: Microfinance in Samoa Today

To our knowledge, only two microfinance organizations have been successful in Samoa to date. The organizations employ drastically different strategies. South Pacific Business Development employs a Grameen-style microfinance model. With this approach, unsecured loans are made to groups of women to help them start businesses. In contrast, the organization Women in Business focuses on a directed, livelihood creation system. While they do sometimes employ micro-lending and savings strategies, they also serve as an aggregator and exporter of products and an incubator for initial development. Women in Business focuses on market creation as opposed to microfinance and the associated financial services explicitly. Based on interviews in February 2009, we briefly compare and contrast the two organizations.

South Pacific Business Development³⁶ (SPBD) currently has ~3600 active borrowers and 16 personnel. Geographically, those borrowers include 90% of the more populated island of Upolu, and have recently expanded to Savai'i.

Business Model

SPBD is a member of the Grameen Trust³⁷, and follows that model of lending. The bank makes loans to groups of 10 women for WST\$1,000 (US\$364)³⁸ to start business ventures. Loans are made and collected in the village; basic financial literacy training is provided and is a precondition for getting a loan. The flat 27% interest rate is invariant. The institution has recently reached the scale where this income covers operating costs. SPBD reports a 98.8% repayment rate on a total portfolio size of WST\$4.5 million (US\$1.6 million). The institution's funds are leveraged 2:1 with local banks, giving them greater financial reach.

Applicants are connected with SPBD by word of mouth, and are then required to assemble in groups of ten. The women groups undergo a two-week financial literacy training, and

³⁴ McGuire, 1996.

³⁵ Dowie, M. 2008. Wrong path to conservation in Papua New Guinea. *The Nation*. September 10, 2008.; West, P. 2007. *Conservation is our government now: The politics of ecology in Papua New Guinea*. Duke University Press, Durham, NC.

³⁶ <http://www.spbd.ws>

³⁷ <http://www.grameentrust.org>

³⁸ Based on the following (June 2009) exchange rate: 1 WST = 0.364 USD

then will have an initial meeting to discuss business ideas. Following this training, the group submits a formal application and receives the loan. A loan officer then arrives in the village weekly to hold a meeting with the women on the business ventures and to collect loan payments.

Initial loans must be for business development; subsequent loans can include school fees and household expenses. SPBD considers themselves “credit plus”, as they provide savings accounts and financial literacy in addition access to debt. Overhead is kept aggressively low. Loan officers are encouraged to have a portfolio of 200-450 loans. Offices have cinderblock desks, and four permanent staff provide administrative support.

In our interview, trust was repeatedly emphasized as the key aspect in SPBD’s business model.

Institutional Goals

The central institutional goal of SPBD is economic development, while the focus with each client is help lift her out of poverty. SPBD views themselves as providing a tool that motivated individuals can use to lift themselves out of poverty. SPBD collaborates with environmental groups, including the Ministry of Environment and NGOs; however, collaborations are typically initiated by environmental groups, and focus on providing ancillary educational opportunities at weekly meetings. While SPBD has an interest in social and environmental goals, it currently lacks financial or strategic capacity.

Client Description And Needs

Approximately 60% of SBPD’s clients make their livelihood in agriculture or fishing. The remaining borrowers make a living in the service industries, via craft-making, or by operating small stores. Clients are usually interested in repeat lending, which is encouraged by SBPD. Each successful loan repayment increase a borrower’s line of credit by WST\$500 up to a limit of WST\$5,000. When loan applicants request amounts >WST\$5,000, their applications are passed onto commercial banks. SBPD claims they target the “poorest of the poor” on the island, and stays with those clients as their incomes rise. Clients typically already have nascent businesses or business ideas, and simply need capital. Business success or failure is not closely monitored, so long as the loan is repaid. Others that were interviewed suggested that many loans are repaid through remittances in the event of business failure.

Major Advantages & Disadvantages

Based on our interviews, we identified the following advantages to SBPD’s model and strategy:

- **Scalability:** By providing a single product, additional capital can translate directly to more loans. Strategic scope is kept narrow.
- **Trust:** Dependency on repeat interactions and intimate relationships, which leads to high repayment rates.
- **Low-cost:** Low overhead and interest rates. In addition, SBPD leverages all capital with local banks, translating into more loans per dollar.
- **Transparency:** SBPD complies with general microfinance accounting standards, and can measure its success in numbers of loans made and repaid. Because loan repayment is an indicator of business success, this type of intervention is ‘self-auditing’.

