



# ECOframe: ECOLOGE CHOICE AND OPPORTUNITY FRAMEWORK

An Evaluation and Investment Framework for Ecolodge Investments

May 20, 2008

Prepared by Social Venture Technology Group  
for Humanity United, Jed Emerson and Keystone Accountability

# ECOframe: ECOLOGE CHOICE AND OPPORTUNITY FRAMEWORK

An Evaluation and Investment Framework for Ecologe Investments

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*Uhuru Capital Management*

An integrated approach to total value and returns.

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Prepared by Social Venture Technology Group

May 20, 2008

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## Part I: Overview

### Introduction

Ecotourism is becoming increasingly attractive to investors seeking both financial return and social and environmental progress from their investments. Ecotourism, and ecolodges in particular, generate private financial returns by fostering businesses that generate “social returns”: that is, address pressing needs felt by both people and the environment in a specific location. Beyond sustainable consumption of natural resources, ecotourism embodies an ecosystemic approach where the benefits to community residents and employees, flora and fauna, and investors are aligned to attain benefit for all. Furthermore, the health of this regional ecosystem is itself an asset that underpins the ability of the investment to deliver sustained financial returns into the future. These multifold returns can only be realized if ecotourism investments are implemented and managed properly.

Currently there is no consistent method used to evaluate the actual or potential social and environmental returns of ecolodge investments, or for understanding how those returns interact with traditional financial returns

Currently, however, there is no consistent method used to screen and manage the social and environmental returns of ecolodge investments, or to understand how those returns interact with traditional financial returns. Additionally, managing with the needs of several different stakeholders in mind necessitates an appropriate system of information and accountability. Moreover, many ecolodges are based on concessions of public or community land with the promise of positive impact. However, due to inadequate tracking and reporting, it is often difficult to know if the concessions yield a true benefit, or worse, if private owners are simply taking advantage of public investment for their own self-interest. The need for transparency and tools to track and factor multiple stakeholders’ interests into management decisions is apparent.

In late 2007, Humanity United embarked on an exploration of the rewards and risks of ecotourism investment as a preamble to the development of a management framework that could be used to evaluate and manage the social and environmental impact of ecolodge investment opportunities. The results of that investigation are summarized in a Scoping Paper produced by David Bonbright, Jed Emerson, Andre Proctor and Martyn Hoffman, who explored these issues in relation to a proposed ecolodge in Akagera National Park in Rwanda. They identified the broader need for and potential of a practical management framework to inform ecotourism investment.<sup>1</sup>

Having recognized the need, in 2008, Humanity United commissioned Social Venture Technology Group (SVT) to establish a working model to systematically measure and manage the *blended value*<sup>2</sup> (economic, socio-economic, social and environmental) of ecolodges. The goal was to define a tool that could inform both the due diligence and monitoring of investments, and help ensure positive *social* return on their investments as well as financial return. This report summarizes the proposed framework for evaluating ecolodge investments and opportunities, which we have given the working title, “ECOframe.” In the report we articulate the need for a consistent yet flexible evaluation framework, propose an approach derived from extensive research, and show examples of how to use this framework. To illustrate the process completely, we then apply the framework to the proposed Mohana Lodge in Akagera.

Our hope is that ECOframe makes a practical contribution to the larger movement of both the finance and tourism worlds toward an authentically sustainable investment paradigm.

<sup>1</sup> Bonbright, Emerson, Proctor, Hoffman, “Eco-Tourism and the Akagera National Park: Value Maximization for the People of Rwanda through the Mohana Lodge,” 2007.

<sup>2</sup> Emerson and Bonini, The Blended Value Map: Tracking the Intersects and Opportunities of Economic, Social and Environmental Value Creation. 2003.

It is our aim to show the possibilities for, and the upside of, a blended value approach to evaluating the potential and actual returns of an ecolodge investment. The framework provides a starting point for a consensus-building effort that will involve key stakeholders in ecolodge investment. Our ultimate goal is to derive a framework that will be broadly adopted by the industry overall, including both ecolodge investors and operators. Though we start by using the framework to analyze an investment at a point in time, we intend for this to serve as a first step in the evolution of a de facto standard for ecotourism evaluations of all types, including the on-site management of daily ecolodge operations.

## The Benefits of an Opportunity Evaluation Framework

**A true ecotourism operation must deliver several types of returns: financial, economic, environmental, social and socio-economic**

A true ecotourism operation must deliver several types of returns<sup>3</sup>: financial (returns to investors/owners), economic (e.g., increased income to a community), environmental (e.g., reduced natural resource depletion), social (e.g., access to education) and socio-economic (e.g., increased job opportunity). To predict and monitor these various returns, investors need a systematic means of gathering and analyzing data about each one. It is well-known that international accounting standards assess only financial income and expenditure. Therefore, an additional standardized, credible approach must be defined to account for the other types of value.

Note: We use the terms *impact investor/investment* and *blended value investor/investment* interchangeably.

### KEY QUESTIONS

Several primary questions underlie the need for a formalized evaluation framework for blended value ecolodge investments:

- How can the potential return of competing investment opportunities be fairly compared?
- How is the actual return on an investment measured and tracked?
- What baselines should be used for analyzing progress toward blended value goals?
- How do nonfinancial risks and returns affect financial risk and return, if at all?

There are no doubt many more.

### CONSISTENT INCONSISTENCY

**As early as 2002, there were over 60 certification programs that could be applied to ecotourism**

Currently, there is no generally accepted process for evaluating the potential or actual blended value returns of ecolodge opportunities. There are several academic studies by organizations such as the World Bank and United Nations Development Programme (UNDP) who have applied various metrics to measuring social progress (or the lack thereof). Organizations such as the World Tourism Organization, the International Ecotourism Society and the Center on Ecotourism and Sustainable Development (CESD) have detailed the special characteristics of ecotourism ecolodges, which form the basis for a standardized set of metrics. The CESD notes that as early as 2002, there were over 60 certification programs that could be applied to ecotourism<sup>4</sup>. They are not designed to show blended value progress, however, but rather to ensure a set of criteria has been met in project development.

<sup>3</sup> Center on Ecotourism and Sustainable Development. A Simple User's Guide to Certification for Sustainable Tourism and Ecotourism. [www.ecotourismcesd.org](http://www.ecotourismcesd.org). Accessed April 16, 2008.

<sup>4</sup> Ibid.

This general lack of enforced standards and measurement methodologies makes any comparative analysis of ecolodges—by ecolodge investors or managers—nearly impossible.

### INVESTMENT DECISION-MAKING

Authentic impact investing requires a heightened level of investor/investee interaction. It is not enough to simply provide capital and hope the social returns roll back in. Rather, because the multiple social, environmental and financial goals are all important for the blended value investor, they must be measured and reported with equal discipline and credibility to ensure results in the field. *What gets measured gets managed.*

### RISK MANAGEMENT AND ADDED FINANCIAL VALUE

In addition, blended value investors understand that additional financial value and lower risk can be obtained if managers garner business intelligence through proactive data collection, and implement continual performance improvement based on that data. Managing risk and opportunity is, of course, a core part of any investment decision. In impact investing, traditional financial risk is compounded by an additional *mission risk* or *impact risk* that either the social goals will not be met due to underperformance, or worse, they will be sacrificed to maintain profitability.

### INCREASING THE FLOW OF CAPITAL INTO ECOTOURISM

Measurement frameworks also lower the barriers to increased investment by other parties. Not only would the blended value framework proposed here provide a consistent analytical model to a variety of investors, it would also give an increasing pool of investors a common language to use when speaking about the field.

### MANAGING TO IMPACT

Though a framework like the one we propose here can be used by investors to perform an objective analysis of a financial engagement, more sustained value exists in the implementation of a *blended value management* approach in the daily operations of the ecolodge itself. Addressing the operations of an ecolodge by considering regular, measurable data will not only enable better communication with investors, but will allow both ecolodge managers and their backers to ensure that the ecolodge's primary goals, its mission and its theory of change are being met with continual improvement.

Though there are distinct applications for point-in-time investment decisions and daily operations, ECOframe (also referred to as “the Framework”) is designed to accommodate both scenarios (and several others). Its design as a framework allows it the rigidity needed for replication and credibility, but the flexibility for any ecolodge to define what is most important given its size, location, stakeholder needs, etc. As such, any ECOframe user can find the scale that fits the needs and context of any given project, starting with highest priority measures and expanding from there.

## Part II: The Framework

### The Ecolodge Choice and Opportunity Framework (ECOframe)

#### ECOframe — The Ecolodge Choice and Opportunity Framework

The goal is not simply reporting, but rather a means of ensuring transparency around the use of resources and accountability for results in a way that enables multiple stakeholders to participate effectively in the value creation. ECOframe provides the foundation for a continual dialogue

When implemented properly, a well-designed investment management system helps blended value investors meet their vision of increasing financial returns from social investment while enhancing the ability of investees to achieve both their social and financial goals. To justify its cost, ECOframe is designed to a) add value to ecolodge operators by providing business intelligence, and b) provide guidelines for documentation that ensure easy verifiability and recommendations for stakeholder engagement to maximize inclusivity, transparency and relevance.

The goal is not simply reporting, but rather a means of ensuring transparency around the use of resources and accountability for results in a way that enables multiple stakeholders to participate effectively in the value creation. ECOframe provides the foundation for a continual dialogue.

#### OVERVIEW

Unlike simple dollars-in, dollars-out reporting methods, **ECOframe is a tool for organizing data** on the **resources invested** in the work, the **measurable outputs** of that work, and their **relationship to ultimate social impact**.

Our Framework guides:

1. the selection of appropriate indicators
2. the tracking of data by ecolodge management to best inform and manage progress
3. the communication of this information to investors and other strategic stakeholders

The Framework supports an organization's ability to improve the strategic focus of management activities, while enhancing the information investors have for decision-making.

The Framework helps managers and investors:

#### Clarify goals

- Assess the need for social and environmental change
- Define the work's *sphere of influence* (i.e., how much societal change for which an organization can take credit or should consider itself responsible)
- Specify what success would look like and articulate measurable performance targets

#### Assess value

- Determine the indicators of success necessary to evaluate desired outcomes
- Determine and govern the process by which indicator data will be collected
- Quantify/qualify the value of results
- Understand the value of outcomes per dollar spent

**Improve impact**

- Optimize program outcomes per dollar
- Reduce risk

**Tell A Story**

- Clearly communicate the work's full value to investors, customers, government agencies, community members, staff and other important audiences

**The Framework can be applied both at the investor level, as an investment screen and monitor of progress, as well as at the operational level to ensure financial and blended value goals are met and refined through data-driven analysis**

**ECOframe: Six Elements**

ECOframe is an approach with **six key elements**, each of which is described in detail in the subsequent sections. The Framework can be applied both at the investor level, as an investment screen and monitor of progress, as well as at the operational level to ensure financial and blended value goals are met and refined through data-driven analysis.

In an effort to work from already established methodologies and thus build consensus, this framework builds on the efforts of several organizations with deep experience in the areas of *social return on investment*<sup>5,6</sup> and *stakeholder engagement*<sup>7,8</sup>, among others.

As ECOframe can address projects of all shapes and sizes, estimating cost and time resources is difficult as it is project-specific. For the description herein, we estimate a total use time of 10 full-time equivalent days for an initial point-in-time analysis. Once the Framework is in place for a project, the time and cost requirements of repeated use are significantly reduced.

**Each element has a core set of guiding questions that must be answered.** We will refer to these questions repeatedly throughout this paper.

**ELEMENTS AND GUIDING QUESTIONS****ONE: ESTABLISH the market you are trying to address.**

- What is the opportunity in general?
- How big is the opportunity?
- What is causing the opportunity?
- Can our investment address this opportunity?

**TWO: DEFINE the social value proposition.**

- What is the primary challenge that might be addressed by an ecolodge?
- What is the Theory of Change?

**THREE: MAP the stakeholders in the ecolodge ecosystem.**

- Who are the key stakeholders the ecolodge aims to benefit?
- Who are the secondary stakeholders that will be affected positively or negatively?
- What are their goals/expectations of success?

<sup>5</sup> Scholten, Peter, Jeremy Nicholls, Sara Olsen and Brett Galimidi. *Social Return on Investment: A Guide to SROI Analysis*. Lenthe Publishers, 2006.

<sup>6</sup> New Economics Foundation, *Social Return on Investment*. [http://www.neweconomics.org/gen/newways\\_socialreturn.aspx](http://www.neweconomics.org/gen/newways_socialreturn.aspx). Accessed April 16, 2008.

<sup>7</sup> Keystone Accountability, *Learning with Stakeholders*. <http://www.keystoneaccountability.org/node/113>. Accessed April 16, 2008.

<sup>8</sup> AccountAbility, *Stakeholder Engagement and Facilitation*. <http://www.accountability21.net/default.aspx?id=256>. Accessed April 16, 2008.



**FOUR: IDENTIFY the indicators for tracking social value.**

- What are the desired impacts the ecolodge hopes to achieve?
- How do we determine the leading indicators of success?
- What are the metrics necessary to track the leading indicators of success?

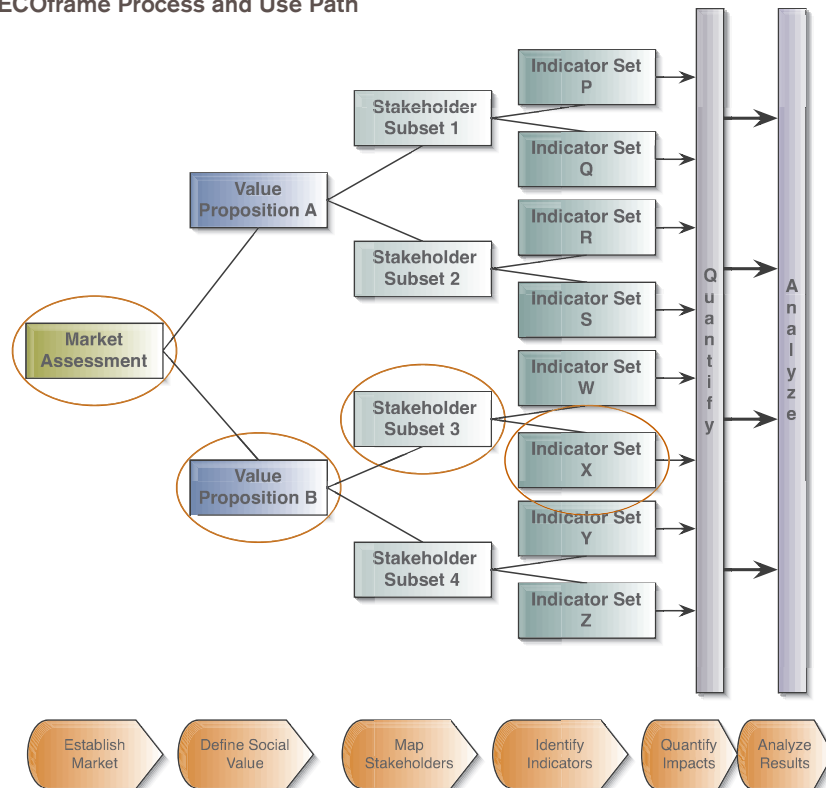
**FIVE: QUANTIFY the impacts tracked.**

- What can be valued through a monetary equivalent?
- What measures are quantitative but nonmonetary?
- What measures are qualitative?

**SIX: ANALYZE the results.**

- What core competencies can be built upon?
- What weak areas can be improved?
- What strategies, objectives and metrics need to be reconsidered?
- Where is risk affected by social impact? How should this be proactively managed?
- Where is financial return augmented or reduced due to social impact? How should this be proactively managed?

