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Land Tenure and Forest Carbon in India

A Khasi Approach to REDD+ Project Development

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Abstract

This paper examines the experiences of indigenous Khasi communities in Meghalaya, one of the seven states of northeast India, who have been participating in a Payment for Environmental Services (PES) pilot project since 2005. The success of early ecorestoration experiences of two villages in *hima* (kingdom) Mawphlang suggest how payments for environmental services (PES) can create incentives for improved forest management among community members, motivating them to pass conservation resolutions, update use rules, and improve fire control systems The emerging REDD project is further facilitating community forest boundary mapping, the formulation of long term conservation and management plans, and the initiation of forest restoration activities.

Attracted by the success of the initial PES pilot project, 62 neighboring Khasi communities in nine *hima* have formed a federation in order to develop a sub-watershed management institution that will unite forest-dependent communities at the landscape level, building the capacity of their traditional governance bodies to conserve sacred forests and restore degraded community forest lands. Grant financing supports the design and early implementation of the project, however, it is uncertain whether the

Khasi federation will succeed in establishing a long term income stream through carbon credit sales in private voluntary markets.

Introduction

In 2005, Community Forestry International (CFI) began working with indigenous communities to establish a payment for environmental services (PES) pilot project in two villages in Mawphlang *hima* (see Figure 1). In 2011, this project was expanded to bring together nine indigenous Khasi tribal *himas* who possess legal tenure over their 17,000 hectares of communal forests and private farmland (see Figure 2) and include 64 villages and hamlets. The traditional *hima* governments have formed a sub-watershed federation (*Synjuk*) that will manage one of India's first community-based REDD+ projects as part of a larger PES initiative.

The project is located in the Umiam Sub-watershed in the Khasi Hills District of Meghalaya which boasts one of the highest annual rainfall averages in the world (450 inches), yet is experiencing increasing dry-season droughts due to accelerated forest loss that has exceeded 5.6% per year between 2000 and 2006. Climate change is an underlying

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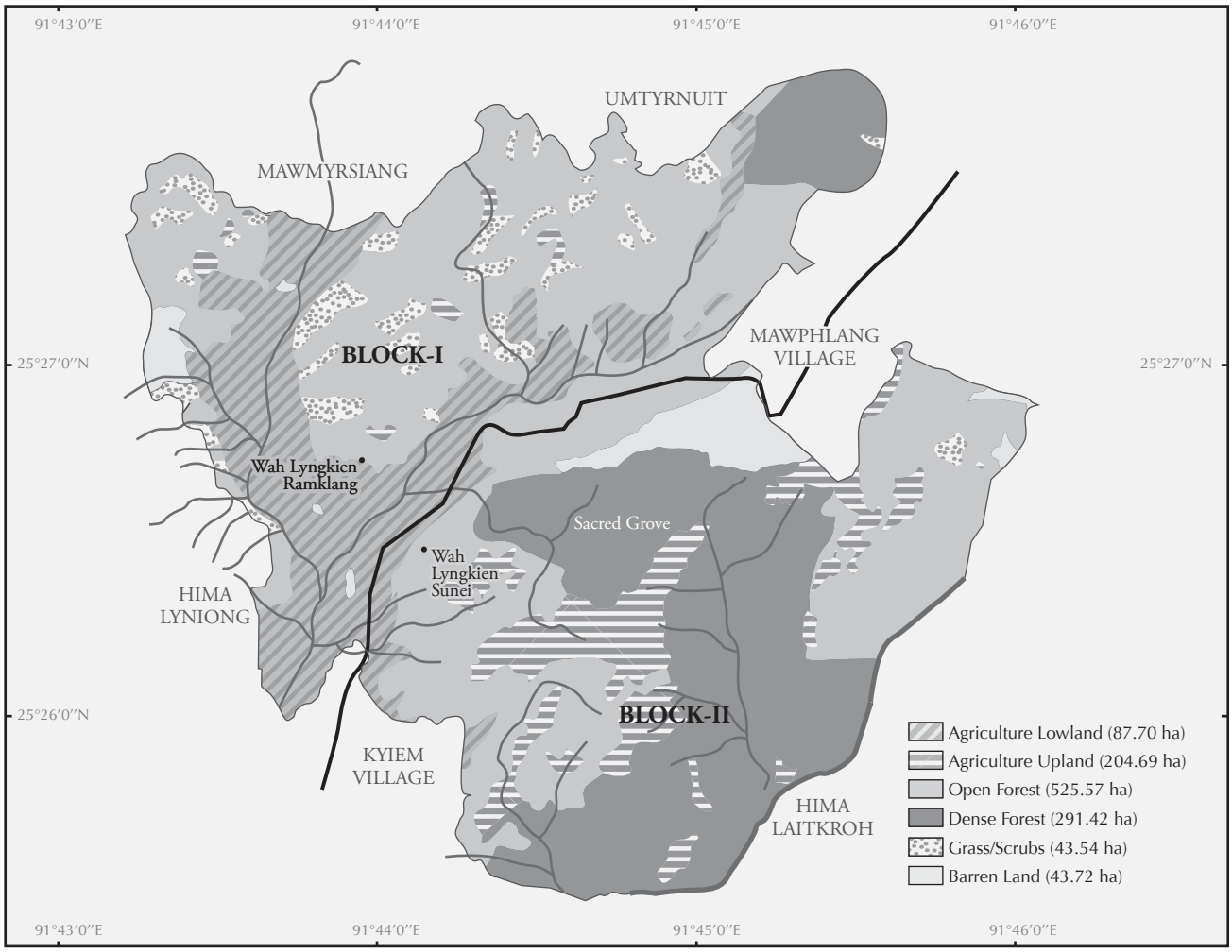
Figure 1: Map of Mawphlang PES Pilot Project, 2005-2009



