Case Study

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The Ikalahan Ancestral Domain, the Philippines

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Introduction

Long before the concept of Kyoto Protocol and terms like 'carbon sequestration' were popularised in the Philippines, the Ikalahans (literally, 'people of the broadleaf forest') were far ahead of them. How was that possible? This paper presents the project *Rewarding Upland Poor for Environmental Services* (RUPES) they provide in Kalahan, Nueva Vizcaya, Philippines and the activities of the Ikalahans for carbon sequestration.

The Ikalahans - Building the Foundation

The Ikalahans are the indigenous people in the province of Nueva Vizcaya in the northeast of the Philippines. They belong to the Kalanguya-Ikalahan tribe, which inhabits the Ikalahan ancestral domain. The domain, which includes the Kalahan Forest Reserve, covers 38,000 ha in Nueva Vizcaya plus about 10,000 ha in Nueva Ecija. The entire area is mountainous. It receives rainfall from 3,000 to 5,000 mm per year. Much of the area is forested, mostly with dipterocarp species, although the western edge is mostly pine. Some of the forests are primary, but most are secondary. Broad areas in the east are barren because of logging done by outsiders several decades ago[1].

The Ikalahans are known for their 'indigenous knowledge practice systems', which are environmentally sustainable. For generation after generation, the indigenous practices were transferred, protected and maintained. Among these practices are the

[1] KEF 2003 Kalahan forest service project proposal for RUPES action research, Kalahan Educational Foundation, unpublished. 14p.

day-og and g*engen*, which are ancient composting techniques on level and sloping land respectively to restore fertility of the soil in the period of three months. The *pang-omis* is a method of expediting the follow that was invented by one of the tribal elders while *balkah* is a contour line of deep rooted plants which trap eroded topsoil at the belt line (Rice 2000). With these, thousands of hectares of forestlands were preserved from further land conversion.

In 1973, Ikalahan tribal elders organised the Kalahan Educational Foundation Inc. (KEF) to protect communities from possible eviction by land grabbers. The foundation was used as an instrument since the government at that time was unable to negotiate for their rights. The KEF mission is to promote the education and protect the environment of the Ikalahan people and their ancestral domain. Among its aims is to provide sustainable forest-based livelihoods, improved watersheds and biodiversity (KEF 1993). Since then, KEF is considered a community-based organisation or a community-led organisation. It represents the legal personality of the Ikalahans in their Community-Based Forest Management Agreement as pioneers in the Philippines.

The foundation engaged heavily in community resource management and set up rules and regulations for resource use. The 'Ancestral Domain Sustainable Development and Protection Plan' strongly expressed their connection with conservation. It states:

> We, the Kalanguya-Ikalahan tribe, invariably equate land and the resources within it with life itself. We nurtured our indigenous systems for our land and resources management that have endured the test of time. For this reason, the recognition of our indigenous ability to sustainably manage our ancestral domain was made a matter of policy.

In 1994, the carbon stock measurement was set up. They promoted the Forest Improvement Technology (FIT) to expedite the growth rate of indigenous trees within the forest to improve carbon sequestration. According to Espaldon (2005), their activity is an indication that the forest management in the reserve is about 10 years ahead in terms of measuring ecological benefits of protecting forest ecosystems.

RUPES Programme Connects Payments

The RUPES programme, which aims to enhance livelihoods and reduce poverty of the upland people while promoting environmental conservation, recognized the efforts of the KEF. In 2003, Kalahan was chosen to be the first pilot site in the Philippines for the development of a carbon sequestration payment mechanism. RUPES tries to build working models of best practices for successful environmental transfer agreements from this case.

For this purpose, the RUPES in Kalahan focused on the continuation of the carbon sequestration study set up in 1994 by the KEF. The main objective is to examine the rate and extent of carbon sequestration potentials of the Kalahan Forest Reserve in the ancestral domain, and to look for potential buyers of this ecological service. With RUPES, the efforts of the Ikalahans to sequester carbon are recognized and could be rewarded through market-based mechanisms. Assessment and projection

tools are implemented with different partners to further understand the possible environmental service rewards.

RUPES Kalahan in Action

The Ikalahans' community-led approach accounted for achieving the main objective of the RUPES Kalahan. RUPES Kalahan, through KEF together with the World Agroforestry Centre (ICRAF)–Philippines, is actively working to implement the five main strategies of RUPES.

Quantifying Environmental Services

In 1978 KEF started measuring the biomass in its old growth forests. The Ikalahans have their own community foresters who are continuously monitoring the growth of trees. From these records, carbon stocks were calculated. The accuracy of the calculations, however, was uncertain. It was not until 2003 under the RUPES project that improvements in the quantification of carbon stocks were made. The records from 1994 to 2004 are being updated. Also, the KEF started to quantify its watershed functions.

Developing Environmental Service Agreements

The legal identity of the KEF as a corporation and foundation (registered with the Security Exchange Commission) not only obtains the right to control the Ikalahans' ancestral domain, but enables them to negotiate effectively with local and international potential buyers .