**ECOframe Process and Use Path**



**ECOframe is designed to accommodate the diversity in operating contexts of ecolodges around the world**

ECOframe is designed to accommodate the diversity in operating contexts of ecolodges around the world. The process is meant to provide a disciplined and replicable framework flexible enough to meet the on-the-ground needs and goals of different locations while maintaining comparability of results. The schematic above shows both the linear steps of the Framework, as well as a decision-tree path example, to illustrate how elements can be tailored to the specific context of an individual ecolodge.

## ECOframe in Practice

### ELEMENT ONE. The Market Opportunity

The first step in any blended value project is to understand the nature of the invariably complex situation at hand. Matching social, environmental and economic challenges and solutions is a project of significant scope and scale. Not only are the number of issues increased, they are often intertwined.

#### What is the opportunity in general?

*Ecotourism* is defined as “responsible travel to natural areas that conserves the environment and improves the welfare of local people.”<sup>9</sup> As a sector of the travel and tourism industry, **ecotourism is grounded in principles that relate to its mission of minimizing negative impact, offering environmental and cultural education, contributing to environmental conservation, and providing economic and empowerment benefits for local people and communities.**

**Ecotourism is defined as “responsible travel to natural areas that conserves the environment and improves the welfare of local people.”**

A growing number of tourists seek accommodations that reflect the main principles of ecotourism in the form of ecolodges, as opposed to (or in addition to) camping, home-stays and other means. The *International Ecolodge Guidelines*<sup>10</sup> describe the following criteria for ecolodge designation:

1. Assists in the conservation of surrounding local flora and fauna
2. Endeavors to work together with the local community
3. Offers interpretive programs to educate employees and tourists about the surrounding natural and cultural environment
4. Uses alternative, sustainable means of water acquisition and reduces water consumption
5. Provides for careful handling and disposal of solid waste and sewage
6. Meets its energy needs through passive design (minimizing mechanized heating, cooling and ventilation) and renewable energy sources
7. Uses traditional building technology and materials wherever possible and combines these with modern counterparts for greater sustainability
8. Has minimal impact on the natural surroundings during construction
9. Fits into its specific physical and cultural contexts through careful attention to form, landscaping and color, as well as the use of the vernacular architecture (using local materials for local needs)
10. Contributes to sustainable local community development through education programs and research.

<sup>9</sup> International Ecotourism Society (1990). *Definitions and Principles*. <http://www.ecotourism.org/>. Accessed April 16, 2008.

<sup>10</sup> Mehta, 2002, p.5 in Mehta, Baez, and O'Loughlin, eds., 2002. *International Ecolodge Guidelines*. The International Ecotourism Society, Burlington, VT.

**The ecotourism industry is expected to grow to 25% of the world's travel market before 2012, taking the value of the sector to US\$473.6 billion per year**

### How big is the opportunity?

Worldwide, travel and tourism combine into one of the largest industries, creating jobs and ancillary businesses. A report by the World Travel and Tourism Council claims tourism contributes over 10% of Gross Domestic Product (GDP) globally<sup>11</sup>. According to the World Tourism Organization<sup>12</sup>, Europe will continue to receive the highest share of international arrivals followed by East Asia and the Pacific, and the Americas. Africa and the Middle East are anticipated to receive a lower number of international arrivals, though these areas are anticipated to grow faster than the world average with rates forecast at 5%, nearly one percentage point higher than the world average of 4.1%. The United Nations Environment Programme (UNEP) and Conservation International have indicated that nature-based tourism is among the fastest growing sectors in the tourism industry<sup>13</sup>. As such, the ecotourism industry is expected to grow to 25% of the world's travel market before 2012, taking the value of the sector to US\$473.6 billion per year<sup>14</sup>.

The *Justification for Biodiversity Conservation* study mapped the locations of nature-based lodges in 60 countries<sup>15</sup>. The study found that of the total 5,459 ecolodges mapped, Indonesia has the largest concentration of lodges (758), followed by Costa Rica (590), Thailand (468), Peru (356), Ecuador (345), Guatemala (322), Mexico (304), Sri Lanka (277) and Tanzania (259). Of these, fully 84% are located in biodiversity Hotspot areas, as defined by Conservation International.

The highest concentration of lodges in biodiversity Hotspots are in Central America, the *Mesoamerica* Hotspot (1,157 lodges), followed by Southeast Asia, the *Indo-Burma* Hotspot (543 lodges). Of those ecolodges that participated in the study noted above, 60% are located within or on the periphery of an established protected area, and 39% are located within a private reserve.

### What is causing the opportunity?

Ecolodges are core to a major tourism growth area, however, they face numerous challenges with traditional means of financing. Several factors, including their blended value characteristics, point to a need for innovation in the ownership and financing structure of an ecolodge.

A report published by the International Financial Corporation (IFC)<sup>17</sup> assessed the environmental and social benefits of ecolodges throughout the world as well as various investment models. The report indicates a range of barriers related to financing ecolodges, summarized here:

- Traditional banks rarely understand the environmental, social and financial value proposition brought forward by ecolodge operations and—as a result—do not understand the business model.
- Ecolodges are frequently located in remote areas causing banks to be disinclined to provide loans, as they simply do not have branches in these areas.
- Ecolodges lack good collateral causing them to be of little value in the event of a foreclosure. Due to the illiquid nature of ecolodge assets, banks are unwilling to go beyond traditional loan structures that rely on collateral rather than cash flow and business viability.

<sup>11</sup> United Nations Environment Programme Division of Technology, Industry, and Economics. <http://www.unep.org/outreach/wssd/docs/sectors/final/tourism.pdf>. Accessed April 4, 2008.

<sup>12</sup> World Tourism Organization: *Facts and Figures*. <http://www.unwto.org/facts/menu.html>. Accessed April 4, 2008.

<sup>13</sup> Costas Christ. "Ecotourism is Transforming the Travel Industry." Maine Center for Economic Policy. June 24, 2005. [http://www.mecp.org/MeChoices05/ch\\_06242005.htm](http://www.mecp.org/MeChoices05/ch_06242005.htm). Accessed April 4, 2008.

<sup>14</sup> International Ecotourism Society (2005). <http://www.ecotourism.org/>. Accessed April 16, 2008.

<sup>15</sup> The International Ecotourism Society (TIES). *Ecolodge Footprint and Justification for Biodiversity Conservation*. January 2004.

<sup>16</sup> Conservation International [www.biodiversityhotspots.org](http://www.biodiversityhotspots.org). Accessed April 16, 2008.

<sup>17</sup> International Finance Corporation. *Ecolodges: Exploring Opportunities for Sustainable Business*. 2004.

- There exists a considerable lag time between the start-up phase and profitability of many ecolodges. It takes an average of 5 years to close this gap. Accordingly, traditional banking loans that are short term in nature are frequently unavailable.

Other risks noted by the IFC include vulnerability to externalities outside the control of the ecolodge including terrorism, political upheaval, health concerns, government policies and economic downturns, and the complexity of nontraditional ownership structures that may include local communities.

To overcome financing barriers, multiple sources of capital, often in combination, have enabled the financing of ecolodge start-ups. Financing structures with longer-term investment horizons tend to involve a low level of debt. As such, due to the wide-scale social and economic benefits induced by an ecolodge, these enterprises are more appropriately the target of international non-governmental organizations (NGOs), high-net-worth philanthropists and impact investors.

*For more background information on ecolodge differentiators and types, see Appendices A and B. For a representative list of current ecolodge companies, investors and location, see Appendices C and D.*

**Element One—Approximate portion of ECOframe time: 15% (~1.5 days)**

## ELEMENT TWO. The Social Value Proposition

**social value proposition—a concise statement of the benefits of a proposed approach to creating positive social impact**

The market analysis activities described above will help establish overall guidelines for the financial evaluation of an ecolodge investment. Next, in order to establish the *social value proposition*—a concise statement of the benefits of a proposed approach to creating positive social impact—two key questions must be answered. These two elements combined will provide guidance for the duration of the ECOframe process.

We recognize that the answers to these two questions, and the subsequent details, will be different for each ecolodge. ECOframe assumes general answers as a starting point.

### **What is the primary, addressable challenge at hand?**

How can private investment be used to make a positive social and environmental impact in a region of ecological and social sensitivity?

### **What is the Theory of Change (the proposed cause and effect pathway to the desired impacts)?**

Economic stimulation, via private investment in an ecolodge, can address four goals simultaneously:

1. Maintain or restore the local environment
2. Increase positive social impact through increased income, training and access to services
3. Strengthen local public and civil-society organizations
4. Return a profit to investors

Adequately answering these two questions is essential for framing the challenges and opportunities that may be feasibly addressed by an ecolodge project. This will guide the ECOframe steps that follow.

**Element Two—Approximate portion of ECOframe time: 5% (~0.5 days)**

## ELEMENT THREE. Mapping the Stakeholders

**Stakeholder mapping is the process of identifying which specific parties are affected by the ecolodge's operations**

Stakeholder mapping is the process of identifying which specific parties (individuals, communities and aspects of the environment) are affected by the ecolodge's operations. Identifying the stakeholders of a specific ecolodge directly informs the eventual selection of success indicators. This cannot be accomplished until the opportunity has been defined and social value proposition has been determined.

There are four basic steps to determining stakeholders:

1. **Identify** who will be affected by ecolodge operations
2. **Prioritize** these stakeholders according to how much they will benefit from the social value proposition
3. **Clarify** how parties not significantly or directly benefiting from the social value proposition should be managed
4. **Establish** any related, desired outcomes and indicators to be measured and tracked

We recognize that each ecolodge project will have a unique set of considerations, not the least of which is one of *rights*. As the relationships between stakeholders can be contentious, we do not present the list of stakeholders as *equal*, but as groups whose dynamics must be understood. We rate each based on a generic base case, but understand that the consideration of any stakeholder group may change drastically in a given project.

ECOframe evaluates each group on these three criteria:

1. **Proximity**—how directly they benefit from the ecolodge as a catalyst of social and environmental progress
2. **Influence**—their recurring prominence in internal decision-making
3. **Power**—their ability to use external forces that may affect the project

We recommend a rating of 1 to 3 (noted here with “☆”s), in which three is the strongest. By ranking each stakeholder accordingly, we can simultaneously prioritize them according to their direct potential benefit (proximity), and consider what, if any, action is needed ensure secondary stakeholder needs are met.

Based on the description of each stakeholder, we assign general categories of impact to guide the subsequent stage of determining indicators of success.

Every ecolodge ecosystem of stakeholders includes<sup>18</sup>:

- Customers: guests
- Employees: ecolodge management, ecolodge employees and contractors
- Suppliers: local businesses, competitors/collaborators
- Investors: Equity investors, debtors and/or grant-makers
- Communities: surrounding communities and community leaders
- Governments: local, national and regional (when appropriate)
- Environment: flora and fauna, water, soil and other natural resources

<sup>18</sup> Inspired in part by the HIP (Human Impact + Profit) Framework developed in 2007 by HIP Investor Inc. and SVT Group.

## CUSTOMERS

### Guests

For any ecolodge, the guest experience is critical. As stakeholders, they represent not only customers, but those who can catalyze change through their interaction, learning and spending. To help an ecolodge achieve its social and environmental goals, guests must not only enjoy their stay, but also take part in the activities that set an ecolodge apart—namely wildlife viewing, interpretive learning, cultural interaction, purchasing of local goods, etc. Managers and investors alike need to pay close attention to the guest experience, especially as word of mouth is generally a leading means of ecolodge marketing.

PROXIMITY ☆☆☆ INFLUENCE ☆☆☆ POWER ☆☆☆

MEASUREMENT IMPLICATIONS: *Revenue. Environmental education. Cultural education. Activity participation.*

## EMPLOYEES

### Ecolodge Management

Management is central to the successful blended value operations of the ecolodge. Management must be given the tools and resources necessary to make the right decisions to further all social, environmental and financial goals. This means using data to identify elements of the ecolodge performing a) above expectations, b) those that are average or slightly below and therefore in need of improvement, and c) those significantly under-performing and therefore in need of dramatic change or termination. Great care must be taken to ensure perverse incentives do not force management to sacrifice social and environmental goals to maximize financial returns.

PROXIMITY ☆☆☆ INFLUENCE ☆☆☆ POWER ☆☆☆

MEASUREMENT IMPLICATIONS: *All social goals. All environmental goals. All financial goals.*

### Employees and Contractors

Ecolodges in general will be constructed in rural and often remote regions around the world, and in most cases, in lesser developed countries. In these locations that lack industry and infrastructure, it is unlikely that lodge operators will encounter a local workforce with the skills and capacity to cover all lodge construction and operational needs. However, it is important to consider the short, medium and long-term employment potential within local communities as wages will be one of the primary sources of capital flow from investors into the local economy. Both ecolodge managers and investors should pay close attention to employee skills development as it is generally a core element of a successful ecolodge.

#### Employees

PROXIMITY ☆☆☆ INFLUENCE ☆☆☆ POWER ☆☆☆

#### Contractors

PROXIMITY ☆☆☆ INFLUENCE ☆☆☆ POWER ☆☆☆

MEASUREMENT IMPLICATIONS: *Wages. Social services. Skills.*

## SUPPLIERS

### Local Businesses

Small businesses—both existing and those that come into being as a result of business opportunities created by the lodge—represent a group with relatively little power (in comparison to investors and governments), yet with the potential to be one of the most valuable contributors to lodge success. Small businesses have the potential to benefit significantly through increased economic opportunity generated by the lodge. A local supply chain that understands how to meet the needs of the lodge and its guests and is capable of doing so is a critical source of positive social, economic, environmental and financial returns for the project.

In addition to the businesses that will be involved with lodge operations, the construction phase of the project presents opportunities to contract with local businesses (assuming capable local businesses already exist). Investors and/or operators who take a deliberate approach to increasing local capacity during the construction phase will reap blended value benefits as the local community can then provide lodge maintenance services once construction is complete.

PROXIMITY ☆☆☆ INFLUENCE ☆☆☆ POWER ☆☆☆

MEASUREMENT IMPLICATIONS: *Revenue. Skills.*

### Industry Competitors/Collaborators

Lodge operators and other tourism-based providers (and other businesses) may compete for natural resources. This represents a risk factor that could impact lodge operations, guest experiences or both. It is thus important for competitors to identify shared objectives around resource use and access, and establish agreements when possible.

PROXIMITY ☆ INFLUENCE ☆ POWER ☆☆☆

MEASUREMENT IMPLICATIONS: *Resource management. Local government relations.*

## INVESTORS

### Equity, Debtors and/or Grant-Makers

Investors have significant influence over an ecolodge. Many decisions that will ultimately affect the social, socio-economic, economic, environmental and financial returns from the project require the involvement of investors. Decisions including policies, procedures and processes will have impact up and down the value chain.

PROXIMITY ☆☆☆ INFLUENCE ☆☆☆ POWER ☆☆☆

MEASUREMENT IMPLICATIONS: *Financial returns. Social goals.*

## COMMUNITIES

### Surrounding Communities

In the creation of an ecolodge, there will be many points of intersection with surrounding communities in a variety of different areas. An ecolodge, using the definition previously detailed, must have the best interest of the surrounding community in mind at all times. Having a positive impact on the local community is core to the ecolodge principle. An ultimate goal is individual and community *agency*<sup>19</sup> (one's ability to set and pursue their own goals). Socio-economic measures of agency are attributes such as job/career choices and social progress such as access to health care.

<sup>19</sup> *Development as Freedom*. Amartya Sen. 2005. Anchor Books, New York.

Negative impacts, however, are also a possibility. Some of the most obvious include increased vehicle traffic, increased number of foreign guests, increased use of parklands and increased use of natural resources such as water and fuel wood. There could also be potential conflicts around land use and informal land tenure rights.