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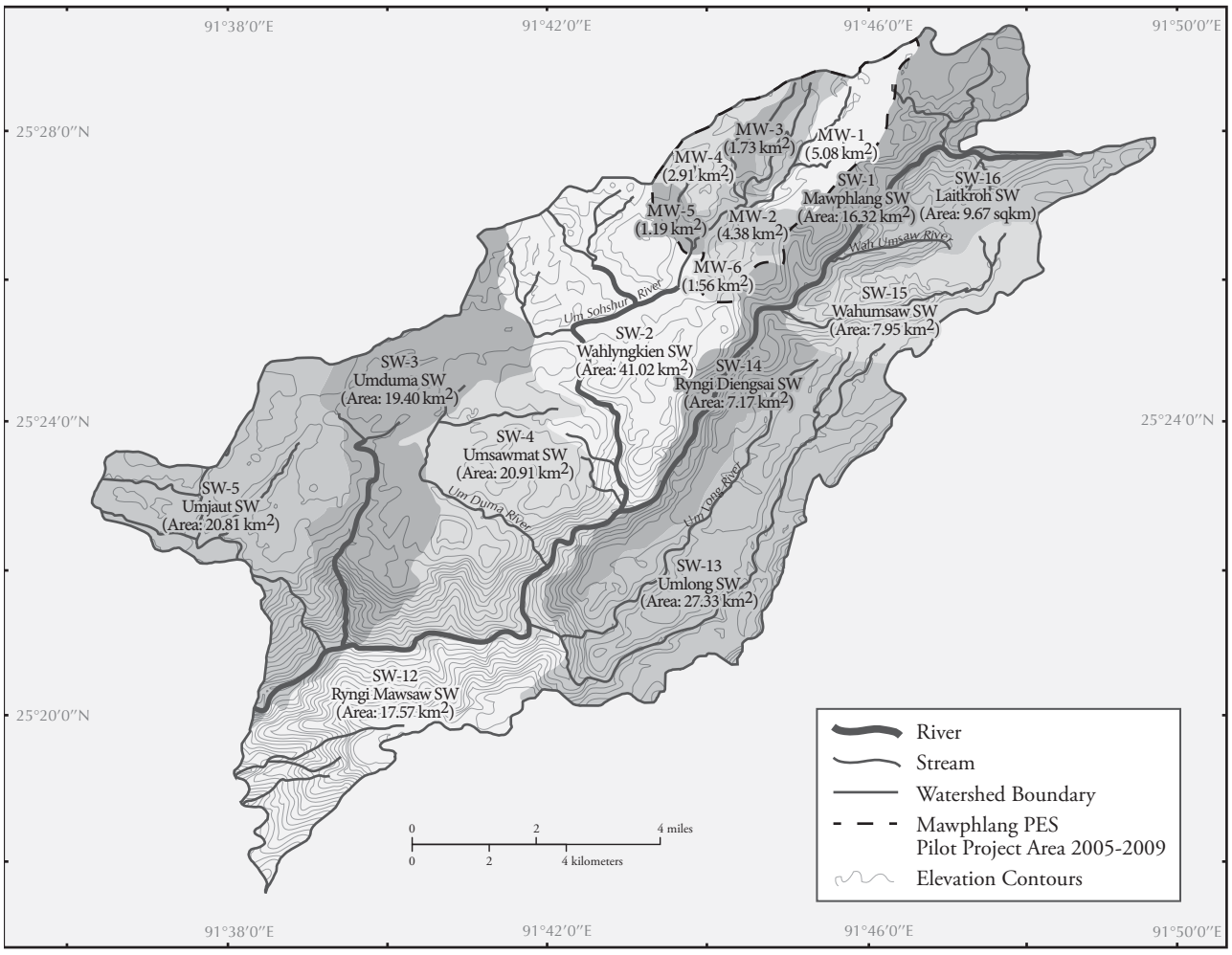
force exacerbating key drivers of deforestation and forest degradation in the Eastern Himalayas by increasing the intensity and extent of dry-season ground fires, reducing soil moisture and rainfall, and contributing to a historic pattern of aridization and biomass loss. The resulting reduction of dense forest habitat has placed pressure on the region's water resources, farming systems, and biodiversity.

