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Case Study

THE CORPORATE ECOSYSTEM SERVICES REVIEW CASE STUDY: ANDRÉ MAGGI GROUP

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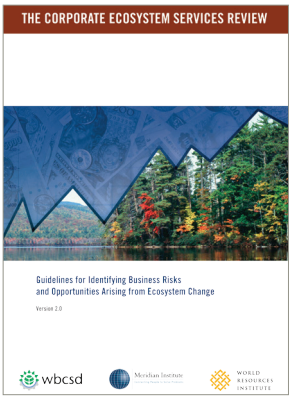

The Corporate Ecosystem Services Review (ESR) is a proven 5-step method to help managers identify business risks and opportunities arising from their dependence and impacts on ecosystem services. This case study describes one company's experience and results in applying the ESR.

This case is an accompaniment to The Corporate Ecosystem Services Review Version 2.0 (2012), which is available online at www.wri.org/ecosystems/esr. It was produced in association with CEBDS, GVces, and USAID.

WHY ANDRÉ MAGGI GROUP IS USING THE ESR

The André Maggi Group is a Brazil-based corporation operating in the agriculture sector. Its activities include soy seed production and origination, grain processing and marketing, inputs, energy, port management, and river transport. The André Maggi Group is using the Corporate Ecosystem Services Review (ESR) to tackle strategic energy supply challenges for soy processing facilities. Through the process, the corporate sustainability and operations teams joined forces to develop a more resilient and economical biomass fuel procurement strategy for their operations in their unit located in Itacoatiara in the state of Amazonas.

GETTING STARTED

The sustainability team at André Maggi Group involved many corporate divisions to co-own the ESR by analyzing and determining the best application for the ESR. The ESR team comprised the company's chief operations officer, sustainability manager, and social responsibility supervisor, as well as environmental supervisors, specialists, analysts, chemical engineers, forest engineers, and administrative and financial specialists.

André Maggi Group conducted the ESR as part of a Brazilian business sustainability initiative named Parceria Empresarial pelos Serviços Ecossistêmicos (PESE), a partnership among companies and civil society to demonstrate the benefits of ecosystem services in Brazil. The eight companies participating in PESE executed ESRs at the same time. Periodic PESE meetings allowed the companies to discuss experiences and learn from each other.

STEP 1. SELECT THE SCOPE

To keep the ESR process focused and manageable, the first step is to select a scope of assessment that is strategic, timely, and internally supported by the company.

André Maggi Group has two soy crushing facilities in its soy processing division. These facilities are located in Itacoatiara (AM) and Lucas do Rio Verde (MT). Part of the soymeal and oil produced supplies the domestic market, while the remaining production is exported to the European, Australian, and Eastern markets.

André Maggi Group's ESR team decided to focus their scope of assessment on a major soy processing plant in Itacoatiara in the Brazilian state of Amazonas. Located in the Amazon forest, the plant carries out fundamental soy production processes. The facility uses wood biomass fuel to power on-site operations. Wood biomass fuel is a renewable and climate-friendly energy source. The team focused on the next ten years of the Itacoatiara facility's medium-term investment strategy and plans, and honed in on the issue of energy supply, which several corporate divisions were interested in examining.

STEP 2. IDENTIFY PRIORITY ECOSYSTEM SERVICES

To focus on the ecosystem services most relevant to business performance, the second step of the ESR is to prioritize a few key ecosystem services by evaluating the degree of the company's dependence and/or impact on more than 20 ecosystem services relevant to the scope under assessment.

Using the ESR's dependence and impact assessment tool, André Maggi Group's ESR team identified the following ecosystem services at the production plant as the highest priority:

- *Biomass fuel*. Because the Itacoatiara facility uses biomass fuel to power on-site operations and for drying grains, the ecosystem service of biomass fuel was identified as a priority issue (AMG 2011). The plant uses wood biomass sourced primarily from forests in Pará and Rondonia states and shipped to Itacoatiara. Currently, there is no cost-effective substitute for biomass fuel for the company's purposes.
- *Freshwater*. The facility depends on freshwater for generating steam for soybean oil extraction and other processes, and also uses the nearby river for transporting wood fuel, soybeans, and other inputs to the factory.
- *Local climate*. The growth productivity of André Maggi Group's biomass sources, such as native timber, eucalyptus, and soy husk, is dependent on local rain and weather conditions, which healthy ecosystems help moderate. Moreover, recent deforestation and its impact on local climate change have contributed to more erratic and severe floods and droughts, which have affected transport of wood fuel by river (Marengo et al. 2011; AMG and GVces 2013).
- *Regulation of soil erosion*. The team identified regulation of soil erosion as a priority ecosystem service due to its role in securing access to biomass fuel. The ability of the local ecosystem to control soil erosion is critical to the productivity of tree growth.
- *Impacts on habitat*. Lastly, sourcing wood biomass from various forest types can positively or negatively impact habitat. Sustainable biomass production depends on a healthy habitat for maximizing the regeneration capacity of the trees, which ultimately determines the cost-effectiveness of biomass development.