PROXIMITY ☆☆☆ INFLUENCE ☆☆ POWER ☆☆

MEASUREMENT IMPLICATIONS: *Microenterprise. Economic benefits. Resource use. Relationships with community leaders.*

### Community Leaders

Community leaders are individuals that often hold no official post but can be the most influential people within the community. These individuals have little direct power over the project, but can exert a great deal of influence around how the project is perceived by the community at large. When possible, working with them to ensure local support will be beneficial. As these posts are often unofficial, determining the leaders and establishing a relationship can be outside of the realm of the investor. Management, however, should take care to ensure a cordial relationship.

PROXIMITY ☆ INFLUENCE ☆☆ POWER ☆☆

MEASUREMENT IMPLICATIONS: *Perception. Relations.*

### Local

Like community leaders, local government attitudes will best be known by ecolodge management and those on the ground. As with unofficial community leaders, establishing a positive working relationship will be helpful in ensuring smooth operations, minimizing corruption, etc. An ideal scenario would enable transparent, accountable and responsive governance.

PROXIMITY ☆☆ INFLUENCE ☆ POWER ☆☆

### National

The national government will play a significant role in the development of an ecolodge, particularly in the early stages of a project. As lodges may be constructed within the boundaries of a national park, negotiations must take place around land use, land acquisition or rent, environmental impact, water rights and use, and waste management.

PROXIMITY ☆☆ INFLUENCE ☆☆ POWER ☆☆

MEASUREMENT IMPLICATIONS: *GDP contribution. Tax revenue. Public health costs. Education access.*

## ENVIRONMENT

### Flora and Fauna, Water, Soil and other Natural Resources

The natural environment represents a stakeholder with absolute proximity to the project and no (human) voice at all. It is, of course, the primary reason ecotourism exists. Waste management, water and energy use, ecosystem and biodiversity preservation and natural resource management are all core considerations for the effective operation of an ecolodge.

PROXIMITY ☆☆☆ INFLUENCE ☆☆☆ POWER ☆

MEASUREMENT IMPLICATIONS: *Resource use (energy/water/materials). Wildlife management. Land use management.*



Based on the stakeholder mapping exercise, ECOframe uses the following priority list as a base for the subsequent steps of determining and analyzing indicators and impacts. This will help to ensure the appropriate management of and communication with the most relevant stakeholders. The first tier list consists of the stakeholders who had a rating of 3 for proximity. The second tier list is then ordered first by proximity score (2 or 1), then by their combined influence and power scores.

#### Who are the primary stakeholders the ecolodge aims to benefit?

- Employees
- Surrounding communities
- Investors
- Environment

#### Who are the secondary stakeholders that will be affected positively or negatively?

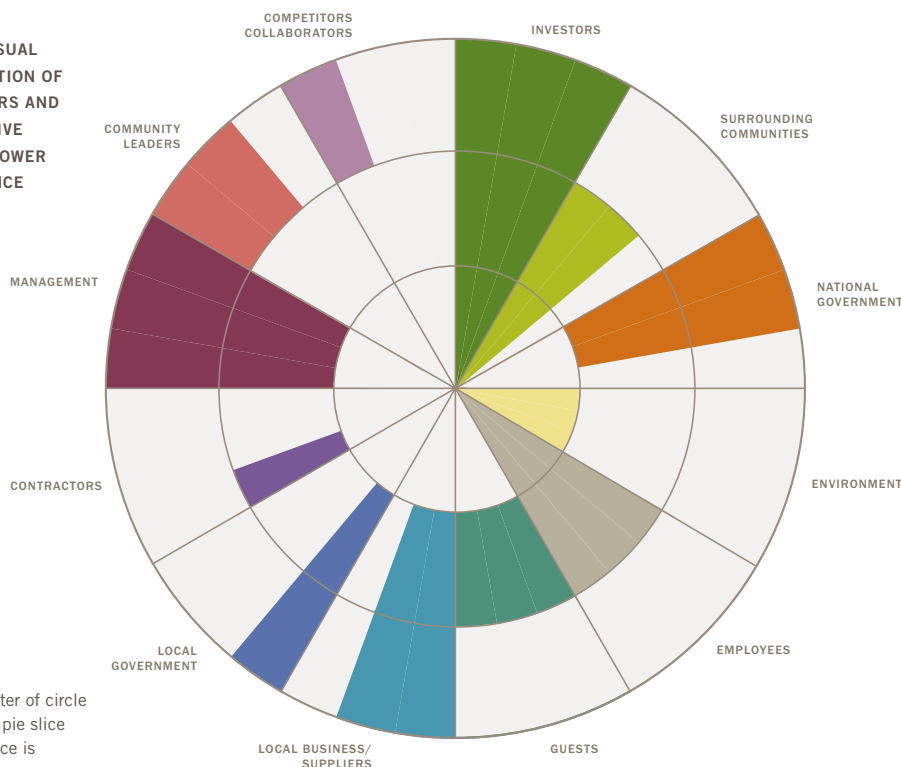
- Guests
- Local business
- National government
- Local government
- Contractors
- Management
- Community leaders
- Competitors/collaborators

#### What are their goals/expectations of success?

*See the descriptions under each group description above.*

#### Element Three—Approximate portion of ECOframe time: 10% (~1.0 days)

FIGURE 1: VISUAL REPRESENTATION OF STAKEHOLDERS AND THEIR RELATIVE PROXIMITY, POWER AND INFLUENCE



#### KEY

- **Proximity** is represented by closeness to center of circle
- **Influence** is represented by the width of the pie slice
- **Power** is represented by how 'tall' the pie slice is

## ELEMENT FOUR. Indicators for Tracking Social Value

**“Not everything that can be counted counts, and not everything that counts can be counted.”  
— Albert Einstein**

Once the Framework user — investor or manager — has identified the primary stakeholders in the ecolodge ecosystem, and prioritized their relative proximity to impact, influence and power, it is necessary to develop indicators of success that point to the progress of reaching blended value impact goals.

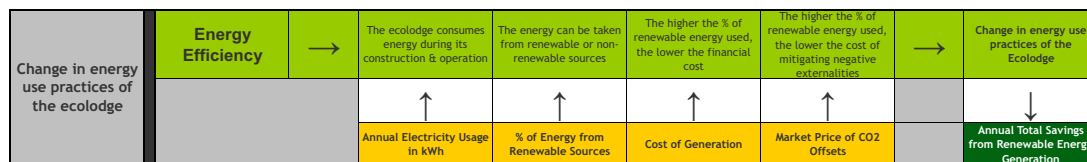
ECOframe uses four key concepts to establish and measure progress toward blended value goals: *impacts*, *leading indicators*, *causal pathway* and *metrics*. Each concept is represented in the figure below. They are defined as such:

**Impacts** (*gray box*): the ultimate social, socio-economic, environmental, economic and financial changes the organization’s work aims to affect.

**Leading indicator** (*dark green*): the units of social, economic, environmental and financial activity that can be measured and managed in the course of regular operations.

**Causal Pathway** (*light green*): the linear and logical means by which desired impacts are achieved.

**Metrics** (*yellow*): the individual measurable units necessary to calculate leading indicator values.



### What are the desired impacts the ecolodge hopes to achieve?

**ECOframe is designed to allow management and investors to understand their contribution to impact through the output the ecolodge can affect with its operations**

Explicitly stating the intended impacts for a lodge provides the context and categories in which indicators can be evaluated and prioritized. ECOframe is designed to allow management and investors to understand their contribution to impact through the output the ecolodge can affect with its operations.

The ECOframe includes the following list of impacts that are applicable to any ecolodge operation. Each lodge should consider the following superset and address the key specific impacts that are most relevant to its business. It is not necessary for an ecolodge to address every one of these points, but rather assess what is most relevant to that particular effort and track information accordingly. The outcomes are broken into the five blended value categories of *economic*, *socio-economic*, *environmental*, *social* and *financial*.

It is critical to note that these impacts as measured may be positive or negative. Impacts include unintended consequences that are foreseen, or that surface over time, and other negative outcomes that also surface and for which it is important to account.

### CORE ECOLOGE IMPACTS

#### Economic

- Contribution to tourism revenue locally
- Contribution to amount of tourism revenue nationally
- Change in amount of capital available to the national economy through profits
- Change in level of national economic activity through expenditures

### Socio-Economic

Change in level and type of local economic activity through expenditures  
 Change in level of local economic activity through employment/payroll  
 Change in household income  
 Change in reliance/availability on development assistance  
 Change in level of local economic activity from guests  
 Change in breadth of distribution of returns from economic activity generated by the ecolodge

### Environmental

Change in energy use practices  
 Change in water/soil/forest use practices  
 Change in waste management practices  
 Change in biodiversity management practices in the area  
 Change in stewardship practices of farmers in the area  
 Change in stewardship practices of community members in the area

### Social

Change in level of skills and capabilities of community members  
 Ratios of local staff in management positions (race, ethnicity, gender)  
 Change in access to recreation and education resources for local people  
 Change in access levels to health care for staff and families  
 Change in staff and community health  
 Change in behaviors and attitudes

### Financial

Income  
 Expenditure  
 Gross and net margin  
 Return on investment (ROI) and/or internal rate of return (IRR)

### How do we determine the *leading indicators of success*?

**A key characteristic of leading indicators is that they inform action by management**

A key characteristic of leading indicators is that they *inform action* by management. Ecolodge management, with intelligence gained from the ECOframe approach, can alter programs and efforts to maximize the results of any of these indicators. Unlike the larger societal change the ecolodge hopes to affect (which will have numerous forces acting with and against it), indicators are the building blocks that are within the grasp of a particular operation to minimize, maximize and optimize.

To choose the leading indicators that credibly relate to impacts but also yield business intelligence, ECOframe provides the following guidelines:

- Indicators should be directly measurable as part of regular business operations
- Indicators should relate directly to the ultimate desired outcomes of the venture
- Indicators are within the control of, and can therefore be affected by, decisions made at the management level

- Indicators enable an ongoing learning among—and dialogue between—management and other stakeholders to continually assess and refine their efforts
- Indicators must consider both the positive and negative impacts

With these guidelines in mind, there are four key considerations for choosing an indicator of success<sup>20</sup>:

#### Feasibility

- Can the necessary data be acquired with reasonable time, effort and resources?

#### Functionality

- Can this information gained by tracking this indicator be operationalized into a decision-making process?

#### Utility

- Does this knowing the information provided by this indicator help achieve the stated goals of this project?

#### Credibility

- Is the data and its source of an appropriately high level of comprehensiveness to ensure proper analysis?

Once the subset of indicators is derived, specify the 3–5 most important in each of the blended value categories (economic/environmental/socio-economic/social/financial)

To derive the potential indicators of success, we employ a *causal pathway*—the logical cause and effect process that leads to a desired impact. In the renewable energy example shown above, there are four steps on the pathway to assess the impact of *change in energy use practices of the ecolodge*:

1. The ecolodge consumes energy during its construction and operation
2. The energy can be taken from renewable and non-renewable sources
3. The higher the percentage of renewable energy used, the lower the financial cost
4. The higher the percentage of renewable energy used, the lower cost of mitigating negative externalities

This brings us to a leading indicator of *annual total savings due to renewable energy generation*.

The leading indicator categories listed below represent examples that an ecolodge can affect as a contribution to the general social and environmental changes it hopes to address. We base this list on a value chain analysis (see Appendix E), existing ecolodge definitions (see Appendix B) including the one presented earlier and the descriptions of activities found in the Scoping Document by Bonbright, et. al.<sup>21</sup>

#### LEADING INDICATOR CATEGORIES:

- Hiring of local people
- Ensuring workforce diversity (gender, ethnicity, age)
- Professional skill-building for employees
- Paying fair wages
- Providing access to social needs such as daycare and health clinics
- Educating staff on environmental issues
- Minimizing natural resource/energy use through alternatives, efficiency, etc.
- Engaging local business partners

<sup>20</sup> Based in part on the Design Principles from: Scholten, Peter, Jeremy Nicholls, Sara Olsen and Brett Galimidi. *Social Return on Investment: A Guide to SROI Analysis*. Lenthe Publishers, 2006.

<sup>21</sup> Bonbright, Emerson, Proctor, Hoffman, "Eco-Tourism and the Akagera National Park: Value Maximization for the People of Rwanda through the Mohana Lodge," 2007.

- Instituting positive land and biodiversity management practices
- Contributing tax revenue to the local economy

### What are the key metrics necessary to track the leading indicators of success?

Once the ECOframe user has clearly articulated the measurable leading indicators and applicable impacts, one can begin the process of defining the metrics — the individual measurable units — that underpin each indicator of success.

The causal pathway is helpful here once again. Knowing each of the steps on the path, the ECOframe user can articulate a single datapoint — metric — for each step. Continuing on with our renewable energy example:

#### Pathway step

The ecolodge consumes energy during its construction and operation

#### Metric

Annual electricity usage in kWh

#### Pathway step

The energy can be taken from renewable and non-renewable sources

#### Metric

% of energy from renewable sources

#### Pathway step

The higher the percentage of renewable energy used, the lower the financial cost

#### Metric

Cost of generation

#### Pathway step

The higher the percentage of renewable energy used, the lower cost of mitigating negative externalities

#### Metric

Market price of CO<sub>2</sub> offsets

Each metric articulated is a single datapoint that will be incorporated directly into the calculation.

For **ECOframe**, we set out to ensure that the final set of metrics could be grounded in measurement standards that already have global use and generally accepted meaning. This was important for two reasons. First, the credibility of data presented rests, in part, on the perception of whether or not anything of value was measured. Grounding indicators in globally accepted measurement standards provides for increased credibility. Second, we wanted the indicators to be related to global statistics that are already gathered and reported so appropriate baselines for evaluation would be available for any proposed project.

The sources we used to identify the globally accepted measurement standards for social and environmental evaluation were as follows:

- United Nations Development Program, The Human Development Report, <http://hdr.undp.org/en/> (Accessed April 2, 2008).
- Enterprise Survey measurements taken by the World Bank and International Finance Corporation, <http://www.enterprisesurveys.org/Custom/DYOA.aspx>. (Accessed April 2, 2008).
- The World Health Organization, data and statistics, <http://www.who.int/research/en/>. (Accessed April 2, 2008).

- The CIA World Factbook, <https://www.cia.gov/library/publications/the-world-factbook/index.html>. (Accessed April 2, 2008).
- Bonbright, Emerson, Proctor, Hoffman, "Eco-Tourism and the Akagera National Park: Value Maximization for the People of Rwanda through the Mohana Lodge," 2007
- Scholten, Nicholls, Olsen and Galimidi, *Social Return on Investment: A Guide to SROI Analysis*, 2006
- REDF, "SROI Methodology Paper," 2000

The following list represents examples of metrics from which any ecolodge project could select based on specific circumstances, vision and priorities. These metrics, gathered from a variety of sources both internal and external to the operation, can be used individually or in various combinations to address specific leading indicators.

### EXAMPLE LIST OF ECOLODGE METRICS

*For an expanded list, see Appendix F*

#### Economic

- Average daily spending per lodge guest inside lodge facilities
- Average daily spending per lodge guest outside lodge facilities
- Average guest philanthropic activity

#### Socio-Economic

- Ratio of local accounts payable to total accounts payable
- Ratio of local payroll to total payroll
- Percentage of average staff wages above country poverty line
- Proportion of ethnicities employed by lodge relative to local demographics
- Ratio of women to men employed by lodge
- Ratio of women to men in management positions
- \$ amount rent paid to local land holders, public or private
- Number of unique accounts payable
- Number of hours of training provided per employee

#### Environment

- Average water usage per guest/occupant
- Percentage of energy from renewable sources
- Percentage of organic waste composted
- Percentage of solid waste recycled
- Percentage of park area damaged by grazing (legal or illegal)
- Area of land protected from development
- Area of land under sustainable management

#### Social

- Percentage of children of staff that complete primary school
- Percentage of staff who have financial means to seek basic health-care services

- Under age 5 mortality rate amongst staff families
- Lost income per day of missed work due to preventable disease
- Percentage of lodge revenue (and in-kind equivalents) donated to local community projects

### Financial

- Total revenue
- Expenditures

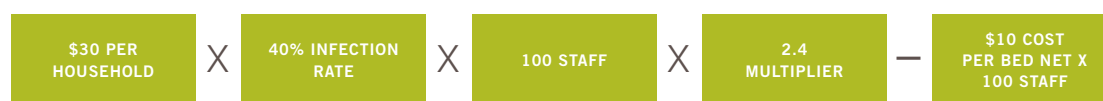
The following is an example of how metrics and indicators point to the success of achieving desired impacts.