Based on our interviews, we identified the following disadvantages to SBPD's model and strategy:

- **Limited Strategic Flexibility:** SBPD is built for growth, but not for adaptability. Changing client needs would not be met quickly by this institution, or at all. This is indicated by their future plans for broadening scope: bigger loans and loans to individuals. In contrast, Women in Business Inc. (see below) has been continuously evaluating and self-adapting to their clients' needs.
- **Lack of Evaluation on Impact and Business Development:** The main focus of interaction with the client is on loan repayment. The long-term viability of the business is not addressed or measured, nor is SBPD's impact on poverty alleviation. Simple business development advice is provided at loan origination, but is not subsequently scoped.
- **Limited Scope:** The institution's sole focus is on providing access to credit. Problems that are not solved by access to credit are not addressed.
- **Lack of Market Assessment:** SBPD does not conduct market assessments to target areas where growth is most likely. Additionally, it does not assess potential markets for proposed businesses nor work to create markets or scale for their clients.

Women in Business, Inc.³⁹ (WIB) is a perhaps a less scalable operation but provides a much more stable income to its clients, staying with families over a longer period of time and ensuring that appropriate markets exist for their products. They limit taking on new clients until they know that those clients can contribute to a business within their portfolio over the long term.

Business Model

Initially founded as a traditional MFI, WIB has been evolved over the past fifteen plus years into its current form. In addition to making loans to families, WIB works with their clients on business creation, development, and market assessment. The institution maintains a portfolio of business opportunities, and attempts to match families with one of these. This model assures that businesses are viable, markets are present, and the necessary scale is achieved for exports. Businesses include organic vegetable and meats (including bananas), coconut oil, coffee, and taro. The institution works with distant buyers to ensure a market and a fair price, and in most cases does the intermediate purchasing. Most products are niche export products, with buyers such as The Body Shop.

WIB focuses on long-term relationships with families. In this sense, loans are just one of many tools on the path to financial viability, including savings, financial literacy training, business investment, and the purchaser-supplier relationship. Clients (i.e., families) are selected from a waiting list based on need and appropriateness to the business model and available markets. An untracked and variable quantity of money is invested in each family until they reach profitability. WIB is funded through a combination of loan repayment, product purchases and re-sale to export, and grants. According to WIB, they organization is just reaching financial solvency.

Institutional Goals

The main focus appears social, with family wellness and prosperity being the top priorities. Consequently, WIB will often take families more in need over ones with greater ability to produce the products in the portfolio. In most cases, however, a balance is the goal.

³⁹ <http://www.womeninbusiness.ws>

Economic goals are secondary in this model, main ones being financial independence and growth for the organization and the participant families. WIB also has a strong, albeit implicit, environmental goal. This is apparent through product choices, which focus on organics and appropriate land use. WIB appear interested in adding more explicit environmental components, and have strategic capacity to enact changes to their business model.

Client Description and Needs

Contrary to the name, WIB's typical client is an intact family unit with arable land. To date, WIB has focused on agriculture-based businesses, and has shied away from any marine focus. Families are not chosen with any geographic focus in mind, but clustering tends to occur, with several families in a village joining the same venture. The clients tend not to be "the poorest of the poor" since access to land, intact family units, and the ability to raise a crop are important aspects of the business model. As such, they are able to bring subsistence farmers into a cash economy, but aren't necessarily providing livelihoods to the extreme poor in the country. (Note: There is no evidence that SPBD is doing so either). WIB does not have a formal prioritization system for choosing clients; many clients are self-selected, as they are likely to hear about the program through word of mouth.

WIB emphasizes flexibility with client interaction. The intensity of the program, the type of support offered, and the types of livelihoods all depend on the individual situation. Program officers are given the flexibility to work with clients in the most strategic manner. Client turnover tends to be low. When clients leave the system, it is often because they move to New Zealand via the residency lottery.

