

# **BUILDING A COLLABORATIVE VISION FOR LANDSCAPE ACTION: LOMBOK PROJECT EXPERIENCE**

**A CASE STUDY OF INTEGRATED WATERSHED  
MANAGEMENT IN RENGUNG WATERSHED, CENTRAL  
LOMBOK, WEST NUSA TENGGARA PROVINCE, INDONESIA**

*Anna Lyons, Fauna & Flora International, Singapore*



**Landscapes for  
People, Food and Nature**

## SUMMARY

This case study shares how different actors in a landscape can move towards collaborative multi-stakeholder and multi-sector action for managing landscapes sustainably, drawing on lessons from Lombok. It shows how PT Export Leaf Indonesia (PT ELI), one operating company in the British American Tobacco (BAT) group, and Lombok stakeholders transitioned from a single sector focus to a multi-stakeholder integrated approach to watershed management. This journey began with a Biodiversity Risk and Opportunity Assessment (BROA), a landscape tool to assess and address corporate impacts and dependencies on biodiversity and ecosystem services (BES), developed by the British American Tobacco Biodiversity Partnership (BATBP). This case study enables other landscape leaders in the Landscapes for People Food and Nature (LPFN) Initiative to learn from the Lombok landscape approach, including what works and what challenges remain. The case study is based on the experience and observations of Fauna & Flora International (FFI).

## KEYWORDS

**Indonesia, biodiversity risk and opportunity assessment, tobacco**

## CATEGORIES

**forests, agricultural areas, watersheds**

## LANDSCAPE LOCATION

**8.8 S latitude, 116.12 E longitude**

## Front cover photo

Tobacco follows the rice crop. By Martin Hardiano, 2012.

## COPYRIGHT

Published by EcoAgriculture Partners on behalf of the  
Landscapes for People, Food and Nature Initiative.



© 2014 EcoAgriculture Partners | 1100 17th St. NW | Suite 600 | Washington, DC 20036 | USA

This work is licensed under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/>. All or portions of this report may be used, reprinted or distributed, provided the source is acknowledged. No use of this publication may be made for resale or other commercial purposes. Contact [info@ecoagriculture.org](mailto:info@ecoagriculture.org) for inquiries.

Support generously provided by



GLOBAL ENVIRONMENT FACILITY  
INVESTING IN OUR PLANET

Prepared by Fauna & Flora International for the Landscapes for People Food and Nature Initiative  
June 2014.

## LANDSCAPE OVERVIEW

The landscape of focus, Renggung Watershed, is one of 145 watersheds on Lombok Island, Indonesia and sits within one of Lombok's four administrative Regencies,<sup>1</sup> Central Lombok. Through activities in Renggung, the project hopes to address island-wide issues of forest and water management.

### A snapshot of Lombok Island

At 4,725 km<sup>2</sup>, Lombok is the second-largest island in West Nusa Tenggara (WNT/NTB) Province, and Lombok's capital Mataram is the largest city in the Province (Figure 1). Despite its small size, the island has a population of over 3 million, comprised of 85% indigenous Sasak, who identify with Islam, and 15% Balinese Hindu.



*Figure 1. Map of West Nusa Tenggara. Lombok is the left island in green and Sumbawa to the right. (Inset: location of West Nusa Tenggara province within Indonesia.)*

Lombok sits on a remarkable geographic transition zone. The strait between Bali Province to the west and Lombok marks the biogeographical boundary between wildlife of Indomalaya and Australasia known as the 'Wallace Line,' with animals from both ecozones are reflected within Lombok. The island is dominated by Indonesia's second largest active volcano, Mount Rinjani, standing at 3,726 m above sea level. Mount Rinjani National Park covers 413.3 km<sup>2</sup> and a further 660 km<sup>2</sup> are classified as Protection Forest. Mount Rinjani and its tropical rainforest-covered foothills play an important role in Lombok's climate and hydrological cycles, with three of Lombok's four main water catchment Management Area Units (MAU) connected to Rinjani: Dodokan, Putih and Menanga (Figure 2 and Figure 3).

Agriculture and tourism are the main sources of income for people on Lombok, though work abroad in Malaysia, Saudi Arabia and other countries provides important remittances for household income and reduces pressure on limited land resources. Lombok farmers in the less developed highlands practice a form of agroforestry that to varying extents mimics natural forest structure mixing trees and crops. Historically coffee and cacao have been the more lucrative dominant tree crops; however old coffee and cacao trees are now unproductive and farmers are clearing more forest land just for crops. The fertile agricultural lowlands are intensively managed by smallholder farmers growing 2-3 crop rotations on land parcels of 0.2-0.6 hectares (ha), agroforestry is also practiced here mostly in the form of alley cropping (tree rows with crops between) and mixed gardens choosing more valuable timber species such as teak for future insurance when money is needed.

<sup>1</sup> Also referred to in this document as districts.