The CFI project is helping to build the resource management capacity of the Federation to demonstrate how indigenous governance institutions can implement REDD+ initiatives in order to control drivers of deforestation and restore forest cover and hydrological function. The project has been approved by the Khasi Hills Autonomous District Council, with support from the Chief Secretary of the State of Meghalaya.

The Federation plans to implement a thirty-year forest management strategy for the 16 micro-watersheds. CFI, an international non-profit organization, is providing technical and financial support to the Federation supporting training in resource management and REDD+ project development including designing, certifying and marketing carbon credits for sale on private voluntary markets. Initial estimates indicate that this system may generate 10,000 to 20,000 tons of CO2 credits each year through community-based mitigation activities at an estimated price of $6

Figure 2: Map of Umiam Sub-Watershed REDD Project for 2010-2039



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to $10 per ton. Carbon revenues would be used to finance the *Synjuk* management institution and the mitigation activities implemented by the participating communities, as well as to capitalize women's micro-finance institutions that support small enterprise activities.

The REDD project process was designed with four phases: 1) site identification, 2) REDD design and certification, 3) early implementation and monitoring, and 4) implementation, verification, and carbon marketing. In CFI's experience, Phases 1 through 3 require grant support to position forest dependent communities to sell their carbon and other environmental services. While early financing may be generated through pre-sales of project carbon on the voluntary market, sales of carbon credits that are anticipated to be generated by the project in the future (ex-ante sales), rather than sold after the credits have been created and verified (ex-post sales), will likely be sold at considerable discount. Low-income forest-dependent communities require financial and technical support from donors and government to develop their institutional capacity to implement REDD+ projects including the establishment of the required carbon and socio-economic baselines, the implementation of REDD+ project design and certification protocols, and the operationalization of REDD+ mitigation activities. Without such support, they are

faced with securing capital from the private, voluntary markets where they have limited linkages and experience.

CFI is committed to assisting communities during the first three phases of development, a process that may take three to five years (2010-2014). During this process CFI is strengthening community institutions and local NGOs to take over responsibility for the project in Phase 4. This includes ensuring that the project is certified under internationally accepted carbon and socio-economic development standards and, wherever possible, assisting with the establishment of some early forest carbon sales to finance the project in Phase 4. CFI conducted a pilot PES project in the Umiam Sub-watershed from 2005 to 2009, providing an opportunity to field test different mitigation and livelihood activities in the area. The current REDD+ project represents an expansion of the original project from approximately 1,500 hectares to 17,000 hectares.

