

Community Forestry: An opportunity for participatory biodiversity conservation

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Introduction:

Participatory approaches in biodiversity monitoring, assessment and evaluation rely on the motivation of the parties involved. In wealthier societies this motivation is usually generated by a general interest in environmental causes or hobbies such as birdwatching. Rarely is it considered necessary or desirable to offer financial or other incentives to recruit monitors. In most cases the monitors will have no ownership or use rights (beyond recreational) to the ecosystems and organisms being studied.

In contrast, participatory monitoring with poor communities generally involves motivation through incentives such as access to resources, payment or formal employment. The implicit assumption is that altruistic concern for biodiversity conservation is a luxury, affordable only to those with financial security.

There is little doubt that affluence is a major factor in the amount of time or work individuals are willing to contribute voluntarily to biodiversity monitoring. However, the nature of use rights or tenure of a natural resource also affects the degree of commitment felt by communities to long-term care of the ecosystem and their interest in obtaining information that will assist in its conservation.

Over the past two years an informal group of organisations in Nepal has worked at developing a system of participatory monitoring of biodiversity which takes account of the decentralisation of forest use rights through the expansion of community forestry. The community forestry programme offers an opportunity to create a network of self-motivated monitors committed to generating and sharing information for their own mutual benefit and that of their forest resources. This article documents the conceptualisation of this scheme, the activities involved and the lessons learned since monitoring began.

Rationale:

Community forestry in Nepal has spread rapidly across the country since the 1993 Forest Act gave communities, rather than local government structures, tenure over forest use rights in the form of forest users' groups (FUGs). For the first time the primary users of the forest resource became directly responsible for developing protection and management strategies for the resource, according to their own priorities and concerns. Because the laws governing group formation and operation were enshrined in an Act, FUGs obtained the right to use forest products, for profit as well as subsistence, without the risk of this right being revoked by a subsequent administration.

With long-term security of use rights came a renewed incentive to manage forest resources sustainably, as required under forest handover agreements with the Department of Forest (DoF). This is in marked contrast to the situation in most areas prior to community forestry, where forest users raced to plunder resources before their neighbours. Confident that all local users are bound in agreement to use the forest according to a detailed management plan, and with the authority to police the forest and impose sanctions for infringement of rules, FUGs are now the most efficient conservers of forest resources in Nepal.

The potential incentive for FUG members to participate in biodiversity monitoring lies in their interest in maintaining the forest resource in the long term. Using changes in biodiversity over time as a reliable indicator of overall ecosystem health, FUGs can compare the sustainability of different management systems by their impact on biodiversity and assess their performance against those of neighbouring groups and other regions. Biodiversity monitoring could therefore become a valuable source of information for FUGs, helping them to improve and refine management strategies over the long term.

Nepal's government, as a signatory to the CBD, is also committed to assessment and monitoring of biodiversity in all ecosystems. This is a hugely complex and expensive task, particularly in a country with such a dramatic variety of habitats. Most studies to date are either specific to flagship species such as tigers or limited to protected areas and national parks, such as the recently-completed UNEP study of the Annapurna Conservation Area. A national network of voluntary monitors providing comparable information on biodiversity would provide researchers and authorities with an invaluable tool for policymaking and future study. The reliability and quality of the information would not meet the stringent scientific standards that researchers are used to but the volume would enable clear and statistically significant trends and patterns to emerge.

Finally, as debate continues regarding the benefits of community forestry and the refinements or alternatives required, a definitive pool of evidence on the relationship between community forestry and changes in biodiversity would be an important advocacy tool. If, as expected, anecdotal evidence of a positive correlation is backed up by the results of participatory biodiversity monitoring, this would be a powerful argument for civil society groups and those in and outside government campaigning for a deeper commitment to the community forestry programme.

A core group of organisations comprising two national-level NGOs – Bird Conservation Nepal (BCN) and the Federation of Community Forest Users, Nepal (FECOFUN), along with IUCN-Nepal and two bilateral forestry projects – GTZ-funded Churia Forest Development Project (ChFDP) and DfID-funded Livelihoods and Forestry Project (LFP), has been collaborating since 2003 to develop and initiate a pilot PAMEB scheme with FUGs. If successful, it is hoped that this pilot will lead towards a national scheme with the following objectives:

- To enable CFUGs to gather the information that they value and require for designing and implementing measures to conserve and improve biodiversity
- To create a nationwide database of levels and trends of biodiversity over time by pooling comparable data from CFUGs
- To obtain verifiable data to demonstrate the impact of the Community Forestry programme on biodiversity over time.