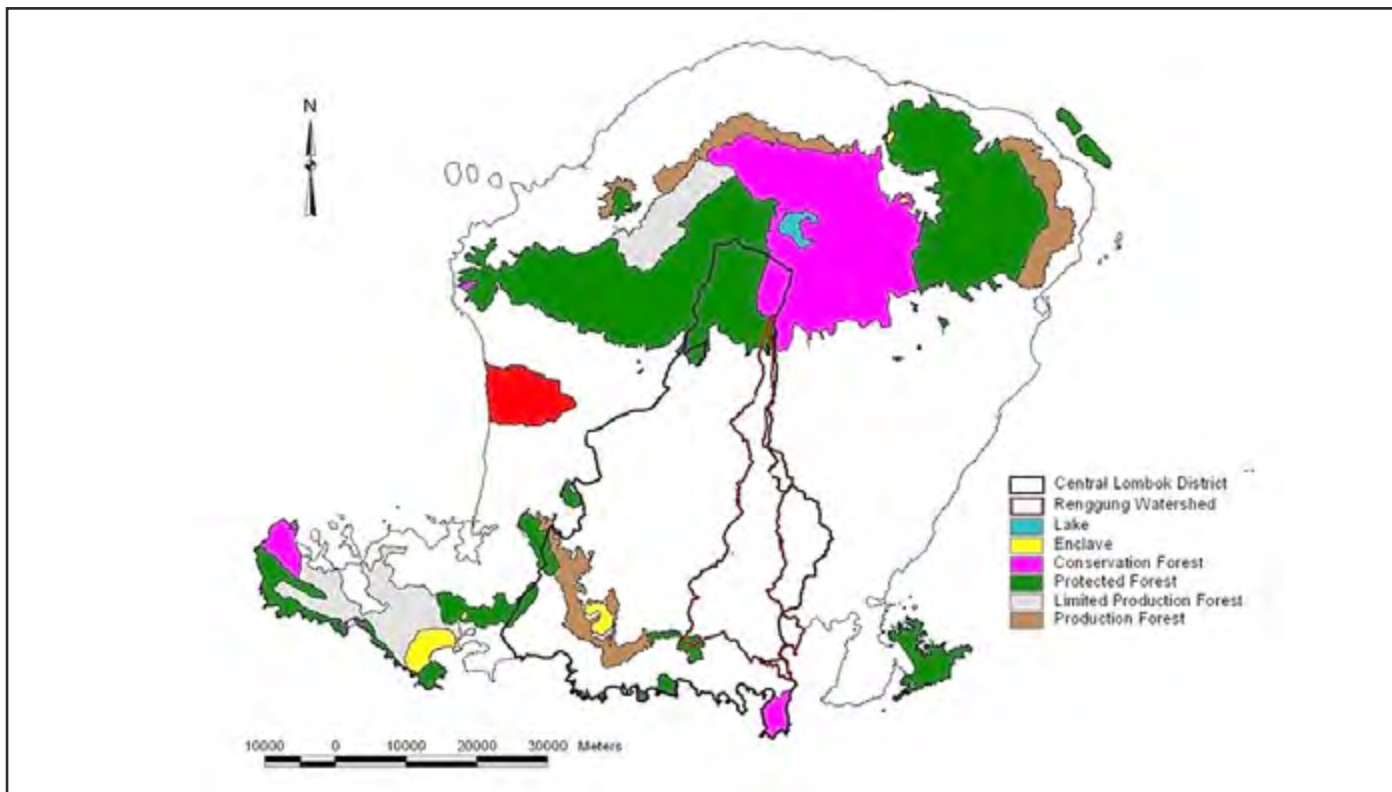


Figure 2. Forest status on Lombok. The administrative boundary of Central Lombok and the landscape of Renggung Watershed are shown in outline. The capital is marked in red. [Click to view full size.](#)

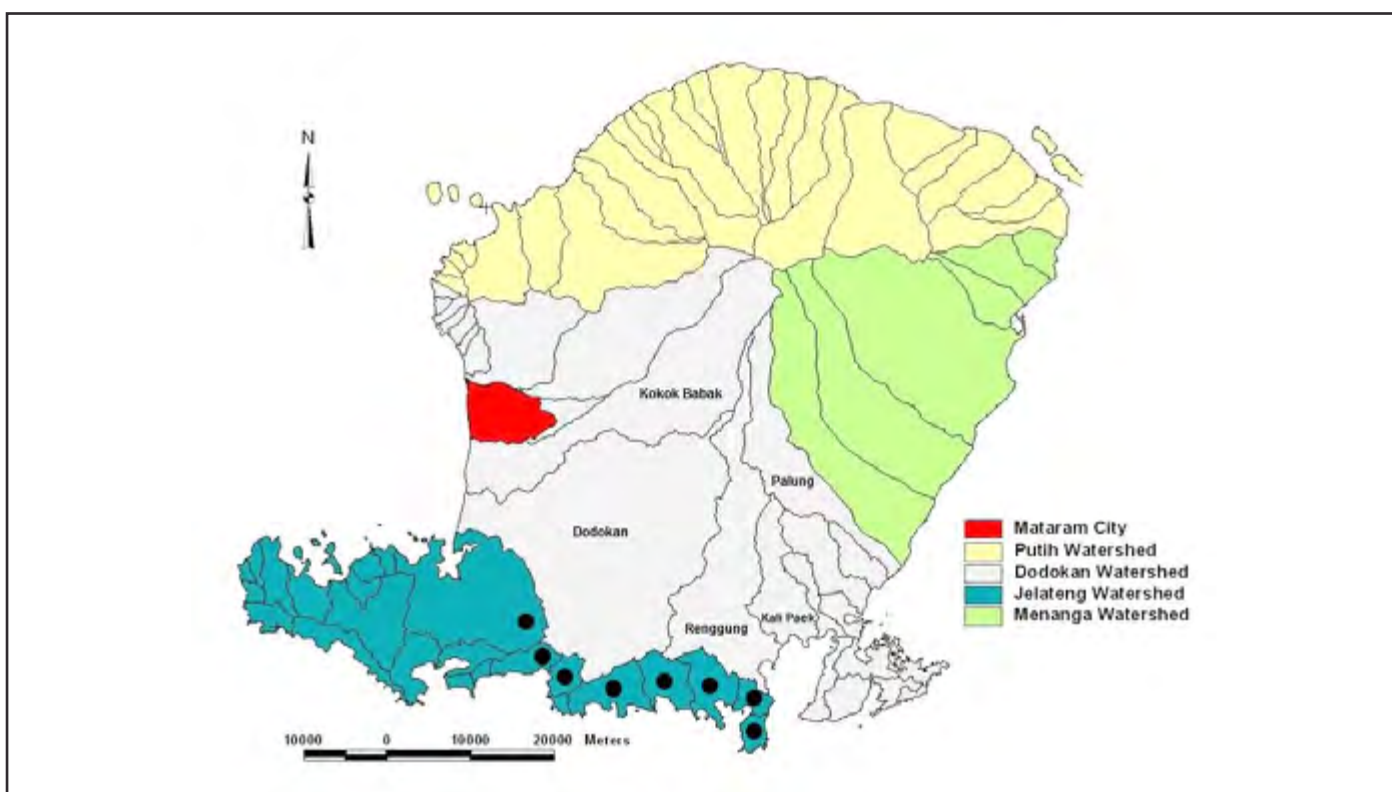


Figure 3. Watersheds of Lombok. Four MAUs and 145 watersheds are shown. Renggung is the focus, but any watershed that overlaps with Central Lombok Regency is also marked (named or a dot), this is to show potential reach to other watersheds by engaging at the Regency level. [Click to view full size.](#)

Rice is an important crop on Lombok for the Indonesian domestic market. Rice is always planted before other crops and both wet and dry rice farming is practiced across the island. Soybeans, groundnuts, cotton, corn, cassava, coconuts may follow, however, for over 30 years smallholder farmers have grown tobacco in rotation with rice and other crops for large international tobacco companies. Virginia tobacco is a major export commodity for East and Central Lombok with an estimated 155,000 people involved in tobacco farming and

supply contributing around 70% of Indonesia's national tobacco production. In 2012 over 30,000 tonnes of tobacco leaf was grown on around 15,000 ha of smallholder farms.