Major Advantages & Disadvantages

Based on our interviews, we identified the following advantages to WIB's model and strategy:

- **Livelihood Creation:** The major advantage of WIB's model is the ability to create livelihoods that did not previously exist. Because the focus is on exports and market creation, cash is brought into an economy, allowing it to support more livelihoods and jobs.
- **Market Assessment and Business Choice:** WIB pre-screens the array of livelihood options based on its own market assessment, and its ability to aggregate and export products. This provides stability to families, and helps the institution protect its investments.
- **Security:** WIB focuses on lifetime well-being of its clients. It purchases products from families, which shifts the risk of market volatility away from the family. It invests "as much as required" to help the families start successful businesses. And it provides the on-going services to ensure long-term financial security to families.
- **Flexibility:** WIB has a range of services and products available, and is able to use them as necessary to ensure successful interventions and to adapt to changing market conditions. For example, it was able to exit the taro market and enter into organic produce at the appropriate time.
- **Strategic Scope and Capacity:** WIB has a capacity for evaluation that allows it to continually modify its approach and improve implementation. Further, it has a broad mission and scope that allows it to change directions once an approach becomes unsuccessful or a new one becomes more strategic.

Based on our interviews, we indentified the following disadvantages to WIB's model and strategy:

- **High Cost:** WIB has high up-front costs for family training, before it begins to yield dividends in the form of saleable products. In addition to this, maintaining strategic scope and thorough evaluations comes at a higher administrative cost.
- **Limited Scalability:** WIB is capital limited. Because capital is recycled slowly through the organization and leverage is not used, growth is slow. Even if the institution acquired the capital for more aggressive growth, the long time spent in selecting and training families would limit the pace of growth.
- **Transparency:** The institution does not undertake aggressive accounting to assess cost per family or return on investment. Thus, it is more difficult (compared to SPBD) for donors to know exactly where there money is going and what the social return per dollar invested. In addition, because the institution preserves the right to change strategy as appropriate, it can be less clear where future money will be spent.
- **Dependency on External Partners:** Because export markets can be volatile and WIB depend on larger, international partners for resale, it sacrifices some control over their financial situation and effectiveness.

PART V: SAMPLE IMPLEMENTATIONS USING ENVIRONMENTAL MORTGAGES

Here we present three models that serve as hypothetical examples of how environmental mortgages could be structured. These models and examples are based on our experiences and on-the-ground research conducted in the south Pacific and other low-income nations.

The Basic Environmental Mortgage Model

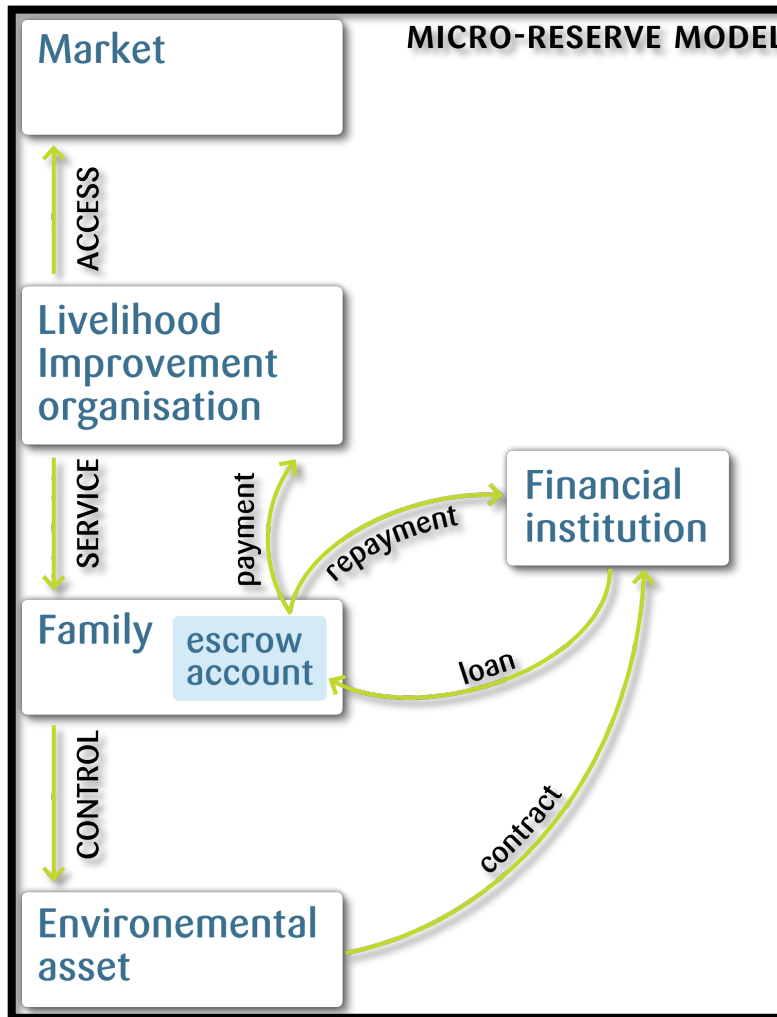
Below illustrates the simplest environmental mortgage model, which is also the riskiest in terms of failure. A financial institution makes loans to families or individuals of a community. Those loans are based on and collateralized by some environmental asset (i.e., resource). The community has legal, customary, or de facto control of that environmental resource. As members of the community, families (or individuals) are incentivized to follow established social norms, which would include decisions on the governance of natural resources. The community members would be incentivized both to repay loans and preserve the loan's collateral in order to secure future access to debt for themselves and the community at-large.