1. Desired Impact: Change in staff health
2. Leading indicator: Increase in amount of income available to the community per family for malaria prevention
3. Metrics necessary to calculate based on a causal pathway:
  - a. \$ amount a malarial infection costs a household
  - b. Percentage of staff expected to otherwise get malaria (general population estimate)
  - c. Size of staff
  - d. Cost of bed nets
  - e. Economic multiplier of money spent in the community
4. The calculation:



For an operation with a staff of 100 in a region where malaria affects 40% of the population, we will assume the cost of malaria per household is \$30 (including treatment and lost wages), mosquito bed nets for a staff member's family cost \$10, and each dollar earned represents \$2.40 of economic potential in the community due to a multiplier effect.

These assumptions produce the following calculation:



This calculation shows that an investment of \$1,000 in bed nets will free up \$2,880 in capital to be spent in the community—money that would have otherwise been spent treating the illness and missing work. In addition, the bed nets (if used properly) will significantly decrease cases of malaria, which is the primary objective.

**Element Four—Approximate portion of ECOframe time: 25% (~2.5 days)**

## ELEMENT FIVE. Quantification of Outcomes

Many types of information can be used in this Framework, including monetary equivalents, quantitative (nonmonetary, such as information about the magnitude and number), qualitative (such as information

about direction or degree) and even narrative information (such as stories). ECOframe focuses largely on the first two categories, but can incorporate other forms of information as well.

Communicating the blended value of an ecolodge through dollar or other quantitative equivalents simplifies the expression of the social, environmental or economic value created, and sets an internal benchmark to help optimize impacts over time.

### **What can be valued through a monetary equivalent?**

*Examples include:*

- Cost per action/activity
- Cost savings
- Costs avoided
- Cost per unit of change
- Revenue generated
- Wages paid

### **What measures are quantitative but nonmonetary?**

*Examples include:*

- Rates of change
- Change in value
- Variation above/below a national average (e.g., poverty line)
- Consumption/usage (tons, liters, hectares, kWh)
- Benchmark comparisons
- Ratios of two categories

### **What measures are qualitative and narrative?**

*Examples include:*

- Behavior change
- Attitude change
- Knowledge gains
- Stories
- Sense of inspiration, empowerment

ECOframe, as an investment tool, concerns itself largely with the monetary and quantifiable. For management applications, it is worth noting that many techniques exist for quantifying seemingly qualitative information, such as behavior and attitude changes, through surveys and other interactive means. We strongly recommend this as a component of the measurement of effectiveness for ongoing operations. For this iteration of ECOframe, we focus on those measurements that investors could more easily implement.

Calculation results are often expressed in ranges. This is particularly important when baselines are set by estimation or proxy. For these examples, however, we perform a straight calculation for ease of illustration.

The following are a few examples of actual calculations performed in the Mohana Lodge case study that follows in the next section.



## SOCIO-ECONOMIC

| Change in level of local economic activity through payroll | Payroll | → | National staff use wages within the community to meet basic needs | Wages enter economy affected by the Multiplier | → | Change in level of national economic activity through payroll |
|--|---------|---|---|--|---|---|
|  |         |   | ↑   | ↑  |   | ↓   |
|  |         |   | Annual Payroll to National Staff<br>\$116,879                     | Multiplier<br>3.5                              |   | Annual Amount Added to Local Economy<br>\$409,075             |

**IMPACT:** Change in level of local economic activity through payroll

**LEADING INDICATOR OF SUCCESS:** Annual amount added to local economy

**CAUSAL PATHWAY:** National staff within the community use wages to meet basic needs. Then, wages enter economy affected by the multiplier.

**NECESSARY METRICS:**

- Annual payroll to staff: \$116,879 (Source: Mohana Lodge Pro Forma)
- Economic multiplier: 3.5 (Source: IMF Rwanda Survey)

**FINAL INDICATOR RESULT:** \$409,075

Note: As mentioned above, calculations like this can be expressed in a range. For example, we assumed an economic multiplier of 3.5 based on our research. If it had been 2.5, the final results would be \$292,198.

## ENVIRONMENTAL

| Change in energy use practices of the ecolodge | Energy Efficiency | → | The ecolodge consumes energy during its operation | The energy can be taken from renewable or non-renewable sources | The higher the % of renewable energy used, the lower the financial cost | The higher the % of renewable energy used, the lower the cost of mitigating negative externalities | →                                  | Change in energy use practices of the ecolodge |
|--|-------------------|---|---|---|---|--|------------------------------------|--|
|  |                   |   | ↑   | ↑   | ↑   | ↑  |                                    | ↓  |
|  |                   |   | Annual Electricity Usage in kWh<br>673,920        | % of Energy from Renewable Sources                              | Cost of Generation  | Market Price of CO2 Offsets  | % of Energy from Renewable Sources | Annual Total Cost of Energy Generation         |
|  |                   |   |   | 100%  | \$202,176   | \$0  | 100%                               | \$202,176                                      |
|  |                   |   |   | 70%   | \$287,693   | \$33,940   | 70%                                | \$321,633                                      |
|  |                   |   |   | 50%   | \$344,704   | \$56,567   | 50%                                | \$401,270                                      |
|  |                   |   |   | 30%   | \$401,715   | \$79,193   | 30%                                | \$480,908                                      |
|  |                   |   |   | 0%  | \$487,231   | \$113,133  | 0%                                 | \$600,365                                      |
|  |                   |   |   |   |   |  |                                    | Energy Savings from Renewables                 |
|  |                   |   |   |   |   |  |                                    | \$398,189                                      |
|  |                   |   |   |   |   |  |                                    | \$278,732                                      |
|  |                   |   |   |   |   |  |                                    | \$199,094                                      |
|  |                   |   |   |   |   |  |                                    | \$119,457                                      |
|  |                   |   |   |   |   |  |                                    | \$0  |

**IMPACT:** Change in energy use practices of the ecolodge

**LEADING INDICATOR OF SUCCESS:** Annual total cost savings from renewable energy generation

**CAUSAL PATHWAY:** The ecolodge consumes energy during its construction and operation. The energy can be taken from renewable or nonrenewable sources. The higher the percentage of renewable energy used, the lower the financial cost. Also, the higher the percentage of renewable energy used, the lower the cost of mitigating negative externalities.

**NECESSARY METRICS:**

- Annual Electricity Usage in kWh: 673,920/yr (Source: EPA Estimate)
- Percentage of Energy from Renewable Sources: Range of options
- Cost of Generation: Ranges from \$202,176 to \$487,231, depending on level of renewables (Source: Estimate based on expected usage and current market price for diesel generation)
- Market Price of CO2 Offsets: Ranges from \$0 to \$113,133, depending on level of renewables (Source: Current EU market price as of April 2008)

**FINAL INDICATOR RESULT:** Cost savings of up to nearly \$400,000 with 100% renewable energy

## SOCIAL

|                     |                     |   |  |   |  |   |   |
|---------------------|---------------------|---|--|---|--|---|---|
| Access to education | Access to education | → | Improving access to education for children of both genders is an effective way to provide long-term community development. | Often it is an economic decision to not send a child to school. | By employing people above the poverty line, the means will exist for more children to finish school. | → | Change in access to education   |
|                     |                     |   |  | ↑   | ↑  |   | ↓   |
|                     |                     |   |  | National Primary School Attendance Rate                         | % of Children of Staff Attending Primary School  |   | # of children above the national average who gain access to education because of the ecolodge |
|                     |                     |   |  | 39%   | 65%  |   | 22  |

**IMPACT:** Access to education

**LEADING INDICATOR OF SUCCESS:** # of children above the national average who gain access to education because of the ecolodge

**CAUSAL PATHWAY:** Improving access to education for children of both genders is an effective way to provide long-term community development. Often, it is an economic decision to not send a child to school, because they can work instead. By employing people above the poverty line, the means will exist for more children to finish school.

**NECESSARY METRICS:**

- National Primary School Attendance Rate: 39% (Source: World Bank)
- Percentage of Children of Staff Attending Primary School: 65% (Source: Estimate—would need to be tracked on-site)

**FINAL INDICATOR RESULT:** 22 additional children go to school, (26% over the national average, based on a projected staff of 86), as a result of wages above the poverty line

**Element Five—Approximate portion of ECOframe time: 35% (~3.5 days)**

## ELEMENT SIX. Results Analysis

The ECOframe analysis stage aims to shed light on the progress made toward impact goals. Until now, we've answered the key questions put forth for each element in the opening pages of this paper. The results analysis, naturally, vary for each project.

For an investor, the analysis component allows:

- Comparison across multiple investment options
- Ability to monitor progress toward impact investing goals
- Relating the impacts to the financial input required to make change

For an ecolodge manager, this element provides:

- A benchmark for monitoring change over time
- A means of related impact to input such as cost and human resources
- A way to make informed management decisions with regard to programmatic success or course correction
- A language for objectively communicating progress toward larger societal issues by means that are within the control of the ecolodge

For both investor and manager, these core questions should be answered:

- What core competencies can be built upon?
- What weak areas can be improved?

- What strategies, objectives and metrics need to be reconsidered?
- Where is risk affected by social impact? How should this be proactively managed?
- Where is financial return augmented or reduced due to social impact? How should this be proactively managed?

In practice, a final analysis includes several factors in addition to basic study of the quantifications. To ensure completeness and objectivity of ECOframe, the following elements are necessary:

**Conceptualizing the stakeholder relationship as dynamic and continuous, one that incorporates a learning dialogue, reinforces the need for regular reporting, frequent discussion and general inclusion**

#### STAKEHOLDER CONSULTATION

When it is possible to convene stakeholders, it can be highly advantageous. First, early stakeholder engagement can help those who may be affected decide to buy into a project. Establishing a fluid relationship can help predict and avoid barriers that might otherwise come up along the way. Second, generalizing stakeholder needs based on a collected set of assumptions can be fruitful, but there is no substitute for working together to discover the most pressing needs for any group and measure accordingly. Finally, convening a stakeholder group can create an opportunity to mediate negotiations between stakeholders with conflicting interests.

Setting expectations for and with stakeholders is critical to the ongoing conversation that is blended value investing. Conceptualizing the stakeholder relationship as dynamic and continuous, one that incorporates a *learning dialogue*, reinforces the need for regular reporting, frequent discussion and general inclusion. Not only should primary stakeholders remain involved in the process, but they may also lend significant value in areas such as data sourcing and verification.

#### PROPER DOCUMENTATION ALONG THE WAY

As ECOframe information will be used for investment and management decision-making, it is critical to keep a paper trail of information sources. This will help a) establish legitimacy amongst reviewers of the information, and b) ensure easy updating of information as progress happens over time.

#### CREDIBILITY ESTIMATIONS

The ECOframe recognizes that data will come from numerous sources of varying levels of credibility. To ensure the greatest confidence in the results, it is important to note the credibility of data sources. ECOframe recommends the following scale with a rating of 1 being the best.

1. Third-party compiled/verified data, and/or data reported on auditable documents or in peer-reviewed research
2. Direct, documented and regular data collection under your supervision, or variables that can be controlled by management or investors
3. Irregular feedback from stakeholders to a third party or directly to you, or proxy data from a comparable project
4. Before- or after-the-fact estimate by leader or responsible staff
5. Ad-hoc testimonials from experts in the field

#### ACCOUNTABILITY SYSTEMS

From an operational standpoint, it is important to ensure individuals are accountable for data collection and management. This often takes the form of an individual who is responsible for ensuring on-the-ground staff gather and report as necessary.

### CONSIDERATION OF DATA RANGES

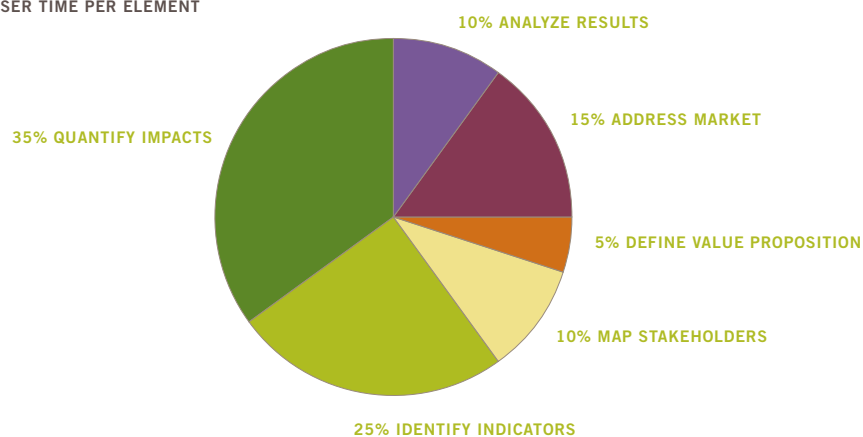
Depending on the operating history of an ecolodge, much of the ECOframe process will depend on estimates and proxy research. As we noted earlier, it may be necessary to investigate a range of data points to calculate indicators of success. Ultimately it is sensible to choose a representative value, but it is critical to adhere to the guidelines above regarding tracking sources and establishing credibility.

### REPORTING BACK

Regular reporting of ECOframe information, in a consistent format, is necessary to ensure the ongoing dialogue between stakeholders takes place. A productive and fruitful discussion between investors, management and other stakeholders will enable the underlying creation of social value as an ecolodge, or any blended value investment, is indeed a cooperative and collaborative endeavor.

#### Element Six—Approximate portion of ECOframe time: 10% (~1.0 days)

FIGURE 2: APPROXIMATE  
PERCENT OF ECOFRAME  
USER TIME PER ELEMENT



## PART III: ECOframe Application Case Study: The Mohana Lodge

**The Mohana Lodge is a proposed ecolodge in Rwanda's Akagera National Park.**

To illustrate ECOframe's elements and application in practice, we'll use the example of the Mohana Lodge. The Mohana Lodge is a proposed ecolodge in Rwanda's Akagera National Park. The following summary, and the in-depth Blended Value Calculations workbook (Appendix H) that accompanies this report, show the utility and application of ECOframe.

### ELEMENT ONE. The Market Opportunity

For the Mohana Lodge, the market opportunity research was completed by Bonbright, et. al. in the Scoping Document.<sup>22</sup> By way of example, the paragraphs in this section are direct quotes and represent only a small sample of the opportunity case made by the authors for the Mohana Lodge.

#### What is the opportunity in general?

- Rwanda is a poor rural country with about 90% of the population engaged in (mainly subsistence) agriculture. It is the most densely populated country in Africa and is landlocked with few natural resources and minimal industry. Primary foreign exchange earners are coffee and tea. **The 1994 genocide decimated Rwanda's fragile economic base, severely impoverished the population, particularly women, and eroded the country's ability to attract private and external investment.** (The CIA World Factbook)

#### How big is the opportunity?

- The tourism industry as a whole attracted 27,000 visitors in 2004, generating more than \$15 million in revenue. This figure is small compared to the record growth experienced by Africa as a whole (African Business, March 2006) where tourist revenues average almost 9% of GDP and generate almost 7% of all employment in sub-Saharan Africa.
- **The Rwandan tourism sector** under its governing body Office Rwandais du Tourisme et des Parcs Nationaux (ORTPN) **set a goal of generating \$100 million in tourism receipts by 2010 by creating high-value and low-impact tourist experiences through the use of the ecolodge concept.**

#### What is causing the opportunity?

- Between 1996 and 1998, the Rwandan government has engaged in efforts to re-integrate over 700,000 Rwandan Tutsi and most of the 2 million Hutu exiles. In many rural areas, including the Eastern provinces bordering the Akagera Park, up to 60% of the population are recent returnees.