## WATER AND FOREST ISSUES

It is widely recognized that Lombok is facing a water resource crisis due to watershed degradation and deforestation of native forest areas over recent decades. There are multiple drivers: water supply is decreasing, demand is increasing and climate change brings uncertainty.

For the last three years, at the end of the dry season, national newspapers have reported drought and water shortages in Lombok; in 2012 over 14,000 people in 64 villages across Lombok's four Regencies were affected, requiring government to provide clean water tankers.<sup>2</sup> In 2011, one village leader recalled that water shortages had been an annual occurrence for the past 11 years. That year 1.5% of the Province's farmland was affected, also threatening food security.<sup>3</sup> During the wet season, flash floods have also affected villages in West and East Lombok, claiming lives, property and livestock.<sup>4</sup> Because water is a high profile issue with evident links between forest and water resources, Central Lombok District's 2014 Development Plan will include watershed health as an indicator for the first time.



*Figure 4. Steep slopes are cleared for agriculture. Photo by Anna Lyons, 2011.*

Water supply is declining, with erratic rainfall and upstream water springs drying up due to legal and illegal deforestation since the 1980's, land conversion for agriculture and growing human settlements, and an increasing reliance of local communities on the forest for their livelihoods. A major recent driver of watershed degradation on Lombok and neighbouring Sumbawa has been increased need for fuel. Until 2008, kerosene was the main fuel used on Lombok; however after the Indonesian government removed the kerosene subsidy, households have increased their use of woodfuel for cooking and industry, including for drying tobacco. Compounded by weak forest law enforcement, these pressures drive encroachment on protected native forest areas reducing the effectiveness of Lombok's watersheds.

<sup>2</sup> Water crisis threatens thousands in Lombok, [The Jakarta Post](#), July 13 2012

<sup>3</sup> Water Shortages Threaten Villagers in Bogor and Lombok, [Jakarta Globe](#), Sep 13 2011

<sup>4</sup> Flash flood hits East Lombok, [The Jakarta Post](#), March 14 2012

In addition, a 2010 assessment in Lombok showed that the island is highly vulnerable to climate change.<sup>5</sup> Particularly at risk are the island's agricultural, water resources and coastal sectors, with a high risk of crop failure due to projected changes in the timings of the seasonal rains. These impacts are already being felt by farmers in the tobacco growing areas.

## The landscape

Renggung Watershed (216 km<sup>2</sup>) is home to 76,818 households, 45% of which are farmers. As with other protected areas in Lombok, upstream community agroforestry surrounds Mount Rinjani National Park. The catchment's middle-stream is important for agriculture, particularly tobacco, while its downstream is important for tourism, fisheries and seaweed production. Renggung is one of the watersheds that supplies tobacco company PT Export Leaf Indonesia, a focus of this case study.

About 40% of Lombok's springs are found in Renggung's upper watershed, supplying the needs of farmers in Central Lombok Regency. However, supply is not sufficient to meet demand, particularly in the dry season, and Renggung farmers also rely on an irrigation channel that brings 60% of water used in Renggung from West Lombok. Water storage is important in the downstream and farmers make their own ponds to supplement dry season water. In the 1980s, irrigation infrastructure was added in Central Lombok in the form of two reservoirs (Batujai and Pengga) to help alleviate poverty in the rain-fed areas. However, because the infrastructure approach to address poverty failed to address water shortages and is costly to build and maintain, attention has moved to land management improvements.

Pressures, changes and demands are changing social structures causing a culture of mutual support (known locally as Gotong royong) to be lost in Renggung's low-income upstream communities, especially with regards to land management. Farmers groups in the upstream are largely disorganized and group organization is only for working with outside parties. Indigenous knowledge (Awig-awig) for environmental management, however, is still strong in some villages. Generally those living in the upstream collaborate quickly and with understanding on environmental management and people in the middle and downstream tend to be apathetic to the importance of environmental management<sup>6</sup>

## MOVING TO A MULTI-STAKEHOLDER LANDSCAPE APPROACH: DRIVERS

Water is a big issue that many individuals and organizations are already trying to address on Lombok, and concepts of integrated watershed management and multi-stakeholder participation are not new to the island. This case study follows how a single company, beginning in a single sector, became involved in a landscape level approach. Box 1 gives a description of four organizations that have been important players from the start in Renggung.

The BATBP has been instrumental in promoting and supporting a landscape approach in Lombok, both directly and indirectly. In 2006 the BATBP developed BAT's company Biodiversity Statement,<sup>7</sup> a public commitment to assess (through multi-stakeholder engagement) and address the impacts and dependence of business operations on biodiversity and ecosystem services. In 2007 BATBP piloted the tool that would fulfil this commitment, the 'Biodiversity Risk and Opportunity'<sup>8</sup> (BROA), in tobacco operations in Uganda and Indonesia. In Lombok, the BROA identified two high risks (one impact and one dependency but both linked):

1. Unsustainable wood fuel use for drying tobacco (impact).
2. Water catchment degradation reducing water supply for agriculture (dependency).

5 Synthesis Report, *Risk and Adaptation Assessment to Climate Change in Lombok Island, West Nusa Tenggara Province*. 2010. Ministry of Environment of Indonesia, Jakarta.

6 Personal Communication. Husni Idris UNRAM, 2014

7 Download the [Biodiversity statement](#)

8 The BROA tool can be downloaded and is free to use at [www.batbiodiversity.org/BROA](http://www.batbiodiversity.org/BROA)

## BOX 1. KEY INITIATORS

### **British American Tobacco (BAT)**

The world's second largest tobacco company by sales, BAT provides agronomy support to over 100,000 smallholders globally and was the first tobacco company to be included in the Dow Jones Sustainability Index in 2002 and has been included every year since. The way BAT manages its impacts and dependencies on biodiversity is one of its environmental priorities.

### **PT Export Leaf Indonesia**

Operating in Lombok for over 30 years, PT ELI partners with almost 3,000 smallholder farmers every year in central, east and south Lombok. The company is part of the global BAT group and therefore follows their global sustainability policies.

### **British American Tobacco Biodiversity Partnership (BATBP)**

Formed in 2001, the BATBP is part of BAT's approach to sustainability. The BATBP consists of four partners, Earthwatch Institute, Tropical Biodiversity Association, Fauna & Flora International and BAT, with a mission to invest in strategic and influential actions to leverage wider change and deliver 'on-the-ground' solutions while raising awareness of biodiversity and ecosystem services issues. In changing the understanding and behaviour of both internal and external stakeholders, the Partnership hopes to have influence beyond its boundaries, contributing to the global sustainability agenda. Since 2011, there has been a greater focus on themes of landscapes and livelihoods, forests and trees, and water and soil in agricultural landscapes.