The year-long pilot scheme is necessary to assess:

- The motivation of FUG members to carry out monitoring work without incentives
- The quality and reliability of the data produced
- The compatibility of information generated between FUGs with comparable forest ecosystems

Concept development:

The inspiration for this scheme came from an e-conference and workshop on Participatory Assessment, Monitoring and Evaluation of Biodiversity (PAMEB) organised by the European Tropical Forest Research Network (ETFRN) in 2002. In early 2003 officials from RSPB in the UK visited Nepal and approached the team leaders of ChFDP and LFP with a proposal for enlisting rural communities in the monitoring of bird populations in their project areas. In response, the projects invited RSPB to send consultants to join a team of international experts. Their mission was to develop a set of tools for local monitors to generate information on overall forest biodiversity, including birds.

The three main potential constraints envisaged at the time were a lack of understanding of the concept of biodiversity, a lack of sufficient motivation among the monitors for long-term continuation of the programme and the lack of identification skills for important indicator species, particularly birds. In the selection of indicator species for scientific studies of biodiversity, it was also initially assumed that FUG members would only feel motivated to monitor species to which they could attach a value, whether for economic, subsistence, cultural or other purposes. Species which could not be assigned such a value and had only ecological importance could, therefore, not be selected for monitoring. Indicators would have to be found which fulfilled both criteria, intrinsic value for monitors as well as scientific value as good indicators of ecological health. Before inviting the consultants to Nepal, staff of ChFDP carried out a series of visits to FUGs to assess these concerns.

These initial sensitisation visits, to fifteen groups in the ChFDP districts and five in the LFP-supported district of Dhankuta, largely dispelled the assumptions outlined above. Although locals were unfamiliar with even the local term for 'biodiversity' they readily understood the concept and its importance after a brief explanation. Furthermore, it became clear that, as a result of the security of use rights in their community forests, locals did indeed value species for their contribution to the overall health of the ecosystem regardless of any other benefits they may bring. Consequently, there was no need to group biodiversity indicators according to their value under economic,

subsistence or other value systems. The groups expressed enthusiasm for a programme of monitoring that would enable them to keep better track of the health of their forest ecosystem. However, it remained to be seen whether this level of motivation would be maintained in the long term or that the local communities had the necessary skills to conduct effective monitoring work.

The consultancy mission in September 2003 aimed to establish the existing levels of identification skills for mammals, birds and plants prevalent in local forests and to devise a package of monitoring tools that could be used by the communities to meet the three objectives outlined above. Plant identification skills, as expected, were superior in most instances to that of the consultants themselves and of professionals in government line agencies and project offices. Recognition of bird species proved better than expected, despite the fact that they have virtually no value for local communities, and, while some mistakes were to be expected, the skills necessary for inclusion of bird indicators in a PAMEB scheme were clearly present.

PAMEB toolkit: criteria and elements*

In considering the outline for a simple participatory biodiversity monitoring system, the consultancy team considered the following criteria:

- The system should adopt uncomplicated methods. If possible, already existing forms of biodiversity monitoring should be incorporated.
- Parameters that are monitored should be relevant for users, and the knowledge of their status helpful for management decisions.
- The methodologies should not be time-intensive. It should be possible to collect data while working in the forest.
- Data analysis should be transparent and preferably simple.
- Results should be available promptly and should ideally be illustrative, so that they could be used for awareness-building.
- Results should be available to those who collected the data at any time.