The financial institution's capital is directly dependent on the status of the environmental asset within their loan portfolio. The financial institution makes loans based on that collateral within the community, never lending out more than 50% of assets under management.



The Micro-reserve Model

Under this model, there exists a family (or similarly sized social unit) with an intact environmental asset, a Conservation Lending Trust (CLT), and an organization focused on improving livelihoods within the region. In sum, the family acts as stewards of the environmental asset in exchange for a loan from a financial institution (i.e., a CLT). The family uses that loan to acquire the services of an organization that will improve their livelihood, which often includes providing access to some outside market (Fig. X).



A well-capitalized CLT would operate similar to a bank or MFI. Similar to most trusts, it would exist in a central location, and have unused cash assets under management. The CLT would make loans to a family (or small group of families) that wishes to engage in a livelihood creation enterprise, one in which an initial capital investment would likely yield an improved livelihood and a stable income. Projects could be scaled down to a single landholding individual or up to a community cooperative, depending on the environmental asset targeted and the livelihood improvement options available. Loan applicants would have ownership or enforceable use rights over a significant environmental asset, such as a pristine forest stand.

The CLT would ideally have appropriate financial assets under management to capitalize the value of environmental assets encompassing several projects. Like MFIs, the CLT would make business development loans at a fixed interest rate. Unlike MFIs, those loans would be secured by a binding agreement to preserve an environmental asset. Further, the contract would also involve a livelihood improvement organization and the loan amount would often be larger than average microfinance loans.

With pending loan approval papers in hand, a family could approach a livelihood improvement organization (e.g., Women in Business, Inc. discussed earlier in this report). In order to ensure priority access to the organization's limited resources (i.e., moved to the front of the waiting list), the family would offer to reimburse the organization for their upfront investment in business development. The CLT would loan the family the appropriate capital to fund the business development in return for an "environmental mortgage": an agreement to set aside a section of land, reef, or other environmental asset as a reserve. That asset serves as collateral for the loan.

Negotiations would then follow with all stakeholders in order to set the terms of the loan. Stakeholders would include,

- The loan officer,
- The loan applicant,
- Any other persons who has any legal, customary, or de facto use rights over the environmental asset being used as collateral, and
- The livelihood improvement organization.

The terms of the loans would be relatively unique in that the details of both the transfer of resources for livelihood improvement and protection of the environmental asset would be inclusive in the contract. Those terms would involve,

- A transfer of capital to the family to pay for their livelihood creation/improvement investment.
- An agreement from the livelihood creation organization to provide services in return for said capital.
- An agreement from the family that the loan will be spent on those services and not used for a non-agreed upon purpose.
- Financial terms between the family and CLT, including deferred repayment during the livelihood improvement process and an appropriate interest rate to cover administrative costs and monitoring of the environmental asset.
- Provisions for loan default or misuse of the environmental asset, including but not limited to increasing the reserve size, increasing the longevity of the reserve past loan repayment, reduction of future credit line, or in extreme cases, retraction of services by the livelihood organization.
- Provisions for expanding service after successful repayment, which would include extending a permanent line of credit to the family in return for permanent reserve creation and the ability to invest excess returns into the Conservation Lending Trust through savings accounts.

The purpose of the CLT would be to maximize the conservation value of land under reserve at any given time given the amount of resources available. This would likely lead to a balanced portfolio of habitats in as suite of investment horizons, since the conservation value of any plot of land depends on the number and state of other reserves nearby.

Like any program or venture, a number of risks threaten the potential success of the micro-reserve model discussed here. Those include,

- The livelihood improvement organization fails to invest appropriately in the family.
- The family fails to spend the loan on the services provided by the livelihood improvement organization (This risk is could be easily solved with an escrow account).
- The environmental asset (i.e., collateral) is degraded. In the overwhelming number of scenarios, the environmental asset could not be foreclosed upon, and thus the model relies on incentives driving the desired output. While the protected environmental asset could be extended temporally or spatially in some cases in response to a breach of contract, those options may not always exist.
- The loan is simply not repaid.
- The market that the livelihood improvement organization is providing access to for the family collapses, and thus does not offer the financial return needed for livelihood improvement.