The Umian Sub-watershed project is in the process of being certified under Plan Vivo standards, a U.K.-based carbon registry, requiring a performance-based approach to project design and implementation. Key variables being monitored include carbon stocks, forest condition, as well as other environmental indicators including changes in biodiversity and hydrology. Socio-economic performance indicators are also monitored by the community including tracking changes in household income, micro-finance account balances and repayment rates, participation in alternative income-generating activities, energy use, and adoption of sustainable farming practices. The project is significant as it is one of the first REDD+ initiatives in Asia to be developed by indigenous tribal governments on communal and clan land. If successful, the project has potential for broad-based replication in many sites in northeast India.

Early Learning from Pilot Project Experiences (2005-2010)

Prior to the design of this REDD+ project, CFI initiated a PES strategy with the indigenous government of Mawphlang (*Hima* Mawphlang), one of nine *hima* that later joined the Umiam Sub-watershed REDD project from 2005-09. This early experience involving two Khasi hamlets provided useful lessons regarding the effectiveness of socio-economic, technical, and institution-building interventions that strengthened the capacity of indigenous governments to participate in the program.

At the beginning of the project, CFI was invited by the *hima* to improve traditional community forest management systems. Discussions with community members and leaders, as well as the executive committee of the larger *hima*, identified a number of resource management problems including stone quarrying, uncontrolled grazing, forest fires, illegal logging, and unsustainable fuelwood collection. These activities were widely recognized drivers of deforestation and forest degradation. Dry season ground fires, open grazing by low-value goats and cattle, and continuous hacking and felling of young trees and shrubs was suppressing natural forest regeneration and supporting a gradual loss of biomass. The participating communities agreed to pass conservation resolutions signed by all members to control fires, grazing and illegal logging, while the *hima* cancelled all stone quarrying leases in the project area. Since that time, the quarries have been closed with soil and watershed restoration work undertaken, while incidence of forest fires has been dramatically reduced, with no outbreak in the project area that has not been quickly controlled by the community. Fuel-efficient stoves adopted by village families reduced fuel consumption by approximately 30 to 50 percent, while lowering smoke levels in homes through the

introduction of piped outlets. Open grazing has been halted by transitioning animal husbandry systems to stall feeding and fuelwood is now collected on a rotation basis allowing harvest sites time to recover. As a result of community actions to control ground fires and reduce pressures from grazing and fuelwood gathering forests have begun regenerating rapidly, while loss of the dense forest has slowed. Both of these trends are creating forest carbon assets in terms of sequestration as well as improved storage, and can be certified under emerging REDD+ protocols.

In the past, many Khasi communities have been reluctant to map their community forests for fear that their forest lands may be encroached upon by the state forest department. A process of consultation by the project team has reassured the communities that they can map the forests themselves and control their own maps. Based on these agreements, the project area was surveyed by community youth teams using GPS units under the guidance of the local project support team. The mapping process not only identified boundaries of forest areas, but also the tenure status (community, clan, private, etc) and bio-physical condition of each forest block. Using the maps, the communities and *hima* leadership worked with the project team to develop a micro-watershed management plan that identified priority areas for restoration and conservation. Management plan maps were printed on large format plastic sheets and distributed to the participating communities and *hima* government. Micro-watershed maps reflecting longer term management plans and goals are utilized as a focal point for community discussions in planning management activities including ANR work, fireline maintenance, biodiversity conservation, and watershed restoration.
Project funds support two related strategies: assisted natural regeneration (ANR) and payment for environmental services (PES). ANR funding is channeled through the village local working committee (LWC) and covers the costs of fireline creation, forest watchers, silivcultural operations, and forest monitoring. These activities target degraded forests and have been shown to be extremely effective in stimulating rapid natural restoration of forest cover as well as improving stream flows and the presence of biodiversity. This component also supports the conservation and protection of old growth forests and facilitates the linking of dense forest fragments with regenerating forest patches to create wildlife corridors. To create incentives for successful implementation of new forest management activities, PES are given to the LWC and Self Help Groups (SHGs) at the end of each monsoon season. Criteria for evaluating performance include the effectiveness of fire and grazing controls, successful conservation of old growth areas, and the observable re-growth of degraded forests. During the early demonstration period, forest monitoring was largely done through annual photos of a small number of forest plots and watershed landscapes, walkthrough at the end of the fire season, and post monsoon assessments of regrowth. While these activities indicated rapid regrowth, the changes in forest stock were difficult to quantify. In 2011, 40 forest inventory plots measuring 20x20 meters were established to monitor forest conditions and carbon stocks during the REDD+ project. Spot and Landsat satellite images are also being used to assess historic trends in forest cover (1990-2010) as well as to provide a baseline moving forward.