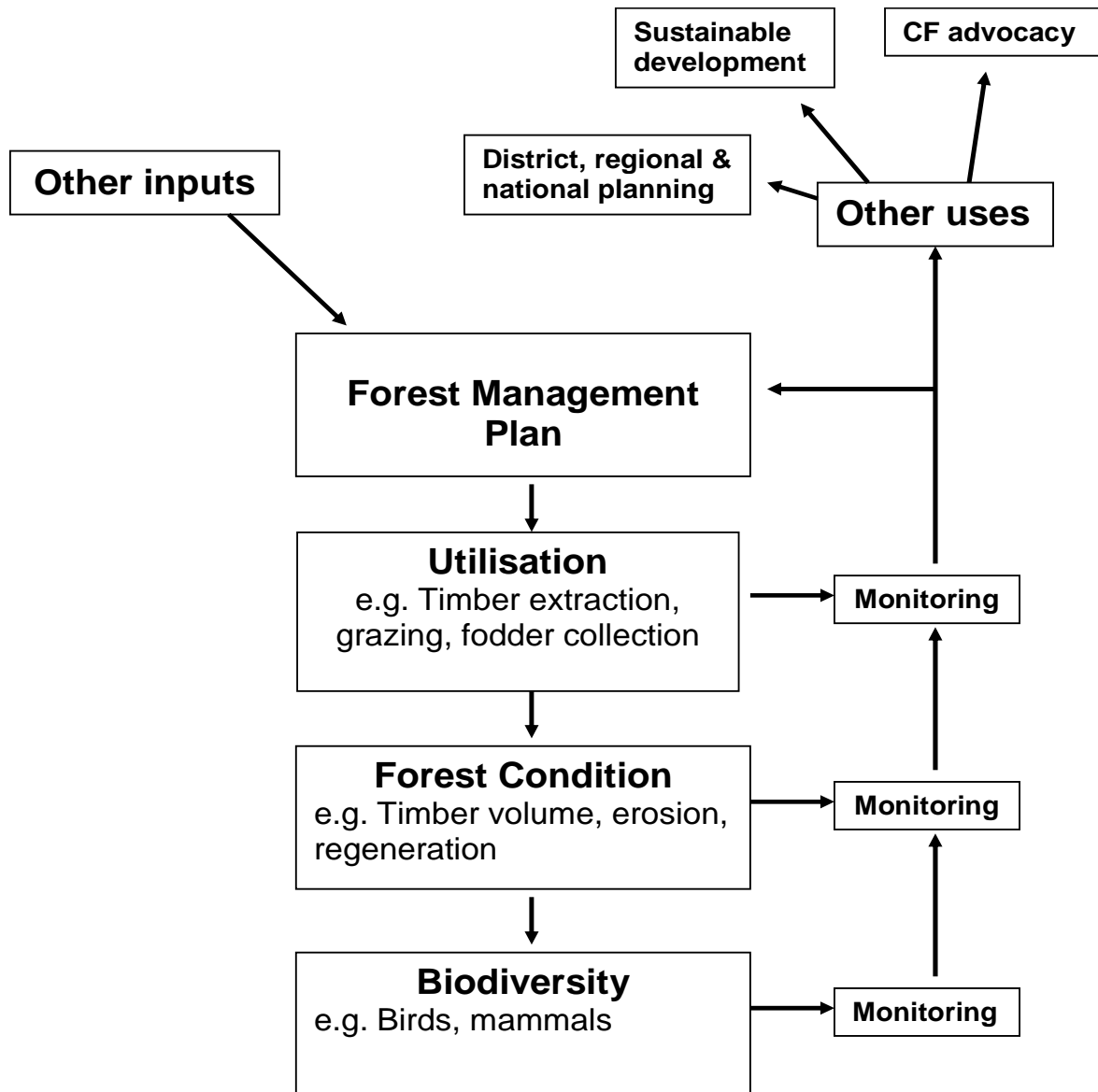
Through a series of interviews and field trips with FUG members the consultancy team developed a set of PAMEB methodologies which, when performed in tandem, were designed to deliver comprehensive information indicating how biodiversity in a forest ecosystem changes over time.

- **User-friendly Forest Resource Inventory**, based on modification of the existing scheme
- **Timed Species Counts** for birds and simple listing for mammals
- **Utilisation Monitoring** for forest grazing, collection of fodder, firewood and other NTFPs with market-value, extraction of timber.
- **Fixed-Point Photography** to monitor erosion and forest regeneration.
- **Participatory Biodiversity Assessment** of 'unique biodiversity features'

* adapted from Widmann, Baral and Eaton, 2003 'Development of Participatory Biodiversity Monitoring Concept and Methodology', ChFDP report PN 2001.2173.1

The tool kit of methodologies identified by the consultancy team (see box) is flexible and can be tailored to the individual needs of CFUGs. The framework of PAMEB for community forests is illustrated in the figure below.