### **Fauna & Flora International (FFI)**

FFI protects threatened species and ecosystems worldwide, choosing solutions that are sustainable, based on sound science and take account of human needs. FFI operates in more than 40 countries worldwide, mainly in the developing world. Founded in 1903, it is the world's longest established international conservation organization. FFI leads project implementation in Lombok.

As a responsible company BAT (through PT ELI) strives to address all its risks through appropriate actions; most can be solved by business as usual. However, watershed degradation is driven by many factors, and actions by PT ELI and its farmers alone are not enough to fix it. Instead, management solutions are found at multiple scales by multiple players. Recognizing this, BATBP has provided financial and technical support to PT ELI and partners since 2008 to "engage with local institutions – government, NGOs, community groups and BAT farmers, in an integrated approach to rehabilitation of encroached forests currently under failed community management schemes."<sup>9</sup>

**“Of course, we cannot resolve the problem if we do business as usual or hit and run doing a small part here and a small part there.**

**– Jimmy Tampubolon, PT ELI Head of Growing**

The risk of unsustainable wood fuel use provides interesting insight into the complex cross-scale interactions in Lombok. The BATBP has continued to push forward BAT group policy and in 2009 helped develop a group performance measure to reduce use of native forest for curing, setting a target in 2013 of <1% native forest use by 2015. Forest use is a big challenge globally for BAT; however in Lombok the issue has

<sup>9</sup> This was the action identified and committed to by PT ELI through the BROA assessment.

arisen rapidly since the removal of the kerosene subsidy and PT ELI must respond by finding local solutions. Changes to Indonesian government and global company policy and management are therefore driving actions and change on local ecosystems and landscapes in Lombok.



*Figure 5. A typical drying barn for tobacco in Lombok, made from brick. By Martin Hardiano, 2012.*

Lombok's tobacco sector is acutely aware of the issue of unsustainable wood fuel use and its link to watershed degradation, and while each company has different strategies, all agree that environmental sustainability is an issue. For example, PT Sadhana Arief Nusa is actively promoting sustainable wood fuel use and over the past few years there is an increase in planting trees around fields. Using its private sector position, PT ELI however, actively promotes alternative fuels to government and others in the sector. The government originally recommended coal which proved unsuitable as a sustainable option. The company helps bring alternative fuel to Lombok and creates business arrangements with other companies to stock fuel biomass. PT ELI lobbied provincial government to allocate funds for buying sustainable alternative fuels for farmers and in April 2014 the government tobacco business operators asked PT ELI for support to socialize a ban on the use of wood with farmers. It takes considerable time to change farmers' mindsets in Lombok and to date some farmers still use wood fuel which is cheap and accessible in comparison to other fuels, but frequently from unsustainable sources. PT ELI is changing tobacco kiln technology and increasing access to alternative fuels to incentivize change. Together these small actions and the roles taken by different parties can trigger protection of natural resources at different scales.

Table 1 shows the projects that have been supported by BATBP in Lombok as well as other FFI-led projects, showing the incremental steps taken towards a landscape approach. This process was slower and less smooth than anticipated for reasons including:

- Difficulty finding suitable staff to drive the project in Lombok leading to long delays in projects
- Lombok was not seen as a priority by the FFI country team at the start
- Challenges building trust with PT ELI to address sensitive issues of woodfuel use
- The government promoted coal instead of kerosene, which had many negative effects including delaying company interest in investigating alternatives
- At the start it was difficult for the University of Mataram (UNRAM) to convince PT ELI that it was strategic to focus on Renggung's upstream forests when the tobacco farmers were in the middle and downstream areas and Renggung at the time was not receiving the same urgency and attention as other watersheds in Lombok.

- BATBP increased its focus, financing and ambition in 2011, a great opportunity but which meant more lengthy planning requirements to be fulfilled.
- Farmers in Lombok are slow to change behaviour.

*Table 1. BATBP and FFI-led projects in Lombok. 'BROA Action' refers to those actions embedded in the company risk management system requiring mandatory action and monitoring.*

|           |                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                       |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2007 BROA | <b>BROA Action: 2008-9</b><br><br>Biodiversity workshops for PT ELI staff at all levels to increase capacity to address biodiversity.<br><br><i>Led by FFI, BATBP funded</i>                                                                                                                                                                                                                          | <b>BROA Action: 2009-11</b><br><br>Project development and small-scale pilot activities considering an integrated approach to watershed mgmt.<br><br><i>Led by UNRAM &amp; FFI, BATBP funded</i>                                                                                                                                                                                        | <b>2012-15</b><br><br>Ecosystem approach to watershed management influencing policy and practice to improve biodiversity and ecosystem services, support agriculture and improve livelihoods.<br><br><i>Led by FFI with project team from Transform, UNRAM, PT ELI, BATBP funded.</i> |
|           | <b>BROA Action: 2009</b><br>Independent monitoring to assess wood fuel use.<br><i>Led by UNRAM &amp; FFI, w/ PT ELI, BATBP funded</i>                                                                                                                                                                                                                                                                 | <b>2010-13</b><br>Sustainable candlenut shell supply chains developed for local industry. The native tree is grown in community forest systems, the nut is sold in domestic markets for food, now we add value to the waste shell. PT ELI buys shells reducing the use of coal in curing.<br><i>Public-private partnership led by FFI. Dutch Government funded, with matched funds.</i> | <b>2013</b><br>REDD+ Technical input to Korea-Indonesia Joint Project for Adaptation and Mitigation of Climate Change in Forestry.<br><i>Short-term FFI, KOICA funded.</i>                                                                                                            |
|           | <b>Collaboration with many stakeholders has enabled the project to gain support and momentum. These include with academic institutions (UNRAM), International NGOs (FFI), local NGOs (Transform, Konsepsi) regency, provincial and national government across departments, private sector (PTI ELI, Sadhana, Sustainable Trade &amp; Consulting), farmers, co-operatives, and target communities.</b> |                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                       |
|           |                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                       |

In 2011 a lengthy scoping and planning phase was funded to meet BATBP's greater landscape vision, which lasted nearly one year. BAT Executive Leaf Committee required that the operating companies should own the projects and active involvement of senior BAT regional staff and senior PT ELI staff in the setting of the purpose and objective of the project achieved this ownership. In 2011, building on the networks, commitments and work in Renggung, a major opportunity arose that formed the strategic framework of the current project activities. FFI were invited by the head of the Watershed Management Agency (BPDAS), a central government agency with a remit for WNT to act as lead facilitator in the development of the Renggung Watershed Management Plan process. Recognised through a memorandum of understanding (MoU) with the head of Central Lombok District, this would bring together multiple stakeholders to develop a landscape wide plan and aim to ensure that biodiversity was high on the agenda. It was a timely opportunity that could be acted on.