To develop environmental service agreements, tools such as the Forest Agroforest Low Value, Landscape or Wasteland (FALLOW)[2] model were implemented to better understand the environmental service of the Ikalahans and equip them for the process of negotiation and development of agreements.

Supporting an Enabling Policy Environment

The Indigenous Peoples Right Act of 1997 (R.A. 8371) is a law that strengthens the rights of the Ikalahans to their ancestral land, and in 1999 ancestral domain claims were approved for a total land area of 58,000 ha.

Also, the Memorandum of Agreement No. 1 of 1973 is an agreement between the KEF and the Bureau of Forest Development that recognizes the right of the Ikalahans to manage their ancestral land and to 'utilize the area to the exclusion of all other parties not already "subsisting" within the area at the time of signing'. The agreement established 14,730 ha of land to be managed by the occupants through the KEF for a period of 25 years, renewable for another 25 years.

Moreover, the Philippines signed and ratified the Kyoto Protocol in 2003.

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[2] The FALLOW model is a spatial model of landscape dynamics. It is expected to capture annual dynamics of people's livelihoods by simulating how livelihood activities extract natural stocks and how natural stocks replenish, among others (Van Noordwijk 2002).

Figure 7.1. Raising awareness of farmers on the value of carbon sequestration in the ancestral domain (photo: KEF).

Raising Awareness of the Value of Environmental Services

The Kalahan Academy is the educational arm of the KEF. Through this, the KEF conducts ecology seminars and training activities in and around the domain. Subjects like ecosystem services and the Ikalahan indigenous practices are part of the curriculum for high school students. Special ecology seminars and training are given to farmers (**Figure 7.1**).

Forming Effective Partnerships

Most of the carbon buyers are international firms and/or groups. Though the KEF has already established partnerships with international research organisations, it is still widening its links as much as possible to tap carbon buyers. Promotional activities such as the publication of information kits about Kalahan are carried out.

The Ikalahans developed FIT, a technology to expedite the carbon sequestration of their old growth forests through that resembles natural culling and whose goal it is to improve the forest. Trees are cut continuously in small numbers every year by a local resident or forest farmer. In this way, the forest ecosystem is maintained and in the long run will lead to more sustainable income. The Ikalahans are confident that with this technology, carbon sequestration can be doubled in their forests.

The Counting Continues

Currently, the Ikalahans are developing two markets—the Kyoto and the non-Kyoto markets. The efforts they allotted since 1970s to measure the biomass of their old

Box 7.1. Forest Improvement Technology

FIT follows the natural rejuvenation process of the forest. Trees die or are felled by storms, while new seedlings will sprout and develop. Mature trees that have stopped growing are removed to create favorable conditions for forest rejuvenation. If this is done every year, the forest will continue to develop and improve. The removal of individual trees does not hurt the forest or its environment and provides first class lumber.

Each year the forest farmer makes a selection of trees to be cut. The farmer checks for crooked, damaged or crowded trees that need to be removed to improve the forest. Simple equipment is used, and the sawdust, tops and branches are left to rot because they restore fertility to the forest soil and help maintain biodiversity. The farmer does not separate the potential crop trees from the other trees because he knows that all trees have a role to play in the forest.

If there are large open spaces, a forest pioneer species will be planted first. Agricultural crops are not planted between the trees because they would bother the other plants that need to grow to make a good forest. Enrichment planting can increase the population of one or two species of large or small plants. This can be highly favorable as long as the forest is not turned into a plantation. The forest farmer will cut only a small amount of growth, allowing the forest to improve each year.

When the forest finally has its proper amount of wood, which is approximately 270 m^3 per ha, the farmer can begin to remove an amount equal to the total growth rate of 15 to 20 m^3 per ha per year. The farmer will have to do that to allow the seedlings to grow.

The growth rate presently expected in Philippine forests is about 4.5 m^3 per ha per year. Under proper management, using FIT, the forest can produce as much as 15 to 20 m^3 per ha per year. Such a forest still retains the characteristics of a natural forest.

It still has high biodiversity and is an effective watershed with a high percolation rate. It will also provide a sanctuary for many kinds of wild orchids, animals, birds and insects. If each forest farmer cares for 5 ha of good forest, he may harvest up to 80 m^3 of first class lumber every year without damaging the forest. That would provide him with higher cash income than many professionals and he would still have plenty of time to produce his own food on the farm. Once the forest has developed, it can be sustained indefinitely.

Source: Rice (2000)

growth forest are not wasted. With improved formulas for the quantification of carbon stocks, results can be utilized to negotiate for the non-Kyoto markets.

> The KEF began monitoring the growth of its forests. Its methods were not very accurate but they were helpful. When the RUPES consortium entered the picture and offered to help, we made contacts with a carbon expert at the University of the Philippines Los Baños (UPLB) who helped us to improve our computations to include branches and tops of the trees, not just the trunks. We discovered that we had underestimated the efficiency of the Ikalahan forests by at least 60%. (Delbert Rice, KEF director for research)

In 2002, KEF estimated around 38,383 tons of carbon dioxide were recycled by the Kalahan forests[3]. To date, the KEF is analyzing the 1994–2004 data using the improved formulas to quantify carbon stocks. Also, forest inventories are being carried out in the 62 blocks (approx. 10,000 ha). It is a huge task but the Ikalahans are confident that by the time they finish the project, they will able to compare the growth rates of three forest types (dipterocarp, pine and oak forests) and the carbon sequestration rates of 15 indigenous tree species.