<sup>22</sup> Bonbright, Emerson, Proctor, Hoffman, "Eco-Tourism and the Akagera National Park: Value Maximization for the People of Rwanda through the Mohana Lodge," 2007.

- The undisputed highlight to most travelers is a visit to the largely untouched bamboo forests of Volcanoes National Park, where an estimated 350 of the last remaining 650 mountain gorillas continue a threatened existence. But **gorilla tourism typically brings visitors for a very short period, often not more than two days in country, with one day devoted to traveling, viewing the gorillas for one hour, and returning to Kigali.** The challenge is how to develop a variety of tourism opportunities that extend to the other unique ecosystems in the country to extend the time tourists spend in Rwanda.

#### Can our investment address this opportunity?

- Despite the present challenges, there is a clear vision for the future of the park contained in a number of environmental and tourism management documents. They envisage a tight environmental management regime and a diversity of tourism products that make maximum use of the park's unique features that **could position Akagera as a unique destination appealing to specific niche markets.** In particular, luxury wilderness experiences that appeal to eco-travelers. Eco-travelers are interested in adding texture—sounds, smells and feelings—to their knowledge of the world's rarest species and natural sites. Ecologically and culturally sensitive, eco-travelers want to be “nonintrusive” and leave nature intact.

## ELEMENT TWO. The Social Value Proposition

The social value proposition is the combined answer of the two questions below. Taken together, they set the unified question-and-answer guide that all analysis will feed into.

#### What is the primary challenge that might be addressed by an ecolodge?

For Mohana, the **primary addressable challenge** at hand is: How may the nation and its supporters combine the natural wildlife resources of Rwanda and its people with outside investment in order to best maximize the total value of both?<sup>23</sup>

#### What is the *Theory of Change*?

The **Theory of Change** articulated is: To use luxury ecotourism to protect and manage the natural assets of Akagera National Park while simultaneously expanding economic and social opportunity for the people of Rwanda, generally, and the residents of districts Nyagatare, Gatsibo and Kayanza, specifically.<sup>24</sup>

## ELEMENT THREE. Mapping the Stakeholders

For a detailed discussion on each stakeholder group as they relate to the Mohana Lodge, please see Appendix G. The results are as follows:

#### Who are the key stakeholders the ecolodge aims to benefit?

- Employees
- Surrounding communities
- Investors
- Environment

<sup>23</sup> Ibid.

<sup>24</sup> Ibid.

**Who are the secondary stakeholders that will be affected positively or negatively?**

- Guests
- Local business
- National government
- Local government
- Contractors
- Management
- Community leaders
- Competitors/collaborators

**What are their goals/expectations of success?**

*See Appendix G*

## ELEMENT FOUR. Indicators for Tracking Social Value

Elements 1-3 three clearly set the stage for prioritizing desired impacts and the measurement of progress toward those goals. Now, we move to the details of that measurement.

**What are the desired impacts the ecolodge hopes to achieve?**

**Economic**

- Change in amount of capital available to the national economy through profits
- Change in amount of tourism revenue nationally
- Change in level of national economic activity through expenditures

**Socio-Economic**

- Change in level of local economic activity through expenditures
- Change in level of local economic activity through payroll
- Change in household income

**Social**

- Change in access levels to health care for staff and families
- Access to education
- Change in gender representation in the workforce
- Change in staff health and economic indicators

**Environmental**

- Change in energy use practices of the ecolodge
- Change in water use practices of the ecolodge
- Change in the waste management practices of the ecolodge

### How do we determine the leading indicators of success?

For each impact, a causal pathway—the linear and logical means by which desired impacts are affected—was derived. The causal pathway allowed us to clearly articulate the indicators needed to show progress toward the desired impact. It is also the causal pathway exercise that determines the metrics needed for measurement (see below).

See the Blended Value Calculations workbook (Appendix H) for all causal pathway steps and resulting leading indicators or success.

### What are the metrics necessary to track the leading indicators of success?

The causal pathway, in requiring the user to articulate a step-by-step process that leads to impact, enables the articulation of single datapoints or metrics that correspond to each step.

See the Blended Value Calculations workbook (Appendix H) for all key metrics derived from the causal pathway steps.

## ELEMENT FIVE. Quantification of Outcomes

Below are results of ECOframe computations performed for this case study. The resulting answers come from the calculation of multiple metrics. Each calculation, its component metrics, assumptions, data sources and source credibility of all data can be found in the accompanying workbook.

### What can be valued through a monetary equivalent?

#### Economic

**IMPACT:** Change in amount of capital available to the national economy through profits

**LEADING INDICATOR:** Annual amount added to economy

**RESULT:** \$5,657,750

**AVERAGE CALCULATION CREDIBILITY** (1-5, 1 is best): 1.67

**IMPACT:** Change in level of national economic activity through expenditures

**LEADING INDICATOR:** Annual amount added to national economy

**RESULT:** \$11,995,200

**CREDIBILITY:** 3.00

**IMPACT:** Change in amount of tourism revenue nationally

**LEADING INDICATOR:** New tourist revenue generated by ecolodge annually

**RESULT:** \$4,974,055

**CREDIBILITY:** 2.82

#### Socio-Economic

**IMPACT:** Change in level of local economic activity through expenditures

**LEADING INDICATOR:** Annual amount added to local economy

**RESULT:** \$2,822,400

**CREDIBILITY:** 2.50



**IMPACT:** Change in level of local economic activity through payroll

**LEADING INDICATOR:** Annual amount added to local economy

**RESULT:** \$409,075

**CREDIBILITY:** 2.50

**IMPACT:** Change in number of people living in poverty

**LEADING INDICATOR:** Income to those now above the poverty line through ecolodge employment

**RESULT:** \$70,127

**CREDIBILITY:** 3.25

### Social

**IMPACT:** Malaria prevention

**LEADING INDICATOR:** Annual increase in available total national staff household income through the use of bed nets

**RESULT:** \$43,661

**CREDIBILITY:** 2.00

### Environment

**IMPACT:** Change in energy use practices of the ecolodge

**LEADING INDICATOR:** Annual total savings from renewable energy generation

**RESULT:** \$398,189

**CREDIBILITY:** 2.14

**IMPACT:** Change in the waste management practices of the ecolodge

**LEADING INDICATOR:** Annual reduction in cost for managing improperly disposed waste (goal of net-zero waste through recycling, composting, etc.)

**RESULT:** \$6,000

**CREDIBILITY:** 3.50

**IMPACT:** Change in stewardship practices of poachers in the park

**LEADING INDICATOR:** Annual economic benefit of reducing poaching

**RESULT:** \$208,000

**CREDIBILITY:** 3.25

### What measures are quantitative but nonmonetary?

#### Economic

**IMPACT:** Change in level of local economic activity through expenditures

**LEADING INDICATOR:** Distribution in level of local national and international economic activity

**RESULT:** Breakdown of accounts payable—local firms: 20%; national (nonlocal): 65%; international: 15%

**CREDIBILITY:** 2.10

### Socio-Economic

**IMPACT:** Change in number of people living in poverty

**LEADING INDICATOR:** # of people who have access to income above the poverty line through local payroll

**RESULT:** 51

**CREDIBILITY:** 3.25

### Social

**IMPACT:** Change in gender representation in the workforce

**LEADING INDICATOR:** Ratio of women to men on staff

**RESULT:** 50.3% women, 49.7% men

**CREDIBILITY:** 1.00

**IMPACT:** Change in gender representation in the workforce

**LEADING INDICATOR:** Ratio of women in management positions relative to total staff

**RESULT:** 58.5% women, 41.5% men

**CREDIBILITY:** 2.50

**IMPACT:** Access to health care

**LEADING INDICATOR:** # of people who gain adequate access to health care who otherwise would not have it

**RESULT:** 27

**CREDIBILITY:** 4.00

**IMPACT:** Access to education

**LEADING INDICATOR:** # of children above the national average who gain access to education who otherwise would not have it

**RESULT:** 22

**CREDIBILITY:** 2.50

### Environmental

**IMPACT:** Change in water use practices of the ecolodge

**INDICATOR:** Annual reduction in lodge consumption with gray water recycling (liters)

**RESULT:** 3,132,000 liters

**CREDIBILITY:** 3.50

### What measures are qualitative?

The Mohana study did not consider qualitative results as they are difficult to measure by estimate or proxy. These are best approached through benchmarking studies, including surveys, at the beginning of a project and tracked regularly over time. Surveys can be used to give qualitative information such as *behavior* a quantitative measure such as *change in number of people engaging in a desired behavior*. We strongly suggest the use of surveys to achieve this as they not only help quantify otherwise qualitative information, they also provide a means of interaction with the community the ecolodge is attempting to serve.

## ELEMENT SIX. Results Analysis

The results analysis will be dependent on the needs and desires of those performing the analysis. We have presented an objective means of determining desired impacts and a system for measuring and tracking them. **We have, in essence, set a benchmark for the Mohana Lodge.**

*We provide analytical examples below. For calculation details, assumptions and credibility ratings, please refer to the detailed workbooks.*

### FOR AN INVESTOR, THE ANALYSIS COMPONENT ALLOWS:

#### Comparison across multiple investment options

The investors aim to use the ecolodge as a means of kick-starting the local economy. They can see that the **Mohana Lodge will add \$2.8 million to the local economy through local accounts payable** (use of local suppliers). This same data point can be compared to another potential investment that is working from a different set of investment assumptions, such as the economic multiplier, which will vary by region.

#### Ability to monitor progress toward impact investing goals

The investors knew they wanted to invest in Rwanda based on their research. The question then is not where to best make an impact, but how well is it going? Using education access as an example, our initial analysis shows that **65% of Mohana employees' children will have access to education**; this represents an additional 26% over the national average of 39%, or an additional 22 people based on staff estimations. Assuming 100% health care is the goal, tracking this regularly would allow the investors to know if their investment is helping move the needle in the right direction.

#### Relating the impacts to the financial input required to make change

The Mohana Lodge backers recognize preventable disease as a key issue area. We calculated that each malarial infection costs a household an average of \$37. Using estimates based on published reports, it could be expected that 30% of Mohana's employees will contract malaria if no prevention measures are employed. Considering lost wages and the economic multiplier effect, this translates to a societal loss of nearly \$44,000 per year. That in itself is a useful measure. Consider then that a malaria bed net and other preventative measures would cost the lodge \$25 per employee. **Based on an estimated 86 local employees, a bed net investment of a mere \$2,150 will generate a social return of close to \$44,000 per year.**

### FOR AN ECOLODGE MANAGER, THIS ELEMENT PROVIDES:

#### A benchmark for monitoring change over time

A manager will want to minimize costs while simultaneously increasing benefits. Looking to an environmental example, energy generation can be an expensive and environmentally hazardous proposition. Assuming that Mohana, like many ecolodges, would need to be self-sustaining due to a lack of energy infrastructure in the region, diesel generation is a likely solution.

Through ECOframe, we estimate that based on diesel costs and energy required to run the lodge 24/7, Mohana could expect to spend about \$487,000 per year. This would generate about 3,300 tons of CO<sub>2</sub>. Though a carbon tax may be unlikely, we calculated the potential cost to the lodge should one be implemented, based on the current EU rate (April 2008) This represents an additional potential cost

of \$113,000. If a manager begins to implement renewable energy sources such as wind or solar, s/he can track the costs savings over time as more energy comes from those sources. At 30% of energy from renewable sources, energy costs drop to just over \$400,000. **As renewables ramp up to 70%, the cost drops dramatically to \$288,000 or a savings of 41%.** The manager can track this over time as s/he moves toward an assumed goal of 100% renewable energy generation.

#### **A means of relating impact to input such as cost and human resources**

Carrying on from the example above, the Mohana's manager can easily calculate the input costs of the renewable energy generation system against the savings. For this analysis, we did not research the potential renewable investment. For illustration, we will assume management decided to invest \$1 million in wind turbines, which will generate 50% of necessary power. We calculated an energy cost savings (without a carbon price) to be roughly \$142,500 per year. This also represents an emissions reduction of about 1,650 tons of carbon. **Economically, the manager now knows that the \$1 million wind investment will pay back in about 7 years.** Environmentally, s/he knows that the \$1 million will reduce emissions by about 11,500 tons until the breakeven point, and continue on from there running a net-positive energy investment. Should a price per ton of carbon be levied, this investment will pay off even sooner.

#### **A way to make informed management decisions with regard to programmatic success or course correction**

Access to health care is a core problem in developing countries and Rwanda is no exception. Mohana's management hopes to help alleviate this problem by increasing household incomes of employees through various initiatives so they can access health care. For illustration purposes, we will assume Mohana invests \$10,000 in programs to help increase income specifically for health care. **Our calculations, based on estimates, show that Mohana can expect 75% of its employees to have access to health care, above a national average of 43% (estimated).** Given Mohana's size and staffing needs, this represents an incremental increase of 27 people or 32% of local staff.

Economically, this translates to about \$370 invested per beneficiary. Whether this can be considered positive performance or not depends on the direct cost of access. If medical costs would only be \$100/year per employee, Mohana is better off ending the initiatives and paying directly. If direct costs would be \$500/year, this is a worthy investment.

#### **A language for objectively communicating progress toward larger societal issues by means that are within the control of the ecolodge**

As we've noted previously, though the Mohana Lodge is designed to contribute to the betterment of the people and ecosystems surrounding it, it cannot single-handedly solve all of the area's problems. It would be an unfair burden if the only means of evaluation of success were an all-or-nothing assessment of whether social challenges were "fixed" and the environment "saved." Given the vastly complex factors leading to the current social and environmental situation, not to mention the arbitrariness of terms like "fixed" and "saved," Mohana simply cannot be responsible for changing the whole dynamic.

As such, **it is beneficial for Mohana to express its achievements within the bounds it can control through its decision-making.** For example, Mohana can show that a) it decreased water use by 3 million liters per year by recycling gray water for irrigation and other needs, b) 65% of its staff have children in primary school, up from a national average of 39%, and c) because of its heavy reliance on Rwanda-based suppliers, it adds nearly \$12 million to the national economy each year through its accounts payable (inclusive of an economic multiplier) in addition to the over \$400,000 that makes its

way into the local economy via payroll. These are all indicators of success toward blended value goals, all within the abilities of management to optimize.

As noted earlier, and shown in the examples above and extensive calculations references in the workbooks, both investor and manager should use this analytical framework to routinely answer these core questions:

- What core competencies can be built upon?
- What weak areas can be improved?
- What strategies, objectives and metrics need to be reconsidered?
- Where is risk affected by social impact? How should this be proactively managed?
- Where is financial return augmented or reduced due to social impact? How should this be proactively managed?

## Mohana Lodge Summary

By applying ECOframe to the proposed Mohana Lodge, we were able to show a path for determining the best indicators of success for this particular project given its theory of change, stakeholders and operating context. We showed the investment potential for a variety of blended value indicators of success as well as scenarios for managing to impact goals. In applying ECOframe, a significant amount of information was used to evaluate investment decisions and to assist program optimization in an effort to ensure the greatest output for the given input.

## PART IV: The Road Ahead

### LIKELY AUDIENCES

The extensive environmental, social and economic outcomes that have been measured and communicated in this study indicate that ecolodges can contribute significantly to social and environmental improvement in areas that are affected by resource constraints, lack of health care and minimal infrastructure. These areas are frequently underserved by government. As such, ecolodges are an attractive and important blended value investment for investors. Within this context there is a continued need to determine environmental, social and economic benefits, as well as assist investors and ecolodge operators in their multifaceted management task.