Indigenous institutions in northeast India have been largely by-passed by state and national governments, both disempowering them and marginalizing them from government programs and projects. To address this, CFI sponsored a series of workshops for indigenous institutions and state technical agencies to review emerging forest management plans and how existing government projects can

be linked. CFI has worked with indigenous leaders to seek formal recognition of the project from the Khasi Hills Autonomous District Council as well as from the Meghalaya State Government and the Government of India. In 2011, nine indigenous govenments (*hima*) formed a community forestry federation (*Synjuk*) to manage the Umiam Sub-watershed and implement the REDD+ project. The federation registered as a non-profit organization under the Government of India Societies Act. Sixteen Local Working Committees (LWCs), each responsible for one micro-watershed, including planning and implementing forest conservation and restoration activities, have also recently been formed under the guidance of their respective *hima* and the umbrella Federation. This positions the indigenous governments and their new technical support organizations (LWCs and SHGs) to seek government of India funding as well as donor support. The project design also anticipates that these new legally registered community institutions will also receive funds from the sale of carbon credits or environmental services once CFI withdraws from the project in 2014.

In addition to using funds for the protection and restoration of local forests and watersheds, the communities are utilizing project financing to capitalize women-administered micro-finance institutions (SHGs) to provide funds for small enterprise projects. Project funds were also provided to communities' families to build pens for pig and chicken raising, allowing them to shift away from low-grade grazing animals such as cattle and goats. This has increased family income from animal husbandry activities while reducing grazing pressures on the watershed.

At the present time, the original pilot project strategy is being replicated in nine indigenous Khasi kingdoms (*hima*) covering 70 local communities. These indigenous institutions, under the oversight of the Khasi Hills Autonomous District Council, possess legal authority for all the Umiam sub-watershed forests. This expansion was a response to requests from neighboring hamlets and kingdoms to support forest conservation initiatives in their areas. One goal of the expansion phase of the pilot project is to demonstrate how indigenous institutions, coordinated by their own Federation, can implement REDD+ initiatives and finance forest restoration and alternative income-generating activities through sales of carbon credits. Agreements to limit mining and quarrying leases by the Federation are helping to ensure that the impact of these drivers is reduced. The Federation is well-positioned to work with the Khasi Hills Autonomous District Council and Meghalaya State Government to coordinate development planning in the forest areas of the sub-watershed. Important challenges include building linkages with international certification and verification agencies and negotiating carbon contracts with buyers.

Establishing REDD+ at a Landscape Level (2011-2014)

PES projects, like sub-national REDD+ are novel initiatives, largely in a nascent stage of development. Monetizing and marketing environmental services present a range of problems as well as opportunities that must be addressed on an operational level by project implementers. REDD+ is just one component of the broader ecosystems payment plans like PES and presents its own set of issues, some of which are highlighted below.

Securing Tenure

A major requirement for REDD+ project certification is demonstrating secure tenure arrangements. Throughout northeast India, while community institutions continue to

play a vital role in managing village society and natural resources, these institutions typically receive limited or no recognition or support from federal or state agencies. While Government of India legislation supports the land and forest tenure rights of indigenous communities in six schedule areas of the northeast hills, there is little formal acknowledgements of these rights or any supportive effort to document community forest lands. Communities frequently have weak linkages with government and line departments and agencies, in part due to their diversity, complexity, and varied constitutions, composition, and functions. State Forest Departments in northeast India usually categorize community, clan, and private forests as "unclassed" forests. This status implies that they may be eligible to be reclassified as reserved forests or protected forests at some point in the future. Some Khasi communities have expressed anxiety over potential encroachment by government, particularly state forest departments, and have often rejected overtures by this agency to participate in national forestry schemes such as Joint Forest Management. This alienation is exacerbated by a tendency of the Indian Forest Service to appoint outsiders to senior positions in the Forest Department who possess limited understanding of the Khasi language and culture.