“ Although our farmers have more tobacco farms in the East and South of Lombok, we agreed to improve Renggung Watershed as one of our company's awareness to the threat of watershed degradation. Although of course availability of sufficient water is also important for tobacco cultivation.

— Jimmy Tampubolon, PT ELI Head of Growing

## BROADENING AND STRENGTHENING STAKEHOLDER COLLABORATION

Many stakeholders from government, NGOs, civil society, the private sector and educational institutions are focusing on conserving natural resources while also supporting economic development.

A range of programs and activities relating to water and forest management were planned, underway or had already been carried out by government, NGOs and the private sector in Lombok by 2011. While each has a different purpose and emphasis, all focus to some degree on socio-economic improvement and environmental conservation. These programs vary in location, area covered, form, type and source of funds. Given limited resources and the scale and complexity of issues, it was important to know who to collaborate with.

Based on the results of stakeholder identification and mapping during the 2011 scoping, several organizations were key for BATBP to actively cooperate with in Lombok and particularly in Renggung (Table 2). The exercise identified all the individual organizations' initiatives and their roles in the project, however these are not presented here.

*Table 2. Stakeholders working on forest and water issues in Lombok who became collaborators or partners. Institutions in red were created and identified since 2011.*

| Name of Institution                                                                                                       | Organisation Type                                             | Project Collaboration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Government                                                                                                                |                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Balai Pengelolaan DAS (BPDAS) Do-dokan Moyo Sari (DMS)<br>Watershed Management Agency                                     | Central Government                                            | Collaboration is required with all the levels of Government and departments mentioned in this section. This is to ensure a sound Watershed Management Plan is developed, as well as access to resources and support for the project.<br><br>Good relationships were already being established. For example, in March 2011, the BATBP project arranged a workshop for Central Lombok Government, WNT Provincial representatives and representatives from all departments working on water in Central Lombok. This was the first of its kind and gave a good insight into approaches to water management in the district (See Box 2 later). |
| Balai Konservasi Sumberdaya Alam (BKSDA) Provinsi NTB<br>Conservation and Natural Resource Agency of WNT                  | Central Government                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Dinas Kehutanan Provinsi NTB<br>Provincial Government of WNT Forestry Agency                                              | Provincial/Local Government                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Badan Lingkungan Hidup dan Penelitian (BLHP) Provinsi NTB<br>Provincial Government of NTB Environment and Research Agency | Provincial Government                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Bappeda<br>Development and Planning Board, Central Lombok                                                                 | District Government                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Dinas Kehutanan dan Perkebunan, Lombok Tengah<br>Central Lombok District Department of Forestry and Plantations           | District Government                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Academic                                                                                                                  |                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Universitas Mataram (UNRAM)<br>University of Mataram                                                                      | Academic                                                      | Project core team: Providing technical input and expertise on hydrology and other disciplines. The BATBP have been working with different university departments since 2007 and UNRAM led implementation to 2011. ELI uses technical expertise from the University for water quality monitoring.                                                                                                                                                                                                                                                                                                                                          |
| NGO                                                                                                                       |                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| FFI                                                                                                                       | International NGO                                             | Project lead, BATBP representative                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| WWF Indonesia, Program Nusa Tenggara                                                                                      | National NGO                                                  | Through Lombok Watershed Forum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Transform                                                                                                                 | Local NGO                                                     | Project core team: Agroforestry and community aspects                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Konsepsi (Konsorsium untuk Studi dan Pengembangan Partisipasi)<br>Consortium of Study and Development in WNT              | Local NGO                                                     | Through Lombok Watershed Forum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| SCBFWM-UNDP Project Strengthening Community Based Forest Watershed Management                                             | Central & local Government Project & International Aid Agency | Exchange experiences and seeking mutual learning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| Name of Institution                             | Organisation Type                                              | Project Collaboration                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Multi-stakeholder fora</b>                   |                                                                |                                                                                                                                                                                                                                                                                                                                                          |
| Forum DAS, Pulau Lombok Watershed Forum, Lombok | Government, university, NGOs, civil society and private sector | Essential. This is a key mechanism for discussing and sharing ideas on watershed management in Lombok, as well as being essential for shaping the framework for the Management Plan. There is room for strengthening the forum and its activities, by 2014 it is growing stronger. It is the place for other government sector interests to participate. |
| Central Lombok District Watershed Forum         | Multi-stakeholder                                              | Created to implement the Renggung Integrated Watershed Management Plan                                                                                                                                                                                                                                                                                   |
| <b>Community Groups</b>                         |                                                                |                                                                                                                                                                                                                                                                                                                                                          |
| Various, need to identify and strengthen        | Community                                                      | Various facilitating secure land tenure for Aik Bual Community Forest Group (HKm), community women's groups in 6 villages, water spring's protection group (Permata, facilitating village regulations built on local knowledge.                                                                                                                          |
| <b>Tobacco Sector</b>                           |                                                                |                                                                                                                                                                                                                                                                                                                                                          |
| PT. Export Leaf Indonesia                       | Private sector                                                 | Project Partner, business-to-business collaboration in sector                                                                                                                                                                                                                                                                                            |
| PT. Sadhana Arief Nusa                          | Private sector                                                 | Not yet: Potential for Forum representation                                                                                                                                                                                                                                                                                                              |
| PT. Sampoerna                                   | Private sector                                                 | Not yet: Potential for Forum representation                                                                                                                                                                                                                                                                                                              |
| Alliance one                                    | Private sector                                                 | Business to business and potential for Forum representation                                                                                                                                                                                                                                                                                              |

## PLANNED STRATEGY FOR INTEGRATED WATERSHED MANAGEMENT IN RENGUNG

This section focuses on BATBP funded project activities from 2012 to 2015. Although activities were already in place that centered around integrated watershed management and were important steps, this period brings together a renewed and more strategic focus on multi-stakeholder engagement, multi-functionality, institutions and capacity strengthening, and greater connectivity between components of the watershed. Importantly for FFI's role, it is an ecosystem approach to integrated watershed management.