### GROWTH OF THE FIELD

The growing number of ecolodges throughout the world necessitates the need for lodges to maintain accountability for environmental and social standards and practices. We believe the best way is for investors and operators to partner to show ecotourism's financial, environmental and social value.

Access by ecolodge operators to traditional financial resources is limited. To overcome this barrier and ensure the continued realization of blended value creation, the ecolodge sector requires financing vehicles that include not only equity, but innovating forms of debt and grant funding. These blended value investments can uniquely support the sustainable growth of the ecolodge industry.

### MORE COMPLEX INDICATORS

In the Mohana Lodge example, we used fairly basic leading indicators of success. Depending on resources and availability of information, it is possible to explore more complex indicators such as employee economic self-sufficiency, biodiversity management, professional skill-building and quality of health care services. There is no limit to the indicators and metrics any analysis could employ.

### APPLICATION TO OTHER PROJECTS

Refining the superset of impacts presented for localized needs is a key tenet of ECOframe. While we have identified major categories, some might require specialized subsets of indicators to best capture the work in a certain geographic, economic, or environmental context. We expect this will be the case and encourage it, but we also recognize that there is a dynamic tension completeness and practicality. At a certain point, increased granularity becomes counterproductive to the goal of facilitating investment management, comparison and capital formation. We have attempted to provide guidelines for how to add new indicators when they meet certain criteria.

## ELEMENTAL DEEP DIVES

ECOframe can be applied with varying levels of sophistication. Several areas are worthy of deeper study for maximizing results. This will become particularly important as the Framework progresses from an investment decision-making tool to a blended value management tool. In particular are three areas about which much has been written by entities involved in this project and other experts: stakeholder engagement; data verification and credibility; and survey techniques for transforming qualitative information into quantitative measures.

## ECOTOURISM SUPPLY CHAIN: FUTURE ITERATION OF ECOFRAME

This framework focuses on the ecolodge segment of the ecotourism industry. However, ecotourism is made up of an extensive supply chain in which many businesses have the capacity for blended value investment analysis and management. As a result, the social and environmental return on investment of additional links in the ecotourism supply chain should be evaluated to determine the industry-wide potential and barriers for sustainable growth.

An opportunity exists to use this framework to not only evaluate ecolodges, but to address numerous other facets of the ecotourism industry to achieve a collective set of goals. In doing so, it may be possible to realize collective progress toward social and environmental goals that are beyond the reach of any one operation.

## CONCLUSION

**If applied by ecolodges broadly, the framework has the potential to significantly lower the mission risk and improve the social and environmental outcomes of the ecolodge industry**

The ECOframe approach aims to serve the dual roles of helping investors to understand the potential or actual blended value returns, as well as to enable ecolodge managers to set impact goals and manage to them through data-driven intelligence.

The framework detailed here calculates social and environmental return on investment by using data that can be commonly found in mainstream databases and applying them for demonstration purposes to the particulars of an ecolodge proposed for construction in Akagera National Park. The Framework paints a straightforward picture of the potential blended value returns of the proposed development. If applied by ecolodges broadly, the framework has the potential to significantly lower the mission risk and improve the social and environmental outcomes of the ecolodge industry.

It is our hope that ECOframe will provide both a tactical and philosophical approach for ensuring ecolodges worldwide can simultaneously achieve ecological conservation, social improvement and financial benefit. With a systematic means of establishing accountability through transparency, smart management and multiple points of value creation, we believe this to be possible.

## Appendix A: Key Differentiators

So what is it that separates an ecolodge from the Hyatonarriott Golf Resort? The latter will surely employ more people and potentially create an even bigger economic boom in the surrounding areas. It is the philosophy of ecological, social and cultural sensitivity that underlies and defines each ecolodge. This necessitates management practices that ensure this philosophy is implemented and tracked. The management of an ecolodge differs from a mainstream hotel for many reasons, including:

- Ecolodges are found in wilderness areas that are often lesser-developed, remote areas of a country. These areas are often the last to receive government investments in health, education, electricity, potable water, and roads
- Ecolodges play a vital role in local economic development beyond the scope of government by providing job opportunities, fair wages and job skills
- In addition to delivering tax revenue, profits are largely reinvested in the local community
- Ecolodges catalyze personal access to health care beyond government services through education and increased personal income
- Ecolodges play an active role in the preservation of species and habitat
- Ecolodges draw from local environmental expertise and support local cultural awareness

These notions bring forward a special challenge to the ecolodge owner or manager who aims to achieve economic development in a way that proactively affects social and environmental conditions. An ecolodge aims for balance. Education of clients and employees is one of the main paths to successful ecotourism. It is largely up to the ecolodge owner or manager to provide this, but investors have a determining influence on whether and how well they play this role.

An ecolodge's value is as much in the structure as in the setting of the lodge. An ecolodge needs a well-protected setting that is unaffected by overdevelopment or resource depletion. Many ecolodges have established their own reserves, enabling them to directly manage the resources that they depend on for their business. The value of an ecotourism property rises and falls with its ability to protect biodiversity, wildlife, and landscapes.<sup>25</sup>

Ecolodges can range from extremely rustic to luxurious. Although the range in accommodations is enormous, accommodations are usually mid-range in price (\$50–\$100 per night, though the prices can range price anywhere from \$10–\$1200 per night or more. There is currently no specific size standard for what can be described as an ecolodge. The general size ranges from 1-60 rooms.<sup>26</sup>

<sup>25</sup> United Nations Environment Programme. *Ecotourism Principles, Practices, and Policies For Sustainability*. 2002. Available at <http://www.unep.fr/pc/tourism/library/ecotourism.htm>.

<sup>26</sup> Data compiled from: UNEP *Ecotourism Principles, Practices, and Policies For Sustainability* and IFC: *Ecolodges: Exploring Opportunities for Sustainable Business*. 2004. See previous citations.



## Appendix B: Existing Definitions

It is worth noting that *nature-based tourism* breaks down into sectors within the tourism industry. A great deal of early ecotourism literature uses these sectors interchangeably. The following is a breakdown of different categories of tourism according to a 2005 report by The Worldwatch Institute<sup>27</sup>:

**Ecotourism** – Responsible travel to natural areas that conserves the environment and improves the welfare of local people.

**Adventure tourism** – A form of nature-based tourism that incorporates an element of risk, higher levels of physical exertion, and the need for specialized skill.

**Geotourism** – Tourism that sustains or enhances the geographical character of a place: its environment, heritage, aesthetics, culture, and the well-being of its residents.

**Nature-based Tourism** – Any form of tourism that relies primarily on the natural environment for its attractions or settings.

**Pro-poor Tourism** – Tourism that results in increased net benefit for the poor people in the area being visited.

**Responsible Tourism** – Tourism that maximizes the benefits to local communities, minimizes negative social or environmental impacts, and helps local people conserve fragile cultures, habitats, and species.

**Sustainable Tourism** – Tourism that meets the needs of present tourist and host regions while protecting and enhancing opportunities for the future.

For this paper, we will rely on the general term *ecotourism* to encompass the principle laid out earlier.

<sup>27</sup> Zoe Chafe, "Interest in Responsible Travel Grows, Vital Signs 2005" (The Worldwatch Institute), p 101, which sources: Merriam-Webster Dictionary, National Geographic Traveler, TIES, World Tourism Organization, Pro-Poor Tourism, Encyclopedia of Ecotourism, and Responsibletravel.com.

## Appendix C: Existing Companies, Locations and Ownership Types

| NAME OF THE COMPANY               | Ecolodges                                       | Location                                     | Ownership             | Business Type                                   |
|-----------------------------------|---|--|-----------------------|---|
| <b>Belize Lodge and Excursion</b> | Indian Creek, Jungle Creek, Island Lodge        | Belize                                       | Private               | Chain of Ecolodges and Operator                 |
| <b>Borneo Tours</b>               | Sakau Rainforest Lodge<br>Caopy Tower           | Malaysia                                     | Private               | Ecolodge and Tour Operator                      |
| <b>Canopy Tower</b>               | Canopy Tower                                    | Panama                                       | Private               | Ecolodge  |
| <b>Chalalan</b>                   | Chalalan  | Bolivia                                      | Community             | Ecolodge  |
| <b>Cooprena</b>                   | 9 ecolodges                                     | Costa Rica                                   | Community Cooperative | Cooperative of Ecolodges and tour operator      |
| <b>Nomadic Journeys</b>           | 4 Yurt Camps<br>(12 yurts each)                 | Mongolia                                     | Private / community   | Chain of associated Ecolodges and tour operator |
| <b>Kosrae Village Ecolodge</b>    | Kosae Village Ecolodge                          | Micronesia                                   | Private               | Ecolodge  |
| <b>Canodros</b>                   | Kapawi  | Ecuador                                      | Private / community   | Ecolodge and Tour Operator                      |
| <b>Lapa Rios</b>                  | Lapa Rios                                       | Costa Rica                                   | Private               | Ecolodge  |
| <b>Mamiraua</b>                   | Mamiraua  | Brazil                                       | NGO                   | Ecolodge  |
| <b>Pico Bonito</b>                | Pico Bonito                                     | Honduras                                     | Private               | Ecolodge  |
| <b>Rainforest Expeditions</b>     | Posada Amazonas<br>Tambopata<br>Research Center | Peru   | Community / private   | Chain of Ecolodges and tour operator            |
| <b>Tiamo Resorts</b>              | Tiamo   | Bahamas                                      | Private               | Ecolodge  |
| <b>Turtle Island Resort Fiji</b>  | Oarsman's Bay Lodge,<br>Safe Landing            | Fiji   | Community             | Ecolodge Supporting Community Lodges            |
| <b>Wilderness Safari's</b>        | 44 ecolodges                                    | Botswana, Namibia,<br>South Africa, Zimbabwe | Private               | Chain of Ecolodges                              |

## Appendix D: Ecolodge Associations

| REGION                                   | NAME   |
|--|--|
| <b>Europe</b>                            | BESST (Business and the Environment Linked Through Small Scale Tourism)<br>Ecotourism Norway<br>Ecotourisme France<br>Ecoturismo Italia<br>Swedish Ecotourism Society  |
| <b>Eastern Europe &amp; Central Asia</b> | Armenian Ecotourism Association<br>The Belarusian Association of Agro and Ecotourism<br>Estonian Ecotourism Association  |
| <b>Middle East &amp; North Africa</b>    | Iran Ecotourism Society<br>Israeli Ecotourism Society  |
| <b>Sub- Saharan Africa</b>               | Benin Ecotourism Concern<br>Ecotourism Society of Nigeria<br>Ecotourism Kenya<br>Ecotourism Ethiopia<br>Iringa Ecotourism Society<br>Nigerian Ecotourism Foundation  |
| <b>South Asia</b>                        | Discover Nepal<br>Ecotourism Society of Sri Lanka<br>Ecotourism Society Pakistan<br>Himalayan Ecotourism Society<br>Sri Lanka Ecotourism Foundation<br>CAMAT (Chitral Association for Mountain Area Tourism)   |
| <b>South East Asia</b>                   | Ecotourism Loas-Mekong Tourism Development Projects<br>Indonesian Ecotourism Network (INDECON)<br>Japan Ecolodge Association (ECOLA)<br>Japan Ecotourism Society<br>Mongolian Ecotourism Society<br>Taiwan Ecotourism Association (TEA)<br>Thai Ecotourism & Adventure Travel Association<br>CCBEN-Cambodia Community-Based Ecotourism Network |

|  |   |
|--|---|
| <b>Oceania</b>                         | <p>Ecotourism Australia</p> <p>Fiji Ecotourism Association</p> <p>Aboriginal Tourism Australia</p>  |
| <b>North America</b>                   | <p>Green Tourism Association</p> <p>La Ruta de Sonora Ecotourism Association</p> <p>Mesoamerican Ecotourism Alliance (MEA)</p>  |
| <b>Central America &amp; Caribbean</b> | <p>Asociación Ecoturismo Guatemala</p> <p>Belize Ecotourism Association (BETA)</p> <p>Camara Nacional de Ecoturismo de Costa Rica (CANAECO)</p> <p>Grand Bahama Island Ecotourism Association</p> <p>Mexican Association of Adventure Tourism &amp; Ecotourism (AMTAVE)</p>   |
| <b>South America</b>                   | <p>Asociación Argentina de Ecoturismo y Aventura</p> <p>Asociacion Ecuatoriana de Ecoturismo</p> <p>EcoBrasil</p>   |
| <b>Local Associations</b>              | <p>Alaska Wilderness Recreation &amp; Tourism Association - Alaska, U.S.A.</p> <p>Central Balkan Kalofer Ecotourism Association - Kalofer, Bulgaria</p> <p>Ecotourism and Conservation Society of Sikkim (ECOSS) - Sikkim, India</p> <p>Hawaii Ecotourism Association - Hawaii, U.S.A.</p> <p>Kamchatka Ecotourism Society - Kamchatka, Russia</p> <p>Kunigami Tourism Association (KUTA) - Okinawa, Japan</p> <p>Murghab Ecotourism Association (META) - Murghab, Tajikistan</p> <p>Society for Ethical Ecotourism (SEESWFLA)</p> <p>Southwest Florida, USA</p> <p>Tilos Park Association- Tilos Greece</p> <p>The Ontario Ecotourism Society (TOES) - Ontario, Canada</p> |

## APPENDIX E: Impact Value Chain

To determine indicators of success in reaching ecolodge goals, we start with a modified *Impact Value Chain*, a simplified model of value creation.<sup>28</sup> An Impact Value chain has five parts as follows. We describe the third and fourth parts in significant detail above. Understanding the background of the first two parts is critical for ensuring proper derivation of leading indicators and impacts. We have already done this process for ecolodges to establish ECOframe. To illustrate the process, we put forth the following examples.



Based on Clark, Rosenzweig, Long and Olsen, 2003.

### INPUTS

The first step in the process is to identify the specific inputs into the ecolodge that are the categories of investment activity. The inputs represent pivotal decision points that will ultimately determine the level of social and environmental benefit from a lodge. For example, the investment decision around the type of gray water filtration and dispersion system to design and install will determine the long-term amount of environment benefit realized (or missed) in this investment.

The following list was developed from an extrapolation of ideas presented by Edwin Datschefskey in his writings on sustainable products and services<sup>29</sup>, and our summarization of the ecotourism value chain.

1. Capital
2. Building materials
3. Water system: Well, pump, piping, spigots, irrigation, septic system or composting, gray water
4. Power system: diesel generator or solar, wiring, outlets, lighting, cooking, refrigeration, security
5. HVAC system
6. Other natural resources used
7. Recycling infrastructure
8. Composting infrastructure

<sup>28</sup> See "Double-Bottom Line Methods Catalog," by Cathy Clark, Will Rosenzweig, David Long and Sara Olsen and The Rockefeller Foundation, February 2004. The Impact Value Chain has been integrated into the SROI Analysis Framework. **See also Social Return on Investment: A Guide to SROI Analysis, Scholten, et al, 2006, which serves as a conceptual basis for ECOframe.**

<sup>29</sup> Datschefskey, Edwin, "Sustainable Products", 2002.

9. Rent and lease agreements
10. Service contracts
11. Infrastructure improvements: roads, transportation terminals, bike paths

## ACTIVITIES

The primary activities are those efforts that will be undertaken by an ecolodge to further its various blended value goals. It is helpful to break down activities as distinct from inputs (the resources required to do the activities) and leading indicators/impacts (the results of activities) because it forces the user to distinguish between goals and results.

An ecolodge encompasses the following categories of activities which contribute to its overall social and environmental value creation. Note that some activities fall into several categories. To determine the activities list, we performed internet research to better understand the ecolodge experience. From there we developed the following activity continuum. The activities list below is by no means conclusive, but meant to show various areas of measurement consideration within the ecolodge ecosystem.