The Community Coordination Model

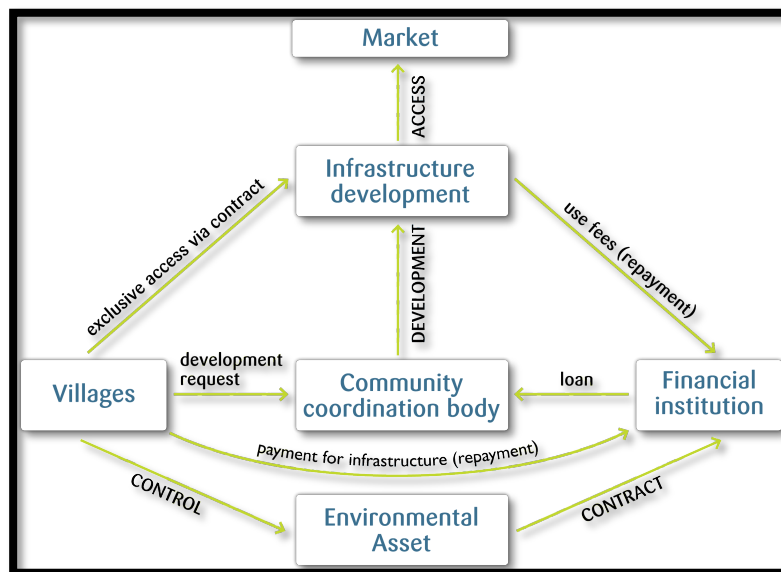
Under this model, there exists a village or multiple villages with an environmental asset(s) and organized via community coordinating body (CCB), and a Conservation Lending Trust (CLT). Here, the CCB is a direct partner with the CLT, and serves to organize a village or villages around a shared business development plan and an environmental asset that they have collective control over. In practice, CCB serves as the middleman that manages the two aspects of the loan contract: the development that will improve the livelihoods of the participating villagers and the environmental assets that is used as collateral for the loan (Fig X).

Here we use a real life example from Samoa, one that is based on a series of interviews. Twenty-six villages recently came together to create trust focused on creating a network of marine reserves and sustainably managing access to communal fishing grounds. The Samoan Ministry of Natural Resources and the Environment administers the trust. While the trust has enough funds to oversee the reserve network, funds are absent to fund other programs or initiatives.

Recently, the villages have experienced increased revenues from fishing (their main source of cash revenue), presumably from better management. Because villagers have to travel long distances to market to sell their catch (i.e., Apia), they have expressed interest in building a nearby marketplace along the main road near the villages, which would provide necessary market access and increased profits. Yet, the villagers lack the necessary collateral and access to capital to build a marketplace. A community loan collateralized by a marine reserve would simultaneously deliver improved livelihoods and environmental gains. The line of credit available to the village would be directly tied the size of an area that is not fished and deemed a reserve. The network of villages has demonstrated the ability to police and govern common-pool resources.

Thus, the network of villages represented by the CCB offer a marine reserve (with guarantees of enforcement) as collateral for a loan to be used to build a local marketplace to sell fish and other goods. In addition to the 26 villages, which want to sell crafts, fish, and agriculture products, there are many other villages in the area that would like better access to market. The CCB provides the infrastructure development to the village, which provides

better market access, while the villagers repay the loan to the CLT via direct payments and/or user fees for the marketplace (i.e., stall space).



The CCB and CLT they assess the extent and value of the environmental assets under the CCB’s stewardship, the amount of capital required, and the repayment structure. They arrive at a contract that includes the following,

- A fixed rate loan of capital to the CCB to build the market.
- An escrowed account to hold the capital, so that it can be disbursed according to the stated agreement, and not used for other purposes. This provides the financial institute with some oversight of project spending.
- A binding agreement to set aside a combination of fisheries reserves and no-take preserves for the term of the loan. The CCB would be responsible for enforcement of said agreement.
- An understanding that the CCB will take the contract to the villages for ratification before loan origination.
- An agreement that if monthly audits of the environmental assets show continued exploitation, the escrow account could be withdrawn. In the event that the money is spent and the infrastructure exists, foreclosing on part or all of the market would be possible.
- In the event of non-repayment, loan terms could be extended, or the terms of the loan could be shifted from financial to conservation returns, by increasing the size, scope, or duration of reserve creation.
- A loan repayment plan that would include a combination of community repayment and a fee on stall rentals, thus providing the financial institution with two forms of repayment.
- Market stalls would be the exclusive ownership of the 26 participating villages, which would have the option of renting them to outside villages, or retaining them for local vending.
- Provisions that, if the arrangement is successful, the villages would have the option of a permanent line of credit in exchange for permanent use-rights abatement. Villagers could also choose to invest excess savings with the bank, which would

recycle the capital into further conservation lending and pay dividends on the time-value of the savings.