Formalizing Rules & Regulations

While indigenous community institutions have rules and regulations governing resource use, they are often unwritten, and may not reflect the growing pressures on forests, land, and water. Typically, such traditional forest-use regulations were established generations ago and continue to be accepted social norms that guide behavior. Nonetheless, as demands on the forest have grown through population growth and market expansion, and as outside cultural communities have moved into the area, systems for monitoring and enforcing these regulations have lacked technical and financial support necessary to allow them to operate effectively.

Updated rules that respond to growing resource pressures are required, together with adequate resources to allow communities to put them into operation. For example, given unsustainable fuelwood extraction levels, establishing a system of rotational harvesting, that allows one forest block to recover while another is harvested, can increase the sustainable yield of fuelwood. Imposing harvest quotas can also help ensure all families receive an equitable share of available fire wood. Rules governing traditional resource management that were adequate in guiding lower pressure, extensive use levels in the past are now burdened with much higher, intensive use levels as the region's population has increased ten fold over the past century. REDD+ projects create opportunities to revisit traditional resource management systems and update them to respond to contemporary needs and pressures.

Financing REDD+

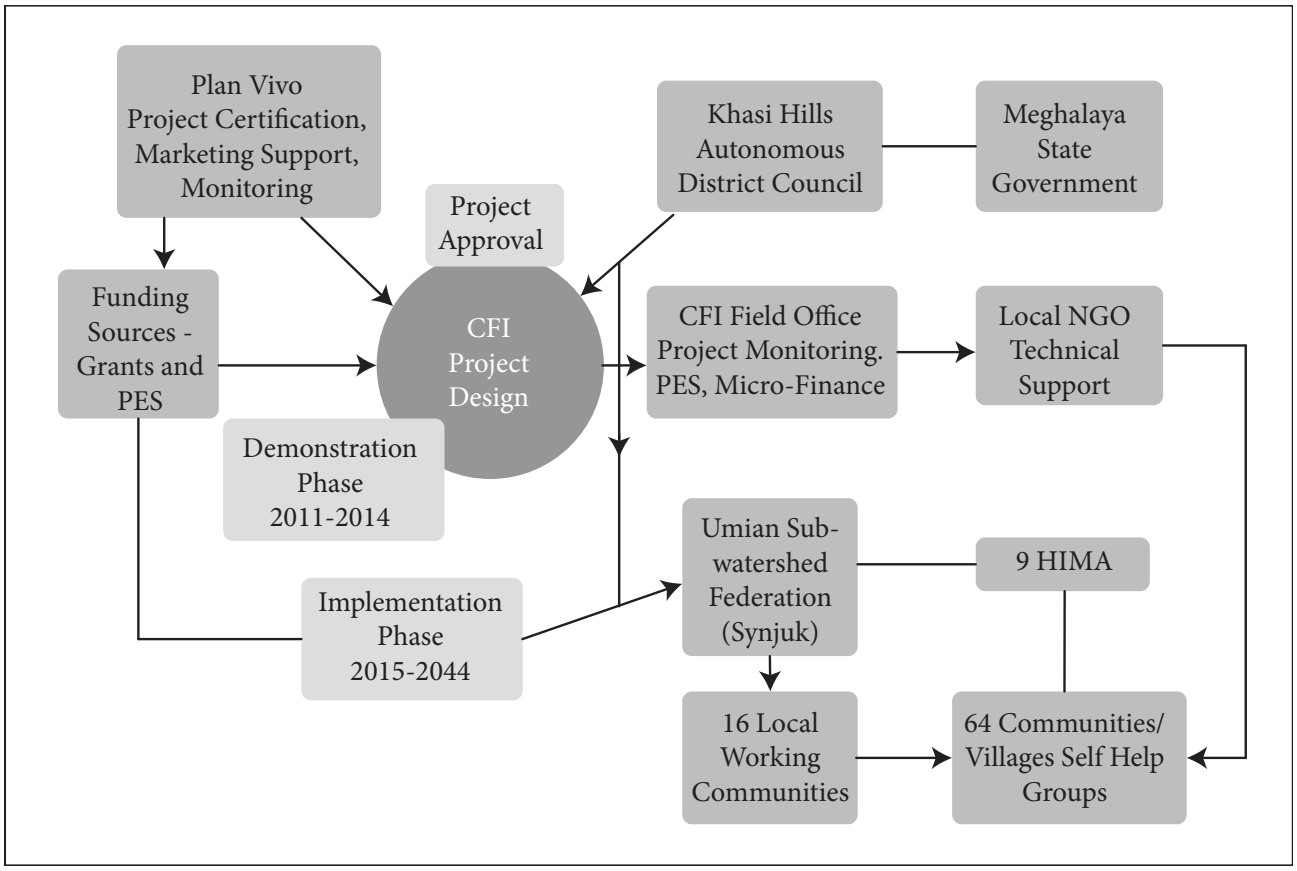
Financing early REDD+ project design and implementation has been a problem for CFI. CFI experiences in the Umiam Sub-watershed indicate that projects require funding for institution-building activities, participatory mapping, resource management planning, forest protection and restoration, and alternative income generation. In addition, the process of REDD+ project design incurs costs for designing and implementing monitoring, reporting and verification systems as well as for certification. In CFI's experience, while many bi-lateral and multi-lateral organizations and private Foundations have provided funds for REDD+ workshops and research, there are few sources of financing for small, community-oriented field-based projects. CFI's project in Northeast India, as well as an earlier REDD+ project in Oddar Meanchey Province in