### Categories of Ecolodge Operational Activities



### ECOLOGDE OPERATIONAL ACTIVITIES LIST (EXAMPLES)

#### 1. Planning

- a. Materials acquisition
- b. Construction
- c. Staff training
- d. Ecological research

#### 2. Transportation and Services

- a. Ground transport
- b. Bicycle/gear rental
- c. Sightseeing/wildlife viewing

#### 3. Lodging

- a. Front desk staff
- b. Maintenance
- c. Grounds-keeping

#### 4. Eating and Drinking

- a. Restaurant staff
- b. Bar staff

### 5. Retail, Recreation and Entertainment (RR&E)

- a. Environmental education
- b. Environmental restoration
- c. Microenterprise development
  - i. Handicrafts
  - ii. Souvenirs
- d. Ancillary businesses in the area

## APPENDIX F: Superset of Possible Metrics

The lists that follows represents the breadth of metrics one may use to calculate leading indicator values. It is not conclusive, but may be used as a reference or to generate ideas for new metrics.

### GENERAL LIST OF ECOLODGE METRICS

#### Socio-economic

- Percentage foreign to %domestic ownership
- Ratio local accounts payable to total accounts payable
- Ratio local payroll to total payroll
- Percentage average staff wages above country poverty line
- Poverty rate (% of population)
- Ratio of local economic activity based on harvesting or extracting vs. manufacturing and value-add industries
- Proportion of ethnicities employed by lodge relative to local demographics
- \$ allocated to infrastructure projects
- Ratio of women to men employed by lodge
- \$ amount rent paid to local land holders public or private
- Percentage of national GDP from tourism
- Percentage of total tourism receipts from ecotourism
- National multiplier of spending per dollar earned
- Local multiplier of spending per dollar earned
- Number of unique accounts payable
- Number of hours of training provided per employee
- Ratio of local to foreign workers in higher-skilled and management jobs
- Increase in tax receipts paid by Ecolodge

#### Environment

- Annual cost of carbon through diesel generator or other electricity generation
- Average water usage per guest/occupant
- Percentage of energy from renewable sources
- Percentage of gray water that is reused
- Percentage of organic waste composted measured by weight
- Percentage of solid waste recycled measured by weight
- Percentage of park area damaged by grazing (legal or illegal)



# incidences of poaching in park

Value of animals lost to poaching

### Social

Percentage of children of staff that complete primary school

Percentage of staff household within 500 meters of improved water source

Corruption Index ranking

Percentage of staff whose primary residence is within 5kms of health center

Percentage of staff who have financial means to seek basic health-care services

Under 5 mortality rate amongst staff families

Percentage of staff with HIV/AIDS

Percentage of staff with HIV/AIDS that are using ARVs

Percentage of staff with malaria

Lost income per day of missed work due to malaria

# of sick days taken for malarial infections by staff (including to care for family members)

\$ amount given to local development projects via lodge guest donations

% of lodge revenue donated to local community projects

Ecolodge participation level in national or international association that develops, monitors and enforces best practices

### Economic

Total revenue

Average daily spending per lodge guest inside of lodge facilities

Average daily spending per lodge guest outside of lodge facilities

Internal rate of return

Expenditures

## APPENDIX G: Mohana Lodge Stakeholder Mapping

The Stakeholder Mapping element requires the ECOframe user to understand some site-specific background of the different stakeholders. In the paper we go through this process for ecolodges in general and generate our recommended list of primary and secondary stakeholders. Here, we look specifically at those same groups with regard to the Mohana Lodge in Rwanda. This is key as it may inform if secondary stakeholders should actually be primary, or vice versa.

### INVESTORS

Mohana Lodge's potential investors represent a source of foreign capital for a country that has had a difficult time attracting investment despite a relatively stable political and economic climate.<sup>30</sup> This group is also entering a tourism industry that grew from \$5 million in 2002 to \$33 million in 2006—one that is viewed as an important income sector for Rwanda.<sup>31</sup> There is a unique opportunity to establish a foreign investment precedent in Rwanda that demonstrates a progressive ownership structure and sets a high bar for environmentally and socially responsible tourism in the region.

### GOVERNMENTS

Office Rwandais du Tourisme et des Parcs Nationaux (ORTPN) is the national government bureau of tourism for the country. ORTPN is promoting “high-end, luxury” ecotourism as the preferred form of tourism within the country.<sup>32</sup> Bonbright et. al. have determined that there appear to be shared objectives between this governmental body and the Mohana project which may affect the final indicators of success and the ease with which investment and government support may flow.

### LOCAL BUSINESSES

Akagera Game Lodge, a competitor of the Mohana Lodge, is presently operating within the Akagera National Park. It appears to be targeted at a different tourism segment from Mohana in terms of type/cost of accommodation. However, there will be intersection between lodge operations in terms of sharing the commons. Independent tour operators will likely serve guests from both lodges

### LABOR POOL AND EMPLOYEES

The rural economy in Rwanda is based on subsistence agriculture, and 60% of the country lives below the poverty line (defined as less than \$2/day)<sup>33</sup>. As a core element of an ecolodge is to provide jobs and income to local community members, it should be a strategic management priority to develop short, medium and long-term labor capacity building plans. Without these, there is often a tendency to import people from

<sup>30</sup> U.S. Department of State – Rwanda Background Notes, “Economy”, <http://www.state.gov/r/pa/ei/bgn/2861.htm>. Accessed April 4, 2008.

<sup>31</sup> UNDP, Economic Development and Poverty Reduction Strategy, 2008 – 2012, The Republic of Rwanda, Ministry of Finance and Economic Planning, 2007, page 7.

<sup>32</sup> Rwanda Development Gateway <http://www.rwandagateway.org/>. Accessed April 4, 2008.

<sup>33</sup> CIA World Factbook, <https://www.cia.gov/library/publications/the-world-factbook/>. Accessed April 4, 2008.

other areas, domestic and foreign, who already possess the necessary skills. An influx of outside workers with little involvement from locals will exacerbate economic and social challenges in the region, rather than ameliorate them.

## **SURROUNDING COMMUNITIES**

Cattle grazing and wildlife poaching are known issues within Akagera National Park.<sup>34</sup> Other issues should be anticipated as the project moves forward. A recommendation is to engage community leaders (see below) early and often throughout the lifecycle of the lodge.

## **COMMUNITY LEADERS**

One of the most challenging stakeholders to understand are community leaders. With significant variation in interests in each location, deeper anthropological study is often necessary to understand community power and influence dynamics. Our initial remote research didn't uncover informal leadership in the communities surrounding Akagera Park. This understanding should be deepened over time.

## **INDUSTRY COMPETITORS**

For Mohana, it is important to distinguish between other ecolodge operators (such as the Akagera Game Lodge) and conventional tourism operators. Based on Rwanda's tourism strategy stated by ORTPN (noted in the Government section), it appears unlikely that a conventional operator would be permitted to operate within the boundaries of the national park. It is unknown what the government's allowance for ecolodges is within Akagera National Park. Current activity suggests that it is at least two lodges (Mohana and the Game Lodge), and that operational intersections will occur over land use and wildlife viewing. It is also unclear if there is, or will be, other traditional tourism operations nearby.

## **GUESTS**

Mohana's guests are obviously critical. They must enjoy their experience and be inclined to engage in various activities as that will be a key driver of revenue. They should be educated on the local culture and environment, and leave inspired to tell others about their (hopefully positive) experience.

## **FLORA AND FAUNA**

Given the newness of the Rwanda market, we see a long-term competitive advantage for creating a lodge facility that establishes a new industry standard for efficiency and zero-waste operations. Design can not be undone once built. A facility design that maximizes passive heating and cooling will require the minimum amount of mechanical input. The smaller the mechanical systems, the less maintenance and energy required, and thus the less waste produced.

<sup>34</sup> Bonbright, Emerson, Proctor, Hoffman, "Eco-Tourism and the Akagera National Park: Value Maximization for the People of Rwanda through the Mohana Lodge," 2007, Pg. 13-14.

## APPENDIX H: Blended Value Calculations Workbook

### ECOframe Blended Value Calculation Workbook

#### *Overview and Instructions*

##### Overview

This workbook contains several worksheets as follows:

- I. Overview and Instructions
- II. Assumptions
- III. Socio-economic calculations
- IV. Environmental calculations
- V. Social calculations
- VI. Data entry table

##### Instructions

All calculations are computed automatically through embedded formulas.

All data inputs are contained within the "Data Entry" worksheet.

The user need only enter data in the "Data Entry" worksheet.

Only cells shaded orange require raw data inputs.

No other formulas should be altered unless done so intentionally to incorporate indicator changes.

Note that changing a formula may have a ramification elsewhere.

## ECOframe Calculation Assumptions

### Indicators/Metrics

- ~Per day averages based on a 365-day year.
- ~Ideal staff scenario matches the local population in both ethnicity and gender.
- ~Men and women in the same role are paid equally (no gender disparity) by the ecolodge
- ~Assumptions and logic for each calculation can be found in the 'causal pathway.'

### Credibility

- ~Data points that can be controlled by direct stakeholders, such as % of women/men on staff, are given a credibility rating of 2.
- ~Data from the pro-forma is given a 2 on the assumption that it has been accurately derived.
- ~The final credibility rating for each indicator is based derived from an unweighted average of the credibility scores for each data point in the calculation.

### Rating Scale (1 is best)

1. Third-party compiled/verified data, and/or data reported on auditable documents or in peer-reviewed research
2. Direct, documented and regular data collection under your supervision, or variables that can be controlled by management or investors
3. Irregular feedback from stakeholders to a third party or directly to you, or proxy data from a comparable project
4. Before- or after-the-fact estimate by leader or responsible staff
5. Ad-hoc testimonials from experts in the field

| Desired Outcome   | Socio-Economic Indicators & Outcomes |   |  |  |   | Measured Outcome  |
|---|--------------------------------------|---|--|--|---|---|
| Change in amount of capital available to the national economy through profits | Profits                              | → | Business operations create profits                             | Domestic owner's profits enter national economy affected by multiplier | → | Change in amount of capital available to the national economy through profits |
|   |                                      |   | ↑  | ↑  |   | ↓   |
|   |                                      |   | Net Profit   | % Domestic ownership   |   | Annual Amount added to economy  |
|   |                                      |   | \$3,233,000  | 50%  |   | \$5,657,750   |
| Change in level of local economic activity through expenditures               | Local Accounts Payable               | → | Ec lodge pays local firms for services                         | Payments enter Raanda economy affected by the multiplier               | → | Change in level of local economic activity through expenditures               |
|   |                                      |   | ↑  | ↑  |   | ↓   |
|   |                                      |   |  | Multiplier   |   | Annual Amount Added to Local Economy  |
|   |                                      |   | \$806,400  | 3.5  |   | \$2,822,400   |
| Change in level of national economic activity through expenditures            | National Accounts Payable            | → | Ec lodge pays Rwandan firms (local and non-local) for services | Payments enter Raanda economy affected by the multiplier               | → | Change in level of national economic activity through expenditures            |
|   |                                      |   | ↑  | ↑  |   | ↓   |
|   |                                      |   | A/P to RW Firms  | Multiplier   |   | Annual Amount Added to National Economy                                       |
|   |                                      |   | \$3,427,200  | 3.5  |   | \$11,995,200  |
|   |                                      |   |  |  |   | Calculation Credibility   |
|   |                                      |   |  |  |   | 1.67  |
|   |                                      |   |  |  |   | 2.50  |
|   |                                      |   |  |  |   | 3.00  |

|  |                 |   |  |  |   |   |  |   |   |                         |
|--|-----------------|---|--|--|---|---|--|---|---|-------------------------|
| Change in level of local economic activity through payroll | Payroll         | → | National staff use wages within the community to meet basic needs                    | Wages enter economy affected by the Multiplier   | →   |   |  | Change in level of national economic activity through payroll |   |                         |
|  |                 |   | ↑  | ↑  | ↓   |   |  |   |   |                         |
|  |                 |   | Annual Payroll to National Staff   | Multiplier   |   |   |  | Annual Amount Added to Local Economy                          | Calculation Credibility   |                         |
|  |                 |   | \$116,879  | 3.5  |   |   |  | \$409,075   | 2.50  |                         |
|  |                 |   |  |  |   |   |  |   |   |                         |
| Change in amount of tourism revenue nationally             | Tourism Revenue | → | New tourists that come to RW because of the lodge offering increase national revenue | Tourists that become eco-tourists through the lodge offering increase national revenue | →   |   |  | Change in amount of tourism revenue nationally                |   |                         |
|  |                 |   | ↑  | ↑  | ↓   |   |  |   |   |                         |
|  |                 |   | % of guests who come to RW specifically because of the lodge                         | Annual Increase in revenue from guests substituting ecotourism for regular tourism     |   |   |  | New tourist revenue generated by Ecotodge Annually            | Calculation Credibility   |                         |
|  |                 |   | 50.0%  | \$2,508,219  |   |   |  | \$4,974,055   | 2.82  |                         |
|  |                 |   |  |  |   |   |  |   |   |                         |
| Change in number of people living in poverty               | Poverty         | → | Local employees use wages within the community to meet basic needs                   | It is presumed that poverty levels match the national average                          | The percent of staff that would have otherwise been below the poverty line are now above. | → |  | Income of people now above the poverty line                   | Change in Number of People with income above the poverty line                       |                         |
|  |                 |   | ↑  | ↑  | ↑   | ↓ |  | ↓   |   |                         |
|  |                 |   | Average Annual Salary for National Staff   | % of population below poverty level  | Total Rwandan Staff   |   |  | Access to income above the poverty line through local payroll | # of People that have access to income above the poverty line through local payroll | Calculation Credibility |
|  |                 |   | \$1,367  | 60.00%   | 86  |   |  | \$70,127  | 51  | 3.25                    |
|  |                 |   |  |  |   |   |  |   |   |                         |

| Desired Outcome                                | Environmental Indicators & Outcomes |   |  |  |   |  |  |   | Measured Outcome                               |                         |
|--|-------------------------------------|---|--|--|---|--|--|---|--|-------------------------|
| Change in energy use practices of the ecolodge | Energy Efficiency                   | → | The ecolodge consumes energy during its operation        | The energy can be taken from renewable or non-renewable sources          | The higher the % of renewable energy used, the lower the financial cost | The higher the % of renewable energy used, the lower the cost of mitigating negative externalities | →  |   | Change in energy use practices of the ecolodge |                         |
|  |                                     |   | ↑  | ↑  | ↑   | ↑  |  |   | ↓  |                         |
|  |                                     |   | Annual Electricity Usage in kWh                          | % of Energy from Renewable Sources                                       | Cost of Generation  | Market Price of CO2 Offsets  | % of Energy from Renewable Sources       | Annual Total Cost of Energy Generation        | Energy Savings from Renewables                 | Calculation Credibility |
|  |                                     |   | 673,920  | 100%   | \$202,176   | \$0  | 100%                                     | \$202,176                                     | \$398,189                                      | 2.14                    |
|  |                                     |   |  | 70%  | \$287,693   | \$33,940   | 70%                                      | \$321,633                                     | \$278,732                                      | 2.14                    |
|  |                                     |   |  | 50%  | \$344,704   | \$56,567   | 50%                                      | \$401,270                                     | \$199,094                                      | 2.14                    |
|  |                                     |   |  | 30%  | \$401,715   | \$79,193   | 30%                                      | \$480,908                                     | \$119,457                                      | 2.14                    |
|  |                                     |   |  | 0%   | \$487,231   | \$113,133  | 0%                                       | \$600,365                                     | \$0  | 2.14                    |
| Change in water use practices of the Ecolodge  | H <sub>2</sub> O Efficiency         | → | The lodge should have net-zero impact on the water table | Consumption should not be at faster rate than is naturally replenishable | Gray water can be reused for non-potable water                          | →  |  | Change in water use practices of the Ecolodge |  |                         |
|  |                                     |   | ↑  | ↑  |   |  | ↓  |   |  |                         |
|  |                                     |   | Annual Lodge Consumption in L                            | % of Water Use Appropriate for Gray Water                                |   |  | % of Available Gray Water that is Reused | Annual Lodge Consumption in L                 | Water Savings from Reuse (L)                   | Calculation Credibility |
|  |                                     |   | 6,264,000  | 50%  |   |  | 100%                                     | 3,132,000                                     | 3,132,000                                      | 3.50                    |
|  |                                     |   |  |  |   |  | 70%                                      | 4,071,600                                     | 2,192,400                                      | 3.50                    |
|  |                                     |   |  |  |   |  | 50%                                      | 4,698,000                                     | 1,566,000                                      | 3.50                    |
|  |                                     |   |  |  |   |  | 30%                                      | 5,324,400                                     | 939,600  | 3.50                    |
|  |                                     |   |  |  |   |  | 0%                                       | 6,264,000                                     | 0  | 3.50                    |