The CLT would hold this large-scale loan as part of a large and diversified conservation portfolio, and would maximize habitat type, time period, and location of reserve creations to maximize the environmental value of its portfolio. It would seek to maximize triple bottom-line returns. In this case, this would mean a partially subsidized financial return, as well as large social and environmental returns.

Like the micro-reserve model, a number of risks threaten the potential success of the community coordination model. Those include,

- The CCB failing to deliver on the infrastructure project. This risk can be partially mitigated via the escrow process.
- The CCB fails to effectively govern or collect payments from the villages. Due diligence, trust, and cautious engagement would likely be the best strategy to minimize this risk, as well as the requirement of loan ratification.
- The environmental asset (i.e., collateral) is degraded. Small infractions could result in expanding assets under protection, while large infractions could involve the removal of the escrow account or foreclosing on all or part of the village market stalls.
- The loan is simply not repaid. The burden of loan repayment and the risk of default can be partially mitigated by shifting some of the payment proportions to stall rental fees, lengthening the term of the loan when appropriate, or expanding the scope or duration of reserve creation.
- Market risk.

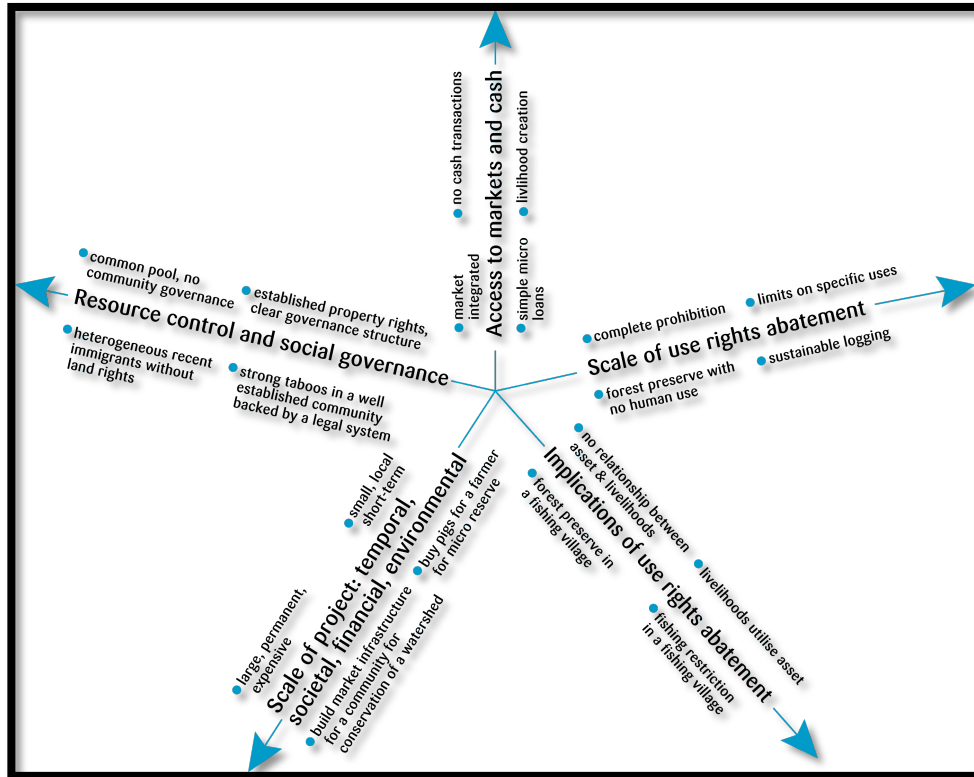
The situation and model presented here is a real one based on interviews with the Samoan Minister of Natural Resources and Environment. This type of community coordination intervention could likely be adapted to any scenario where there is a strong presence of an inter-village council with control over common pool resources and interested in local economic development. That scenario is common through the Pacific island nations.