Cambodia have suffered from inadequate and erratic financial support. Nonetheless, CFI has been able to fulfill all PES contracts with participating communities.

During the pilot project, some of these payments were performance-based, while others took the form of upfront funding to support capacity building of indigenous resource management systems and institutions. Funding for training, mapping, and meetings was administered through the CFI project office and through contracts with local NGOs, while funding for forest management and restoration and livelihood development was administered through local community institutions. Performance award payments were given at the end of each monsoon season after a joint review of implementation outcomes with $3000 per year awarded to the LWCs (see Figure 3).

Combining ex-ante and ex-post payments allowed initial start-up capital to flow into the community institutions, while performance-based payments created incentives that supported a results-driven project. For example, up-front payments funded the community to create over 7,200 meters of firelines and hire four village youth as fire watchers. Through these actions they were able to greatly reduce the incidence of ground fires over the past five years, which in the past burned 20 to 30 percent of the forest annually. The elimination of fire has resulted in rapid regeneration of seedlings and saplings and the return of important flora and fauna species. At the end of the fire season and after rapid regrowth during the monsoon season, CFI made award payments to the local working committees. Funds were provided by grants from private foundations. As the project transitions to financing through the sale of

Figure 3. Diagram of Funding Flows and Institutional Linkages



carbon credits, uncertainties over carbon markets and pricing levels pose questions regarding future budget availability.

Poverty Alleviation and Gender Equity

Poverty is hard to alleviate, in part due to the persistent dearth of capital confronted by poor communities. PES provides a potential mechanism to channel capital into low-income, rural communities that are well-positioned to protect and restore critical ecosystems. REDD+ is one of the first PES strategies to be widely discussed and could establish capital flows into the Khasi Hills where financial capital is badly needed.

One of the project's poverty alleviation strategies supports the establishment of 32 Self-Help Groups (SHGs) comprised of 10 to 15 members that can act as micro-finance institutions within their villages. The SHGs are organized and led by women providing an opportunity to empower women and link them to resource management by building their role in supporting micro-enterprises. SHGs are also contracted to implement assisted natural regeneration activities. Forest restoration contracts directly capitalizes SHGs which, in turn, use the capital to provide revolving loans for micro-enterprise development.