### BOX 2. PROJECT SUMMARY

#### Purpose

To improve the functionality of Lombok's watersheds through sustainable landscape management practices that enhance biodiversity and ecosystem services, support agriculture and improve livelihoods.

#### Four Year Project Objective

To define and implement an integrated watershed management model that enhances biodiversity and ecosystem services and addresses the issues around water dependency in the Renggung sub-catchment.

The project outcomes and milestones are shown in Table 3. The Renggung Watershed Management Plan forms the strategic framework for management recommendations, while field activities demonstrate *how* to implement the plan across the catchment, recognizing that policies and plans sometimes stop at the document.

*Table 3. Project outcomes and milestones defined jointly with FFI, BAT, PT ELI and UNRAM*

| Outcome                                                                                                                                                                                                | Planned Milestones                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1: Provisions to enhance biodiversity and ecosystem services included within the government's Renggung Watershed Management Plan.                                                                      | Formal agreement to facilitate in the Integrated Watershed Management Plan development process.                                                                                                                                                                                                                                                             |
|                                                                                                                                                                                                        | Information informing the Management Plan development process collected and analyzed, including biodiversity and ecosystem services aspect.                                                                                                                                                                                                                 |
|                                                                                                                                                                                                        | Stakeholder engagement process complete.                                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                                        | Management Plan accepted and signed off by relevant authority.                                                                                                                                                                                                                                                                                              |
| 2: Provincial and District Watershed Management Planning influenced through existing formal mechanisms in order to incorporate management practices which enhance biodiversity and ecosystem services. | Improved roles of relevant institutions (such as Lombok Watershed Forum, managing agency for watershed, local government) to incorporate the maintenance of biodiversity and ecosystem services within watershed management and its implementation.                                                                                                         |
|                                                                                                                                                                                                        | Local government support to watershed project in Lombok.                                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                                        | Biodiversity and Ecosystem Service (BES) considerations incorporated into Provincial-level Government policy (West Nusa Tenggara).                                                                                                                                                                                                                          |
| 3: An integrated watershed management model which maintains and enhances biodiversity and ecosystem services is developed for Renggung.                                                                | Action plan for model defined showing how to realise the Watershed Management Plan including 1) 100 ha agroforestry and BES demonstration areas, and 2) wider landscape activities (BES village regulation, tree planting). The plan will define specific objectives and activities and identify the strategic location for model demonstration activities. |
|                                                                                                                                                                                                        | Implementation of model including 1) 100 ha agroforestry and BES demonstration area, 2) wider landscape activities providing an example of how to achieve the integrated watershed management plan.                                                                                                                                                         |
| 4: Best Practice on Watershed Management in Renggung used in Renggung and in other Lombok catchments.                                                                                                  | Best practices from Renggung model identified and captured throughout the project produced in report, indicating those that are replicable for scaling up at priority areas.                                                                                                                                                                                |
|                                                                                                                                                                                                        | Establish mechanism of integrated watershed management.                                                                                                                                                                                                                                                                                                     |

## Progress

During 2012 strong foundations were laid for activities in 2013-15. The main action was to design the Integrated Watershed Management Plan (IWMP) for Renggung water-catchment. Despite being a slow process of coordination and approval, this was signed off in Q1 2013, completing *Outcome 1*. The Renggung IWMP stands out compared to other plans in Indonesia because: 1) it explicitly recognizes the role of biodiversity and ecosystem services (BES) in its vision, mission and activity plan; 2) it follows a 15 year timeline as recommended by the Ministry of Forestry (where in practice a 5 year plan is frequently prepared); and 3) rather than being consultant-led, the process started with an MoU between FFI and the Central Lombok District head who endorsed and encouraged the multi-stakeholder approach, ensuring greater government support from the start. The planning process has helped build a common understanding of BES and its role in watershed management.

Contributions to *Outcome 2* have been achieved through efforts to integrate the IWMP into local regulations which govern spatial planning, as well as mid- and long-term development plans in Central Lombok District. Starting in 2013, FFI staff have been invited to input into the annual development planning process. These efforts will continue through 2014-15; however already some departments (namely Forestry, and Trade and Industry) are using the IWMP as a basis for allocating annual budget.

Three opportunities materialised in 2013 to further strengthen *Outcome 2*, which will be built on in 2014-15. Firstly, the project team had the opportunity to facilitate the development of a Forest Management Unit

(Kesatuan Pemangkuan Hutan ‘KPH’ – an integrated watershed-level forest management approach for state-owned forest). The project team has not only gained support for the KPH in Renggung, but also succeeded in getting it recognized as one of 120 KPH models in Indonesia to receive national government-level priority support, bringing national funds to Lombok. This has been achieved through a series of hearings, meetings, and discussions with the Ministry of Forestry, the Chairman of the Association of KPH, and Lombok Central District Government (Forestry Services Unit, Assistant, and Legal Services Unit). Secondly, the project team was invited to input into and support the development of a PERDA (a regulation) at Provincial Level that will be the umbrella regulation for all watershed management across West Nusa Tenggara Province. Thirdly, FFI facilitated the establishment of a Central Lombok District Watershed Forum (CLDWF) to help actively support the implementation of the Renggung IWMP. This was partly in response to the limited activity of the Lombok Forum, which the Project Team is making ongoing efforts to rejuvenate, as well as to a recommendation made during the launch workshop in June 2013 that a “multi-stakeholder institution is needed to implement the IWMP for Renggung watershed.” Former government official Ir. Mustajab MM was appointed as the first chairman of the Forum.

In 2013 FFI, in collaboration with the Lombok Island Watershed Forum, Forestry Services Unit of WNT Province and Dodokan Moyosari Watershed Management (BPDAS DMS), organized an end of year reflection meeting to encourage the existing but inactive Lombok Watershed Forum to improve its action on watershed management and help it become an active body. The meeting was themed “Performance and Challenges for Improvement of Forest Management in West Nusa Tenggara Province”. In addition, FFI facilitated the establishment of a new Social Forestry Forum of West Nusa Tenggara Province, acting as a working group of the Lombok Watershed Forum.