Implementation Factors

There are five main factors that will influence how an environmental mortgages approach should be structured and the probability of success:

- Access to markets and cash;
- Scale of use rights abatement;
- Implications of use rights abatement;
- Scale of project: temporal, societal, financial, environmental; and
- Resource control and social governance.

For each of those factors, there is a continuum of states that will heavily influence if and how debt could be used successfully in linking economic development and environmental conservation



PART VI: A REVIEW OF CONSERVATION TRUSTS

Over the past two decades, Conservation Trusts have played an increasingly important role in biodiversity conservation. Originating under English common law, the concept of a “trust” refers to a legal relationship in which assets are given by donors and “held in trust” for the benefit of others. While we are unaware of any Conservation Trusts that distribute funds via loans as opposed to grants, a review of Conservation Trusts provides some guidance and insights on what type of financial institution is most likely to be effective with respect to Environmental Mortgages. Our review here is based largely on two reviews of Conservation Trusts over the past decade.⁴⁰

Over 50 Conservation Trusts have been established worldwide, which are worth over \$1 billion and the majority occur in Latin America and the Caribbean.⁴¹ They are usually private and legally independent institutions that provide sustainable financing for the conservation of biological diversity. Typically, they have fallen under two categories: parks and grants. Trusts focusing on parks directly support protected areas and their costs, while Trusts focusing on grants channel resources to targeted groups for a range of activities that directly or indirectly tie to a biodiversity conservation objective.⁴² Conservation Trusts are financing mechanisms, not implementing agencies, and typically raise and invest funds for dispersal to non-governmental organizations, community-based organizations, or governmental agencies.

Conservation Trusts typically award grants through either a competitive process or an assessment that evaluates performance within a protected area program. In both cases, there is separation between the Conservation Trust that is distributing the resources and the organizations that carry out the activities with the resources.

A review by the GEF identified four essential conditions that a Conservation Trust requires:

- The issue to be addressed requires a long-term commitment of at least 10-15 years;
- Active government support for private-public mechanisms outside government;
- A critical mass of people and capacity from the sectors necessary for a functioning Trust; and
- Capacity and confidence in the legal and financial institutions necessary for a functioning Trust.

Conservation Trusts are typically based on a strategic plan that sets priorities, which is developed for 3-5 years in consultation with a suite of stakeholders. Administration costs range between 10-20% of the annual budget (at least after the second year of operation), which includes costs of reporting, monitoring and evaluation, and assisting grants applicants with proposal writing or grantees with planning and implementation. Many of the major donors (e.g., GEF and US Government) limit administrative cost to ~15%. Because of high start-up costs during the first few years of operations, many donors commonly give a separate grant to help cover these initial start-up administrative costs. In addition, some

⁴⁰ Global Environment Facility. 1998. GEF evaluation of experience with conservation trust funds. GEF Council. Washington D.C., GEF/C.12/Inf.6. and Conservation Finance Alliance. 2008. Rapid review of conservation trust funds. Prepared for the CFA Working Group on Environmental Funds by Barry Spergel and Philippe Taïeb.

⁴¹ Conservation Finance Alliance, 2008.

⁴² Global Environment Facility, 1998.

Conservation Trust charge a fee to their grantees (e.g., 5-15% of the grant) in order to help cope with the donor-imposed ceilings for administrative costs.

Experience from the World Bank and others suggest that small grant programs run by a Trust are more successful than stand-alone small grant programs.⁴³ That higher success is likely due to a number of factors associated with Trusts, including a tendency to place greater emphasis on governance and decision-making processes, the diversity and technical expertise of boards and committees, and inherent flexibility.

While most Conservation Trusts are successful in monitoring project completion indicators of their grants (i.e., process monitoring), very few actually monitor or evaluate the biodiversity impacts of their grants. Despite the obvious challenges of systematically monitoring and evaluating biodiversity outcomes (or the reductions of biodiversity threats), reviews of Conservation Trusts have all stressed the importance of allocating sufficient funds and staff to monitoring and evaluation early-on in the implementation of a Conservation Trust. Bolivia's PUMA foundation allocates ten percent of each grant strictly to the monitoring and evaluation of biodiversity outcomes. Ways to ensure that biodiversity outcomes are better measured include explicit requirements of grantees to include goals and indicators of biodiversity outcomes in the original proposal, collection of baseline biodiversity data, and requirements of regular reporting on changes of biodiversity goals and indicators.