The project intends to establish a series of capitalization targets to serve as periodic benchmarks towards long term financing goals, as well as prioritizing the participation of low-income households. Creating community micro-finance institutions, including training, registration with banks and government, periodic auditing and networking through apex institutions establishes new institutions within the village that are also linked to Government of India rural banking schemes, as well as other, non-project, employment generation projects. Creating a diversified source of income for local working committees and self-help groups helps offset financial uncertainties created by unpredictable carbon markets.

CFI's experience developing the REDD+ project in Meghalaya indicates that a substantial period of grant support is required to allow communities to gain capacity, strengthen local management institutions, resolve tenure issues, and design and develop a project strategy. While it appears that improved resource management can be facilitated through creating financial incentives, the complexity of REDD+ project requirements and the accessibility of buyers and markets for environmental services, including carbon, poses serious questions for the viability of REDD projects in remote areas like northeast India. Nonetheless, focus group discussions and interviews with participating communities indicate that as a result of the pilot project, participants increasingly perceive the value of their forest conservation and restoration activities in terms of improved environmental services.

Rapid deforestation in recent decades has had significant local consequences in terms of deteriorating stream flows and reduced fuelwood availability. Dramatic declines in forest cover and quality are creating strong incentives for community action to improve local resource management systems. After CFI supported the communities to strengthen resource management systems from 2005 to 2009, PES payments ended in 2010. Still, participating communities continued to implement management activities drawing on their local working committee corpus fund, while exploring other sources of funding through government programs.

Summary

CFI's experience in the Umiam Sub-watershed over the past five years indicates that PES activities motivated communities to mobilize

their indigenous governments and leadership, pass conservation resolutions, update resource rules and regulations, and implement a range of forest restoration and protection efforts. In contrast to typical government Joint Forest Management schemes that usually by-pass indigenous governments, the PES project empowered the participatory court (*durbar*) and *hima* to play a lead role in the design and implementation of the project. Designed through extensive community discussions, and guided by local knowledge of key problems and cost effective mitigation strategies, the resulting project possesses broad-based community support, as well as accurate targeting of high potential eco-restoration strategies and livelihood activities. While this approach does not guarantee success, it improves the likelihood that investments in improved forest management and poverty reduction will yield higher returns.

In the new REDD+ project, the creation of the sub-watershed Federation has strengthened partnerships between indigenous governments, improving their position in discussions with state government agencies. For example, there are emerging opportunities for the Umiam Sub-watershed Federation to contract with the Shillong Municipality water authority to receive payments for managing and maintaining the sub-watershed. The project is currently in dialogue with the Meghalaya Ministry of Rural Development and the Ministry of Environment to incorporate the REDD+ project into the larger basin development plan allowing it to access funds and create a bottom-up channel of communication to feed Federation ideas into the larger master plan for the watershed. Participatory mapping has brought new attention to forest management problems and opportunities, allowing the identification of sites for forest restoration, as well as high-priority conservation and ecotourism areas. While financial incentives for forest restoration contributed to motivating communities to take action, other components of the project strategy including awareness raising and institutional development were equally important in catalyzing community forest management actions.

Ultimately, the success of any community-based resource management system depends on the interest of the communities and their commitment to sustaining the land, forest and water they rely upon. The nine Kingdoms in the Umiam Sub-Watershed have federated to protect and restore their forests primarily due to their own sense of an urgent need to halt deforestation and restore important ecosystems that are central to their history and culture. REDD+, PES, or any other project mechanism will facilitate this process, but it is simply a means, not an end. What is perhaps more significant is that important socio-cultural institutions in Khasi society, that have been largely by-passed by national and state government, are now emerging as key elements in a grassroots attempt to protect and restore local forests that possess valuable biological and cultural diversity. Communal governance structures like the *durbar* and *hima* that rely on democratic processes to enable consensus-based decision making are being re-empowered through this project. This process strengthens traditional land tenure rights by focusing attention on the authority of indigenous institutions and the value of communal forest resources whose management has been neglected in recent decades.

Full publication source:

Naughton-Treves, L. and C. Day. eds. 2012. Lessons about Land Tenure, Forest Governance and REDD+. Case Studies from Africa, Asia and Latin America. Madison, Wisconsin: UW-Madison Land Tenure Center.

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