By the end of 2013, the project is halfway towards meeting *Outcome 3*. In Q1 2013, an Action Plan was developed for 6 villages to develop demonstration plots of agroforestry and BES covering 100 hectares of land in the up, middle and downstream of Renggung Watershed. The project’s local NGO partner, Transform, led the Action Plan development and documentation. Six demonstration villages were selected, including three villages in the upstream, two in the middle-stream, and one in the downstream of Renggung watershed. The villages were selected using selection criteria established by the project team of Puslisda, Central Lombok District Forestry Office, FFI and PT. ELI, which included:

1. Critical areas (degraded) that are also considered as strategic areas for the function of the water catchment
2. Potential for enhancing plant species diversity and in line with Lemper Madu Program (a priority program of Central Lombok Government)
3. Potential for maintaining and enhancing BES
4. Program synergies with existing efforts around agribusiness, tourism, marine, and public empowerment in the district
5. Villages which already partner with PT ELI, the District Forestry Office, Planning, Food Security Agency and District Extension, Puslisda UNRAM or FFI
6. Strong support and readiness of the village government
7. Strong support and willingness by local community to participate

Within each village the agroforestry plot location was developed through focus group discussion involving village government, farmer groups and community leaders.

Training on the concepts of agroforestry and BES as well as on home-economics began in 2013. By the end of Stage 2, 76,200 seedlings were planted across 134 ha of degraded land. In 2014-15 socialization, training and tree planting in 15 additional villages in Renggung will take place, identifying critical watershed areas and supporting entrepreneurial farmers who already show a willingness to try agroforestry techniques, to help spread ideas and attitude.

The project also investigated the feasibility of a community-led Payments for Ecosystem Services (PES) scheme called Plan Vivo. Plan Vivo is a framework for supporting communities to manage their natural resources more sustainably, with a view to generating climate, livelihood and ecosystem benefits, and it is a globally recognized standard for certification of community-based PES projects. One Plan Vivo credit represents the avoidance or reduction of 1 metric ton of carbon dioxide, plus livelihood and ecosystem benefits and they are sold mostly to companies interested in Corporate Social Responsibility and carbon offsetting. Participants are rural smallholders and communities dependent on natural resources for livelihoods and activities are implemented on smallholder or community land.

In the case of Lombok we will pilot the scheme with the upstream village of Aik Bual on an additional 100 ha of critical watershed in need of rehabilitation and support for community livelihoods. Plan Vivo offers a potential vehicle for sustainable financing and replication of agroforestry and BES to rehabilitate upstream critical watershed areas through community management in Lombok. It is also a topic that FFI has growing institutional expertise in. In Q1 2014 the Plan Vivo Foundation approved the Project Identification Note for Lombok and published it on their official website.<sup>10</sup> Project documents will be developed in 2014, though finding credit buyers will be more challenging. Also in Aik Bual, a process has begun to create village-wide regulation on BES and agroforestry. This is strongly based on formalising existing indigenous practices relating to forest, water and land management. Preparation of the regulation includes: (1) identification of indigenous knowledge relating to land management and local rules on land management and utilization in Aik Bual village; (2) focus group discussion (FGD) at the community and village level involving community leaders, farmers' groups, religious leaders, village government. (3) public consultation at the village level. Currently, the village regulation draft is still in the process of refinement.

Best practices are starting to be identified to inform *Outcome 4*.



*Figure 6. Focus Group Discussion led by Alfian Pujian Hadi from Transform in Aik Bual. By Ahmad Syiaruddin 2013.*

The project has already begun a process of monitoring and evaluation. Hydro-climatic monitoring began in 2013 and will continue, though effort is needed to make links between hydrology and land cover in the project area. A project board meeting was held in Solo, Indonesia in March 2014 between FFI and PT ELI to update progress and meet new team members. It was identified that monthly meetings between PT ELI and FFI in Lombok are needed to ensure opportunities for collaboration and meeting business need are acted on, to prevent the project becoming decoupled or pulled in new directions.

<sup>10</sup> [www.planvivo.org/projects/registeredprojects](http://www.planvivo.org/projects/registeredprojects)

# CHALLENGES AND LESSONS

## Challenges

The project's networks and activities have driven greater understanding of, and support for, the concept of integrated watershed management by stakeholders actively addressing forest and water concerns in Lombok. However there are complex challenges to make the concept work in practice which the project is still grappling with. They are presented in this section to help other landscape initiatives globally learn from and pre-empt these challenges using their own locally appropriate solutions.

The challenges for watershed management in Lombok are highlighted in Table 4 against a framework of nine common principles<sup>11</sup> for integrated watershed management in Central Lombok. These principles were identified in 2011 through the first cross-sector stakeholder workshop focused on water challenges in the district - an exciting and novel approach for Central Lombok, despite being commonly accepted as a fundamental approach elsewhere. The challenges have been identified from collective stakeholder experience in Lombok, a recent event<sup>12</sup> reflecting on challenges for watershed management for West Nusa Tenggara Province (co-organised by the Provincial Forestry office and FFI) and personal communications.<sup>13</sup>

Table 4. Nine principles of Integrated Watershed Management in Central Lombok and challenges in practice.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Principle 1. Planning Watershed management should be an integral part of Spatial Planning, since the planning phase, to ensure the active involvement of the stakeholders.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <p>In Renggung this has been successful, but there are 145 watersheds in Lombok requiring a Watershed Plan and now only four completed. Supporting policy development at the provincial level is helping raise the profile of watershed management.</p> <p>Natural resource management is not currently widely mainstreamed into Spatial Planning processes in Lombok. Comprehensive watershed management should underpin the Development and Spatial Planning agenda's as this project has tried to achieve with Renggung. However this approach is still not seen as a priority by policy makers.</p> <p>This type of planning requires strong government leadership.</p> |
| <b>Principle 2. Implementation The parties expect that the implementation of the program is run through a clear coordination mechanism and decisively, in order to avoid overlapping programs.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <p>Coordination remains the biggest challenge in Renggung and beyond. It is lacking between stakeholders, especially at government level.</p> <p>For Central Lombok, the initiative for coordination meetings and implementation has come from FFI, despite the existence of the Integrated Watershed Management Plan and its recognition as an official document for watershed-based regional development planning.</p>                                                                                                                                                                                                                                                    |
| <b>Principle 3. Formal Legality Any program or activity conducted in a watershed should have legal binding on all parties involved in watershed management.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <p>It may be challenging for communities to fully comprehend MoUs without outside facilitation.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Principle 4. Share of Authority There must be firmness and clarity of authority over government officials in watershed management, especially between agencies at district, provincial and national levels. This is to prevent dual policy in determining watershed management.</b>                                                                                                                                                                                                                                                                                                                                                                                      |

11 Mahrup, Idris, M.H. and Yasin, I., 2011. Watershed Protection Program in Lombok. Compilation of Stakeholders' Workshop held at Praya, Lombok on March 24th 2011 in Collaboration between PUSLISDA of Mataram University, PT. ELI, FFI UK and Government of Central Lombok. PUSLISDA UNRAM. Mataram. 58pp.