Governance, Legal, and Tax Issues

Conservation Trusts can be established as a foundation, a non-profit corporation, a common law trust, or a trust fund established under statutory law. Specific legal details of Conservation Trusts differ between civil law and common law countries. In most civil law countries, it is possible to create a legal entity that is very similar to a trust fund by establishing a foundation. In all common law countries, there is substantial overlap between trusts, charitable trusts, foundations, non-profit organization, and charitable organizations.

A critical issue for Conservation Trusts is that they are not taxed on the interest and investment income earned on funds being invested either at the source of the funds or in the destination country. While the majority of developed countries do not tax income, profits, or gains that non-profit charitable organizations earn through passive investments, this is not always the case in lesser-developed countries. For example, the inability of private investors to deduct contributions to Conservation Trusts in Indonesia has significantly impacted Trusts' effectiveness in that country.⁴⁴ If a country does impose taxes on a Conservation Trust's investment gains, the Trust and the donors should try to enact a new law that will provide a tax exemption or include a provision in the donor agreement that will exempt the Trust from paying taxes. Another option is to establish the Conservation Trust offshore in a country where it will be tax exempt.

A country's special requirements with respect to non-profit charitable organizations can also be important in the functioning of a Conservation Trust. For example, foundations from the US, UK, and Netherlands can have any possible number of directors; the directors are not required to be citizens of the country where the foundation is incorporated; board

⁴³ Conservation Finance Alliance, 2008.

⁴⁴ Conservation Finance Alliance, 2008.

meetings can be held anywhere in the world; there is no need to obtain government approval for any decisions of the board; and there are no specific restrictions on what types of investments are permissible. This is usually not the case in other countries. Consultation with a local lawyer is critical when establishing a Conservation Trust abroad.

It is critical to have a non-governmental majority on the board of a Conservation Trusts, particularly because doing so attracts private and international donors. It is common for Trusts to have large boards (15 or more) in order to draw from a pool of diverse expertise and geographical backgrounds. Most Conservation Trusts have between 4-15 staff, and include an executive director, program staff, financial staff, and administrative staff.

Fundraising

The majority of funding (75%) for Conservation Trusts comes from GEF and debit-for-nature swaps with the US, German, and Dutch government. The remainder of funding largely comes from national governments and bi-lateral and multilateral institutions. For example, in Africa, GEF and bilateral donors have contributed ~80% of the funding for Conservation Trusts. A number of foundations, including Macarthur, Ford, and Packard, have recently capitalized Conservation Trusts, mainly in Latin America. Conservation International, via a \$100 million dollar grant from the Moore Foundation, has also recently invested in Conservation Trusts. The two major lessons drawn from recent experience with respect to Conservation Trust fundraising are:

- A context-dependent assessment of the local environment is necessary before designing a fundraising strategy, and
- The staff and board must have the capacity and relationships to enable a long-term fundraising strategy.

An increasing number Conservation Trusts have used leverage to expand their fundraising strategies. This includes forming innovative partnerships with corporations and using taxes, fines, or other levies as ways to capitalize the Trust. In addition, Conservation Trusts have found themselves in a strategic position to serve as the financial intermediary between the buyers and sellers of ecosystem services. For example, Costa Rica's FONAFIFO distributes payments to small landowners who forgo the cutting of forests. Payments are funded via revenues generated from carbon sequestration payments from foreign electric utility companies and watershed conservation payments from Costa Rican hydroelectric power companies.⁴⁵ Conservation Trusts also appear strategically placed to leverage new funding via the "New Philanthropy" and "Citizen Philanthropy" sectors. The former draws on the explosion of individual wealth and strategic giving and the latter focuses on online individual giving which has grown exponentially in the past five years.

Investment

Over the past decade, average rate of financial returns for Conservation Trusts have been similar to US colleges and universities, averaging around 10%.⁴⁶ That average return comes from about 12 Conservation Trusts with an average balance of \$22 million, with the smallest Trust holding \$1.4 million. Reviews on Trust investing show that diversification is a critical strategy, including the diversification of currencies. Conservation Trusts tend to allocate their investment portfolio by type and geography. Approximately half of

⁴⁵ Conservation Finance Alliance, 2008.

⁴⁶ Conservation Finance Alliance, 2008.

Conservation Trusts have investment restrictions imposed on them by donors. Most Conservation Trusts use standard market benchmarks such as the Standard and Poor 500 or Lehman Brothers Aggregate Bond Index.