*Figure: Framework for Participatory Biodiversity Monitoring in community forests**



Strategy development

* adapted from Widmann, Baral and Eaton, 2003 'Development of Participatory Biodiversity Monitoring Concept and Methodology', ChFDP report PN 2001.2173.1

These recommendations were presented to a wide group of stakeholders in Nepal's forest sector at a workshop in Kathmandu in September 2003. IUCN and FECOFUN joined the initial group of BCN, LFP and ChFDP in pledging to work towards a pilot programme based on these methodologies. Several other organisations, including representatives of the Ministry of Forests and Soil Conservation (MFSC) indicated that they considered PAMEB a potentially useful tool in the field of biodiversity assessment which should be investigated more thoroughly.

The Churia forests were considered to be an appropriate ecosystem in which to run the pilot programme. They consist of a relatively uniform forest type running the entire length of the country. A single set of indicators could, therefore, potentially be used by a large number of FUGs and their results would be readily comparable. Furthermore, the consultancy team had already identified a set of potential indicator bird species for the prevalent forest type. ChFDP proposed to facilitate the programme in the three eastern districts of Siraha, Saptari and Udayapur, IUCN in the eastern district of Ilam and LFP in two western districts under its Terai component, Kapilvastu and Rupandehi. In each of these six districts, FECOFUN and the project staff would jointly select five FUGs for the pilot programme.

Materials preparation

An introduction to biodiversity concepts, PAMEB objectives and recommendations, based on the consultancy report, was translated into Nepali in a concise booklet format in early 2004 by FECOFUN. The organisation then distributed the booklet in parallel with a series of sensitisation visits to the LFP and IUCN districts and follow-up visits to the groups in ChFDP districts which had been involved in the consultancy mission. Meanwhile BCN, with advisory help from RSPB, developed a laminated bird identification leaflet for field use, refined the list of bird and mammal biodiversity indicators and produced a format for a TSC monitor's record sheet*.

Skills and training

In discussions regarding the work needed to equip monitors with the skills and tools needed to implement the recommended methodologies, it was decided to focus on TSC and user-friendly inventories. Utilisation records were already an obligation of FUGs as part of community forest operational plans. For the purposes of the PAMEB scheme some additional, more detailed information may be required than is currently recorded under these obligations, but monitors would not need any additional training for this. Participatory biodiversity assessment, as envisaged by the consultant team, would involve mainly a mapping exercise to record areas of particular biodiversity importance more accurately. Fixed-point photography could only be carried out with external assistance for reasons of accuracy and lack of local equipment.

All FUGs covered by the proposed pilot programme were used to the concept and practice of forest inventory as part of the preparation of their forest operational plans.

* reproduced here in English and Nepali

These inventories are performed each time an operational plan is due for renewal, approximately every five years. The information thus generated could be utilised in the PAMEB scheme but it would be necessary to supplement this with information on important NTFPs. It was proposed that the number and type of NTFPs to be monitored would be selected based on the priorities of the FUGs. Simple monitoring methodologies would then be developed for each species and training provided to FUG monitors as required.

TSC is a technique which local communities are unfamiliar with. Therefore a programme of training and advice is necessary before this methodology can be introduced. Compared to the other four tools in the proposed package, this methodology also involves the most work on the part of the monitors. It is important that they are convinced of its validity on its own terms.

Support networks

The PAMEB scheme combines information regarding overall ecosystem health, forest condition, utilisation and management in order to provide lessons to the FUGs regarding the impact of their activities on the environment. A network of groups monitoring similar forests allows them to compare their results and experiences with others and to identify the most successful strategies. Results therefore need to be readily available to monitors and easy to interpret.

Even a small number of groups, such as the 30 slated for inclusion in the pilot programme, will generate a large amount of data. For the scheme to be sustainable in the long-term local institutions must be capable of collating and analysing data and distributing results in an appropriate format. The existing community forestry programme in Nepal provides an opportunity for these tasks to be accomplished successfully due to the strong local and national links between FUGs. FECOFUN is the largest and most organised of the civil society organisations representing the interests of FUGs, with chapters in nearly all of Nepal's 75 districts.