|  |          |   |  |  |  |   |   |   |                                      |
|--|----------|---|--|--|--|---|---|---|--------------------------------------|
| Change in the waste management practices of the Ecolodge | Waste    | → | The lodge should operate on a net-zero waste basis   | Without sufficient infrastructure most waste is disposed of improperly | Unmanaged disposal exacts an economic cost   | → | Change in the waste management practices of the Ecolodge    |   |                                      |
|  |          |   | ↑  | ↑  | ↑  |   |   | ↓   |                                      |
|  |          |   | Tonnes of Solid Waste Collected Monthly  | % of Solid Waste Disposed of Safely through Composting etc.            | Cost of clean-up for 1 Ton of improperly dumped waste  |   | % of Solid Waste Disposed of Safely through Composting etc. | Annual Cost of adding to the Solid Waste Stream | Savings from Minimizing Waste Stream |
|  |          |   | 5  | 100%   | \$100  |   | 100%  | \$0   | \$6,000                              |
|  |          |   |  | 70%  |  |   | 70%   | \$1,800   | \$4,200                              |
|  |          |   |  | 50%  |  |   | 50%   | \$3,000   | \$3,000                              |
|  |          |   |  | 30%  |  |   | 30%   | \$4,200   | \$1,800                              |
|  |          |   |  | 0%   |  |   | 0%  | \$6,000   | \$0                                  |
|  |          |   |  |  |  |   |   |   |                                      |
|  |          |   |  |  |  |   |   |   |                                      |
| Change in stewardship practices of hunters in the park   | Poaching | → | Sustainable animal populations increase tourism and therefore the asset value of the park to the community | The illegal killing of an animal reduces the asset value of the park   | By instituting stewardship programs and providing alternative livelihoods and better enforcement the lodge can reduce the incidences of poaching | → | Change in stewardship practices of hunters in the park      |   |                                      |
|  |          |   |  | ↑  | ↑  |   |   | ↓   |                                      |
|  |          |   |  | Projected annual economic loss from poaching                           | % decrease of kills through anti-poaching programs   |   |   | Annual Economic Benefit of Reducing Poaching    | Calculation Credibility              |
|  |          |   |  | \$520,000  | 40%  |   |   | \$208,000                                       | 3.25                                 |

| Desired Outcome   | Social Indicators & Outcomes |   |   |   |   |  |   | Measured Outcome   |                         |
|---|------------------------------|---|---|---|---|--|---|--|-------------------------|
| Change in Access levels to health care for staff & families | Access to Health Care        | → | Ecolodge benefits from, and has responsibilities for, the good health of their employees and their families               | An important aspect of good health is access to adequate health services        | The Ecolodge is able to increase the number of people with access                                   | →  | Change in community health indicators   | Calculation Credibility  |                         |
|   |                              |   |   | ↑   | ↑   |  | ↓   |  |                         |
|   |                              |   |   | Baseline % of community with adequate access to health care                     | % of national staff with adequate access to health care   |  | # of people who gain adequate access to health care because of the Ecolodge                   |  |                         |
|   |                              |   |   | 43%   | 75%   |  | 27  |  |                         |
| Access to education   | Access to education          | → | Improving access to education for children of both genders is an effective way to provide long-term community development | Often it is an economic decision to not send a child to school                  | By employing people above the poverty line, the means will exist for more children to finish school | →  | Change in access to education   | Calculation Credibility  |                         |
|   |                              |   |   | ↑   | ↑   |  | ↓   |  |                         |
|   |                              |   |   | National Primary School Attendance Rate   | % of Children of Staff Attending Primary School   |  | # of children above the national average who gain access to education because of the ecolodge |  |                         |
|   |                              |   |   | 39%   | 65%   |  | 22  |  |                         |
| Change in staff health & economic indicators                | Malaria                      | → | Preventable diseases such as malaria exact a high economic cost on a family & community                                   | Cost of medical services plus lost wages and opportunity cost have a high price | With a high prevalence & large families the annual household cost can be staggering                 | Simple and effective measures can reduce much of the risk by 66% | →   | Change in staff health & economic indicators   | Calculation Credibility |
|   |                              |   |   | ↑   | ↑   | ↑  |   | ↓  |                         |
|   |                              |   |   | \$ Amount a malarial infection costs a household                                | % of income spent on malaria  | Cost of bed nets & other prevention techniques per employee      |   | Annual Increase in Available Total National Staff Household Income through the use of Bed nets |                         |
|   |                              |   |   | \$37  | 4%  | \$25   |   | \$43,661   |                         |
|   |                              |   |   |   |   |  |   |  | 2.00                    |

## Data Entry

|            |   |  |   |   |   |  |   |  |   |   |  |                                    |   |                    |
|------------|---|--|---|---|---|--|---|--|---|---|--|------------------------------------|---|--------------------|
| Financials | Net Profit  | % Domestic ownership   | Multiplier  | Total Fixed & Variable Costs  | A/P to International Firms  | A/P to National Firms (non-local)  | A/P to Local Firms  | CREDIBILITY RATING                                 |   |   |  |                                    |   |                    |
|            | \$3,233,000   | 80%  | 3.5   | \$4,032,000   | \$604,800   | \$2,620,800  | \$806,400   |  |   |   |  |                                    |   |                    |
|            | 2   | 2  | 4   | 2   | 4   | 4  | 4   |  |   |   |  |                                    |   |                    |
|            | Pro Forma_Year 3 Estimate   | To be determined by Investors                                      | IMF Rwanda Monetary Survey 2005 -08   | Pro Forma_Year 3 Estimate   | Estimated at 15% of Total Costs   | Estimated at 65% of Total Costs  | Estimated at 20% of Total Costs   |  |   |   |  |                                    |   |                    |
| Staffing   | Total Monthly Payroll   | Annual Payroll to International Staff                              | Annual Payroll to National Staff  | Number of National Staff  | Daily Working Wage for Middle Class Earners                                   | % of Rwandans below the poverty line   | % of Savings given as Direct Support to Family & Community Members        | Number of Local Employees Self-Identifying as Hutu | Number of Local Employees Self-Identifying as Tutsi | Number of Local Employees Self-Identifying as Twa | Number of Women Employed                                       | Number of Management Positions     | Number of Women in Management Positions                         | CREDIBILITY RATING |
|            | \$386,879   | \$270,000  | \$116,879   | 86  | \$3.75  | 60.00%   | 75%   | 72   | 12  | 1   | 43   | 9                                  | 5   |                    |
|            | 1.5   | 4  | 4   | 4   | 3   | 1  | 4   | 2.5  | 2.5   | 2.5   | 1  | 4                                  | 1   |                    |
|            | Formula   | Estimate from 5% of workforce with an average salary of \$60K      | Estimate from average annual income in service sector x # of National Staff | Estimate from # of Rooms x Double Occupancy x Occupancy Rate of Year 3 x Staff:Guest Ratio x 95% of workforce Is National Staff | National average for service sector   | From CIA World Factbook  | Estimate  | Estimate from % of Hutus nationally                | Estimate from % of Tutsis nationally                | Estimate from % of Twa nationally                 | Estimate from # of % of national staff x % of women nationally | Estimate from # of employees x 10% | Estimate from # of management positions x % of women nationally |                    |
|            |   |  | Worldbank - Earnings Differences Between Men and Women in Rwanda            | Al Maha eco-resort in Dubai has a benchmark staff: guest ratio of 3:1   | Worldbank - Earnings Differences Between Men and Women in Rwanda              | https://www.cia.gov/library/publications/the-world-factbook/geos/rw.htm#Econ |   | CIA - The World Fact Book                          | CIA - The World Fact Book                           | CIA - The World Fact Book                         | CIA - The World Fact Book                                      |                                    | CIA - The World Fact Book                                       |                    |
|            |   |  |   |   |   |  |   |  |   |   |  |                                    |   |                    |
| Guests     | Average daily spending per lodge guest outside of lodge facilities  | Average daily spending per lodge guest for use of lodge facilities | Number of Guests Per Month  | Number of Room Nights per Month   | % of Room Nights from Guests who come to RW specifically because of the lodge | % of guests who chose the lodge instead of a standard tourist package        | % more an ecotourist spends in country compared to a tourist              | CREDIBILITY RATING                                 |   |   |  |                                    |   |                    |
|            | \$115   | \$690  | 900   | 450   | 50.0%   | 50.0%  | 29%   |  |   |   |  |                                    |   |                    |
|            | 4   | 2  | 2   | 2   | 4   | 4  | 1   |  |   |   |  |                                    |   |                    |
|            | International Ecotourism Society estimates that daily spend is 3:1 internal to external. Because of the lack of external tourism infrastructure in Akagera an adjustment has been made to 6:1 | Hotel Daily Rate / Double Occupancy + Estimated 15% for services   | Room nights per month x 2 guests per room                                   | Number of Rooms x Occupancy Rate * 30 Days  | Estimate  | Estimate   | Nature study travelers vs. non-wildland Travelers (Yuan and Moisey, 1992) |  |   |   |  |                                    |   |                    |
|            | International Ecotourism Society  | Pro Forma Year 3   |   | Pro Forma Year 3  |   |  |   |  |   |   |  |                                    |   |                    |
| Water      | Annual Lodge Consumption in L   | % of Water Use Appropriate for Gray Water                          | CREDIBILITY RATING  |   |   |  |   |  |   |   |  |                                    |   |                    |
|            | 6,264,000   | 50%  |   |   |   |  |   |  |   |   |  |                                    |   |                    |
|            | 3   | 4  |   |   |   |  |   |  |   |   |  |                                    |   |                    |
|            | Estimate from # of guests per month x 12 Months x # of Litres per guest   | Estimate   |   |   |   |  |   |  |   |   |  |                                    |   |                    |
|            | Bali Tourism Development Corporation Green Standard   |  |   |   |   |  |   |  |   |   |  |                                    |   |                    |

|           |   |   |  |  |   |  |   |   |                        |
|-----------|---|---|--|--|---|--|---|---|------------------------|
| Energy    | A/P for Fuel for Generator  | Price of Diesel per Litre   | Annual Electricity Usage in kWh                                      | Annual Diesel Usage for Generator in L                     | Cost of kWh generated by Diesel   | Cost of kWh generated by Solar   | Current Price of CO2 Offset                                 | 1L of Diesel to CO2 MT                                  | <-- CREDIBILITY RATING |
|           | \$487,231   | \$1.08  | 673,920  | 451,140  | \$0.72  | \$0.30   | \$33.98   | 0.00738   |                        |
|           | 4   | 1   | 1  | 2.5  | 2.5   | 2  | 1   | 5   |                        |
|           | Estimate of 180 kW generator consuming 51.5 L/hr x 24 hours/day x 365 days/yr. x \$/L | 2006 - GTZ International Fuel Prices, Dr. Gerhard Metschies                     | Avg. Annual Hotel Energy Usage (USA) in kWh/sqft x Lodge square feet | A/P for Fuel for Generator / \$/L                          | Operating cost of generator / Usage   | Solarbuzz Distributed Generation   | Closing price on EU ETS March 20, 2008                      | Source?   |                        |
|           |   |   | US EPA, document "Hotel Energy Use Profile"                          |  |   |  |   |   |                        |
|           |   |   |  |  |   |  |   |   |                        |
| Waste     | Tonnes of Solid Waste Collected Monthly   | Cost of clean-up for 1 Ton of improperly dumped waste                           | <-- CREDIBILITY RATING   |  |   |  |   |   |                        |
|           | 5   | \$100   |  |  |   |  |   |   |                        |
|           | 4   | 3   |  |  |   |  |   |   |                        |
|           | Estimate  | Estimate from SVT Group based on study in Mexico                                |  |  |   |  |   |   |                        |
|           |   |   |  |  |   |  |   |   |                        |
| Health    | \$ Amount a malarial infection costs a household                                      | # of sick days taken to care for a malarial infection                           | Cost of bednets for a family of 5                                    | Cost of other malaria prevention measures per staff member | Approximate % of population affected by malaria in a year                                       | Average Family Size  | Baseline % of community with adequate access to health care | % of national staff with adequate access to health care | <-- CREDIBILITY RATING |
|           | \$37.05   | 8   | \$20.00  | \$5.00   | 30.63%  | 5  | 43%   | 75%   |                        |
|           | 2   | 1   | 1  | 4  | 2   | 1  | 4   | 4   |                        |
|           | Direct Costs + Indirect Costs + Lost Income   | PRESIDENT'S MALARIA INITIATIVE, Malaria Operational Plan (MOP), Rwanda, FY 2007 | CDC Foundation   | Estimate   | # of Reported Cases (2003) / Population (2003) x Adjustment for low health services utilization | Government of Rwanda, ECONOMIC DEVELOPMENT AND POVERTY REDUCTION STRATEGY, 2008-2012 | Estimate  | Estimate  |                        |
|           | PRESIDENT'S MALARIA INITIATIVE, Malaria Operational Plan (MOP), Rwanda, FY 2007       |   |  |  | Global Health Reporting   | Focus International  |   |   |                        |
|           |   |   |  |  | Nations Encyclopedia  |  |   |   |                        |
|           |   |   |  |  | PRESIDENT'S MALARIA INITIATIVE, Malaria Operational Plan (MOP), Rwanda, FY 2007                 |  |   |   |                        |
|           |   |   |  |  |   |  |   |   |                        |
| Education | National Primary School Attendance Rate   | % of Children of Staff Attending Primary School                                 | Average Monthly School Fees  | <-- CREDIBILITY RATING                                     |   |  |   |   |                        |
|           | 39%   | 65%   | \$17   |  |   |  |   |   |                        |
|           | 1   | 4   | 1  |  |   |  |   |   |                        |
|           | World Bank World Development Indicators Database                                      | Estimate  | Educating Rwanda Funds   |  |   |  |   |   |                        |
|           |   |   |  |  |   |  |   |   |                        |
| Poaching  | Park value lost for every lion that is poached  | Annual lion kills baseline  | Annual lion kills after anti-poaching programs                       | Park value lost for every elephant that is poached         | Annual elephant kills baseline  | Annual elephant kills after anti-poaching programs                                   | <-- CREDIBILITY RATING                                      |   |                        |
|           | \$27,000  | 10  | 6  | \$50,000   | 5   | 3  |   |   |                        |
|           | 1   | 4   | 4  | 1  | 4   | 4  |   |   |                        |
|           | Rwanda Development Gateway Website  | Estimate  | Estimate   | Rwanda Development Gateway Website                         | Estimate  | Estimate   |   |   |                        |
|           |   |   |  | Elephant Family Structure                                  |   |  |   |   |                        |
|           |   |   |  |  |   |  |   |   |                        |