In the meantime, the RUPES Kalahan team is preparing the CDM Project Design Document for the Kyoto market. The Kalahan forestry team, with technical assistance from ICRAF, also prepared the 'Forestry Project Idea Note (PIN) on Sequestration Project in the Ancestral Domain of Ikalahan'. The PIN proposes a carbon sequestration project on the 900 ha grassland portion of the domain. Among the activities conducted was the field measurement of carbon stocks in the grassland areas, which was carried out by the Kalahan forestry team.

The grassland areas to be reforested have been covered with grasses at least since 1990, and without the project activity they are expected to remain so. Thus the project sites are expected to regenerate as they have for decades, at a level considered insignificant under the CDM. For cropland areas, a similar baseline situation applies. These areas have been under cultivation with annual crops for decades and are expected to be planted with annual crops (Lasco *et al*. forthcoming).

The environmental service (carbon sequestration) to be provided by the project has been estimated under three rates of growth scenarios (**Figure 7.2**). The simulation was done based on the tree growth rates using the Philippine derived values (Lasco

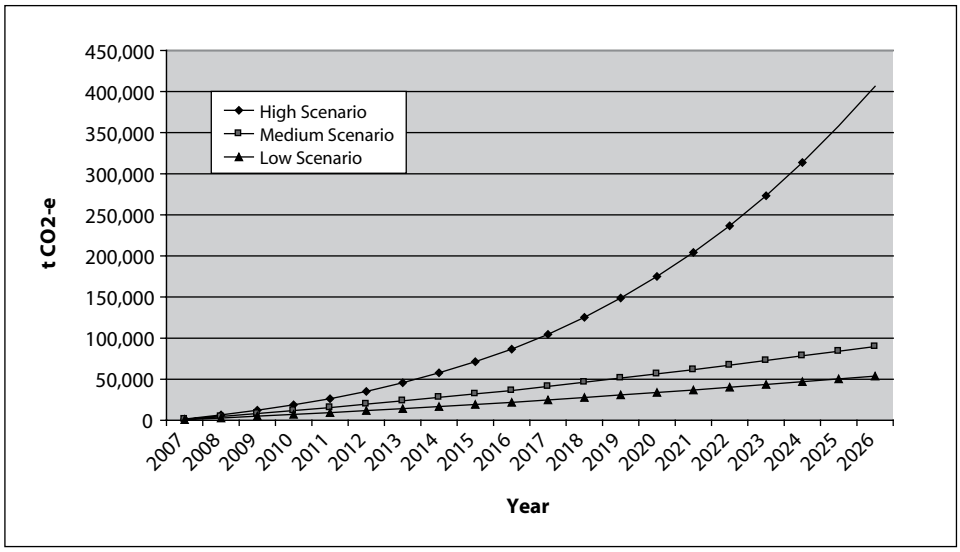

Figure 7.2. Estimated net cumulative CO_2e removals by the proposed Kalahan Reforestation Project, the Philippines

[3] KEF 2003 Kalahan forest service project proposal for RUPES action research.

et al. 2004) plus other assumptions and projected them using MS Excel program. The main purpose of the exercise was to assist the Kalahan indigenous people in obtaining funding for carbon sequestration services they could provide. For this purpose the estimated carbon sequestration rates will suffice since the objective is to show potential buyers the expected range of benefits.

In 2004, the KEF established two nurseries producing seedlings of various tree species for reforestation within the Kalahan Reserve and the adjacent communities covered by the ancestral domain. A total of 89,702 assorted, mostly indigenous forest trees were planted on approximately 40 ha within the ancestral domain, and enrichment plantings were done in many other portions of the forest. The Kalahan Forestry team initiated reforestation and rehabilitation activities in the grasslands, brushland and open areas.

Conclusions

The Ikalahans initiated all the project activities described for their aspiration of sustainable development of forests on mountainous terrain. They are working hard to achieve rewards from this environmental service. 'The Ikalahans carry all of the burdens while the people in the lowlands receive all of the benefits', as one local resident exhorted. And Rice (2004) points out, 'It seems that most of the needed legislation to enable the Ikalahan people to be remunerated for the forest services which they provide is already in place. The next step is to begin the dialogues with the beneficiaries of the forest services to convince them to pay for the services rendered.'

Although monetary payments are not yet realized, KEF's hard work is nevertheless well recognized. With the RUPES project, it builds the capacity of indigenous communities to begin the negotiation. It will also increase awareness and participation in carbon sequestration and other related issues in and around the ancestral domain communities through public education programmes. The KEF is looking forward that its efforts will soon be compensated with the best rewards.

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