FECOFUN district chapters are therefore envisaged as the primary collection points for data generated by TSCs and inventories. This information can thence be pooled at FECOFUN's head office in Kathmandu and entered into a database, where initial summaries and comparisons with previous records can be made. The organisation does not, however, currently possess the human resources necessary to analyse the data and extract the appropriate lessons. BCN, initially with advice from RSPB, is capable of performing these tasks for the pilot programme. FECOFUN will again be responsible for disseminating the results through its district chapters. In this way it is hoped that the monitors themselves, through their membership of FECOFUN, retain ownership of the data they have generated and that the central office will steadily become more capable at data analysis. FECOFUN and BCN must also have access to baseline inventory data and utilisation records of the forests under study. FECOFUN central and district staff and, occasionally, BCN, should be available to provide advice and follow-up services to monitors, cross-checking unusual findings and verifying results.

Pilot programme implementation

The pilot programme finally began in April 2005 with a ToT event in Kathmandu. This brought together FECOFUN representatives from the six pilot districts, rangers from district forest offices and regular FECOFUN training staff from Kathmandu and some hill districts. The course covered biodiversity concepts, the importance of monitoring, the rationale behind PAMEB, an overview of various methodologies, practical exercises in TSC, basic analysis and application of lessons. The ToT participants facilitated district level training events for monitors in Siraha, Saptari, Udayapur and Ilam the following month. District level trainings in Kapilvastu and Rupandehi have not yet been given budgetary clearance by their respective District Forest Co-ordination Committees.

Timed Species Counts began in the four eastern districts in June 2005 and have continued at approximately fortnightly intervals since. This methodology produces quicker short-term results than the others and is the one for which monitoring skills are most in doubt. To date no further work has been done on identification of priority NTFPs for user-friendly inventory and utilisation records have not been collected.

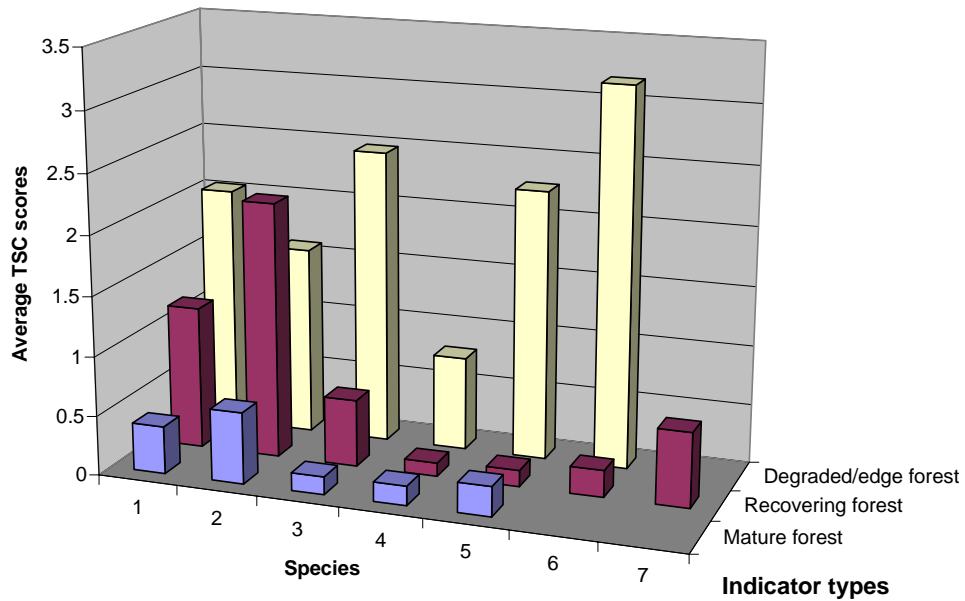
Collection of TSC forms has been irregular. Security, transport and communication difficulties have prevented local FECOFUN chapters from setting up an efficient collection system to date.