12 Minutes of Year-End Reflection: Performance and Challenges in Forest Management Improvement NTB. FFI IP in cooperation with the Provincial Forestry Office in Mataram, December 23, 2013

13 Pers. Comms. Husni Idris, UNRAM June 2014

NGOs must work hard to convince the government in all sectors that watershed management is a common issue demanding consistency through programs that are clear and measurable.

Interests of government are accommodated at the cost of the common issue of forest and water preservation; for example road construction for economic reasons will not consider impacts on natural resources and the opening of access for logging.

**Principle 5. Function Watershed function must emphasize hydrological functions, but without disregard to socio-cultural and economic functions for communities.**

Development Planning has favoured socio-cultural and economic aspects at the expense of hydrological function.

Development has been project-based through government, which has created a high dependence among Central Lombok residents on hand-outs rather than taking the initiative to make improvements. For example, tree seedlings were given to residents to help address poverty but died with lack of care; now Forest Services encourages people to understand their environmental benefits as well and promotes the creation of nurseries by the community. This addresses government financing issues and empowerment.

The solutions for success will be found in socio-cultural and economic approaches that support sustainability; however this is a departure from past approaches and is challenging.

There are limited agricultural and forestry extension services in the upstream where poverty and insecure land tenure drive forest loss. The challenge is to improve land management practices with limited funds and access to knowledge.

Stimulating non-timber forest products (NTFP) production is not sustainable if there is no market access or demand.

**Principle 6. Monitoring and evaluation Monitoring and evaluation should be done periodically and be well-programmed.**

Coordination of this activity remains a big challenge.

**Principle 7. Organization There should be a formal organization to group the involvement of the parties to facilitate coordination.**

The Central Lombok District Forum is the ideal mechanism, however it would benefit from more private sector involvement. It is currently driven by FFI through the project and will be a challenge to keep the Forum after project funding and focus finish.

**Principle 8. Reward and punishment Strict and non-discriminative penalty should be enforced against any violators who damage the ecosystem and biodiversity of the watershed.**

Control and law enforcement of illegal forest activity by government forest services is weak due to lack of personnel and operational funding. For Central Lombok, the KPH Forest Management Unit establishment helps bring national government funds to this challenge. However, the problem persist in other areas.

**Principle 9. Financing Financing of watershed management should be done proportionally and on the basis of variation of the benefits received by each party.**

A big challenge is that funding for watershed management remains limited in government; the 2014 Forest Service provincial budget for critical lands improvement equates to IDR 22,076 (USD 0.18)/ha of critical land.

The Central Lombok Watershed Forum has facilitated a series of coordination meetings with agencies/technical agency in Central Lombok government to allocate funding to Renggung watershed management activities.

## Lessons learned

Based on the information in this study, communications with UNRAM and PT ELI, documented minutes of workshops, project reports since 2008 and from the observations since December 2010 of the author (FFI's BATBP Programme Manager overseeing Lombok), the following lessons may be relevant to donors and implementers in the development of other landscape initiatives:

### Getting started

- Funding linked to a landscape vision and goal is a useful catalyst for change.
- It is much quicker and easier to plan a landscape-level project from the start with budget and scale known.

- Knowledge, trust and confidence between partners and communities are essential and may be lacking if an initiative is imposed from outside the landscape. Therefore realistically often projects need to start small and grow slowly.
- It can be an advantage to work with a respected institution in new locations; in the case of Lombok the university helped broker and lead activities.
- Demonstrating that an idea works helps gain interest and traction. The idea can also be replicated by institutions that have funding and interest.
- Finding and building on synergies with existing programs, initiatives and processes (especially with government in Lombok) gives the best chance of success, traction, replication and longevity.
- Where possible solutions should meet multiple needs; for example agroforestry that uses mostly multi-purpose tree species on critical degraded lands is helping meet community needs, government targets and improve watershed function.
- Proponents should build on indigenous knowledge and customs where they are strong and reflect sustainable principles appropriate to the local context. This can empower communities to take initiative for sustainable management.
- A strong and clear MoU for government partnerships and forums is important for implementation, giving clear rights and obligations to different parties.

## **New ideas**

- Communicating about ‘landscape approaches’ requires finding language that resonates with the majority of people involved to support practical operationalization of the concept; for example, in Lombok this is the ‘integrated watershed approach’.
- It is often hard to access expertise regionally for ‘new ideas’ relating to ecosystem services, landscapes and working with business. Therefore ambition, cost of international consultants or delays to project activities need to be balanced or anticipated.

## **Sustainability leadership**

- Having a lead organization based in the landscape with dedicated staff to drive process is essential. Multi-stakeholder processes are time consuming and require patience and many meetings (formal and informal). Sometimes getting donors to recognize this valuable component is hard.
- Having continuity of people in all organizations supports the process, however inevitably key individuals leave and often awareness raising and negotiations need to start again. Effort should be made for effective personal handovers from the leaving party as well as capturing institutional knowledge in minutes and reports.
- It helps to have a ‘champion’ for environmental and social issues within the company who ‘gets it’.
- Strong company sustainability policy helps drive a local business operations engagement in sustainability. Finding the issues that are of material interest to a company keeps their engagement; for example, fuels were a driving issue in Lombok.

## ABOUT THE AUTHOR

Anna Lyons is Agricultural Landscapes Programme Manager for the Asia-Pacific, based at Fauna & Flora International Singapore.

Fauna & Flora International (FFI) is an international conservation non-governmental organization (NGO) that has worked in partnership since 2007 with business, government and civil society in Lombok, Indonesia to define and promote integrated ways to manage watersheds to enhance biodiversity, support agriculture and improve livelihoods.

## ACKNOWLEDGEMENTS

FFI would like to thank Hairul Anwar for his contribution as an independent consultant who researched suitable content for the case study, conducted interviews in Lombok and produced the first draft.

FFI thanks the Landscapes for People Food and Nature (LPFN) Initiative for funding and supporting this case study through the Working Group on Landscape Strengthening. Thanks also to the British American Tobacco Biodiversity Partnership (BATBP) for their ongoing funding and vision for a landscape approach in Lombok.

None of this would be possible without the dedication of the FFI team (particularly Budhy Setiawan and Adam Aziz) and their government, private sector and NGO partners in Lombok. Special thanks to Husni Idris, the University of Mataram and Jimmy Tampubolon of PT. Export Leaf Indonesia (PT ELI) who were interviewed for this study. Also to Agatha Lestari who is a great, untiring champion for environmental and social causes within PT ELI and Lombok.