Interim results

Preliminary analysis of a total of about 80 TSC forms from ten different FUGs indicates that monitors' skills are sufficiently developed to generate realistic results. Overall, the relative abundance of indicator species implied by the recorded observations is as expected. Much of the forest area covered in the surveys is degraded and species associated with this type of habitat were observed much more frequently than those indicating recovering or mature forest (see chart and table below). Most of the indicator species associated with mature forest (Great Hornbill, Kalij pheasant and Long-tailed Broadbill) were recorded in areas known to be in much better condition than average. However, most observations of Red-headed Trogon and Sultan Tit do not appear to be credible, having been recorded in small, isolated patches of lowland forest under heavy pressure from local users.

A series of follow-up and feedback meetings with monitors were held in December 2005. One interesting result which appeared to be confirmed through these meetings was the greater number of sightings of Great Hornbills than of Pied Hornbills. Pied Hornbills are often wrongly identified as the larger species but the majority of monitors stood by their identification and could demonstrate that they were aware of the key distinguishing features, such as neck and tail plumage, casque colour, posture and flight pattern. The large number of sightings of Racquet-tailed Drongos, however, was found to include a high proportion of sightings of other species of drongo.

Observations of indicator bird species in ChFDP area: June-Dec '05



Species	Indicator types		
	Mature forest	Recovering forest	Degraded/edge
1	Great Hornbill	Black-backed Forktail	Indian Peafowl
2	Kalij pheasant	Greater Racquet-tailed Drongo	Pied Bushchat
3	Long-tailed Broadbill	Green Wood Pigeon	Green Bee-eater
4	Sultan Tit	Hill Myna	Hoopoe
5	Red-headed Trogon	Greater-necklaced Laughing Thrush	Indian Roller
6		Pied Hornbill	Jungle Fowl
7		Blue-billed Magpie	

A full year of observations will be required before any hard and fast conclusions can be drawn from these results, in order to account for seasonal variations in bird populations and to generate any meaningful statistics for mammal sightings. Over the course of the pilot programme the effect of erroneous recordings on the overall results will be diluted. Repeated observations of birds in unexpected locations should be followed up by more visits from BCN experts to interview monitors and, if necessary, verify the sightings.

One important problem evident from the completed TSC forms is the indication of location within the forest. Monitors are expected to fill in a box every ten minutes with the area of forest they are currently walking through, usually by giving a block number. This information is important in correlating sightings with forest type and condition, which can vary considerably within a community forest. Many of the forms so far

collected have not contained these details. The instructions may have been poorly communicated or monitors may have difficulty keeping track of block numbers as they walk through the forest. This information may be better conveyed by asking monitors to give an objective rating of canopy cover on a scale of zero to five, for example, rather than relying on abstract block numbers.

Lessons learned

The pilot programme has suffered from its lack of formal status as a project and the consequent absence of dedicated staff and budget. The impetus has mainly come from the enthusiasm of locals for these novel approaches and their expectation of useful information as a result of their implementation. Although TSC surveys have begun, an efficient system for collecting and analysing data and distributing results is vital if local expectations are to be realised. It is therefore also necessary to move forward with implementation of the other methodologies in the package, without which the results of bird and mammal monitoring will hold little practical value for FUGs.

Despite the evident difficulties of setting up even a pilot network for the PAMEB scheme, it is becoming clear that the programme can potentially deliver the hoped-for benefits to local communities, researchers and authorities. With the successful initiation of TSCs, it is safe to claim that there are no elements of the proposed PAMEB monitoring package which are beyond the capabilities of FUGs to implement without expert assistance. Central co-ordination is required to maintain a full database, carry out detailed analysis and provide feedback to FUGs as well as publishing regular bulletins comparing data from different forests. However, it is likely that, over a period of time, individual groups will begin to perform basic analysis themselves based on their growing experience of biodiversity monitoring. If the programme is extended to hill districts, external help will be required to draw up appropriate lists of suitable indicator species for each distinct forest type.

It should not come as a surprise to learn that forest users can develop the skills necessary to perform simple monitoring exercises. Numerous programmes across the globe have shown as much. What sets this programme apart, however, is the absence of any external incentive for monitors. The initial assumption that security of tenure over forest products would be sufficient motivation for FUGs to participate has been borne out by the experience of the last two years. It is hoped that this will encourage other organisations to join BCN and FECOFUN in exploring and realising the potential benefits of a PAMEB scheme.