All of these priority ecosystem services are either direct or indirect inputs to the company's main energy source at Itacoatiara. Freshwater, local climate, soil health, and habitat all contribute to wood biomass production. These resources can be degraded or enhanced based on forest management and biomass extraction practices. For example, deforestation and illegal logging can degrade ecosystem services and potentially undermine the long-term viability of local biomass productivity, while creating short-term reputational risks to companies consuming illegally harvested biomass. On the other hand, sustainable forest management or responsible utilization of degraded land to produce wood biomass presents opportunities to enhance these ecosystem services in ways that can extend benefits to local communities.

STEP 3. ANALYZE TRENDS IN PRIORITY ECOSYSTEM SERVICES

Step 3 of the ESR guides an analysis of the conditions and trends in ecosystem services, as well as drivers of environmental change that significantly influence those trends.

In ESR Step 3, the company team analyzed the status and future trends of various sources of biomass fuel. The team then compared the economic, logistical, environmental, and social implications of alternative options.

Forest and Sawmill Residue

Forest residue consists of the limbs, tops, and other materials left on the forest floor after a logging operation has cleared a managed woodland. Sawmill residue refers to the slabs, shavings, and sawdust that results from lumber processing. These residues have high-energy production efficiency by volume.

The team predicted a declining supply of sawmill and forest residue due to efficiency gains in timber and lumber processing, leaving less residue to be sold as biofuel. In addition, biomass suppliers who illegally harvest biomass are outcompeting sustainable biomass suppliers. As a possible result, some of the legally compliant companies—from whom the company purchases biomass—may go out of business, further reducing the supply of sustainably produced biomass.

Reforested Wood

André Maggi Group has a local reforestation operation for the harvesting and planting of wood to be used as biofuel at the Itacoatiara plant (AMG 2011). The area comprises 123 hectares allocated to acacia and 25 hectares to eucalyptus. The softwood biomass from this project burns less efficiently than forest and sawmill residue, but offers the company a more secure alternative to procuring biomass on the open market.

André Maggi Group developed this pilot project to further understand the costs and benefits of self-managing sustainably farmed biomass. Scaling up this model could be challenging, however; some states have slow and uncertain land use permitting processes that can dissuade private sector investments in reforestation projects.

Soft and Low-Density Forest Material

Low-density forest material is typically produced from forest areas being cleared for economic development. Although this biomass source is cheaper, it has low calorific content by volume and burns inefficiently. Furthermore, it is not possible to predict the local supply in the future.

Other Trends Affecting Biomass Supply

It is expected that a power line will be developed in the region that will be accessible to the Itacoatiara facility by 2015. This new source of power will allow André Maggi Group to replace the portion of biomass supply currently used to generate electricity. However, wood burning for drying grain cannot be substituted, so the company will continue to depend on biomass fuel.

STEP 4. IDENTIFY BUSINESS RISKS AND OPPORTUNITIES

Step 4 of the ESR focuses on evaluating how trends in ecosystem services can impact the company, either positively or negatively.

A variety of business-related risks and opportunities surfaced from André Maggi Group's ecosystem trends analysis. These risks and opportunities apply to any company using biomass fuel in the Brazilian Amazon region.

Illegal Sources of Biomass May Bring Negative Media and Environmental Fines

Timber trade in Brazil lacks the transparency and governance enforcement practices to provide a completely risk-free biomass market. As a result, companies sourcing biomass need to invest considerably in due diligence to ensure the biomass supply does not come from companies that employ environmentally degrading harvesting practices or source their wood supply through illegal deforestation, which could lead to high fines and reputational damage to the company.

Climate Change-induced Droughts Threaten River Transportation for Biomass Supply

Climate change is increasing the incidence of serious droughts in the Amazon region—one-in-a-century events that disrupt river transportation due to critically low water levels in main waterways are now happening at a much higher frequency, and are expected to be stronger and more frequent over time (Marengo 2011). Since companies rely on river barges for transporting biomass in the Amazon, this may disrupt or increase logistics costs in the biomass supply chain.

Sourcing Biomass from Local Reforested Areas Reduces Supply Risks

Corporate management of reforestation areas for their own biomass harvest provides a guarantee of legal and sustainable production of biomass. In addition, local production reduces transportation costs and supply risks. The increasing uncertainty of credible biomass supply—identified during the André Maggi Group team's step 3 analysis—poses operational risks for the company that can be offset by increasing their own biomass production.

Climate Change and Degraded Soil Complicate Productivity of Reforested Areas

Ecosystem trends—such as shifting precipitation patterns and soil degradation—are under way in the Amazon region. Both trends could lead to longer tree growth periods, especially for eucalypt and acacia, increasing operational costs for biomass supply. In addition, unclear property rights and poor enforcement in the Amazon region make it difficult to expand biomass production operations there.

STEP 5. DEVELOP STRATEGIES

Step 5 of the ESR focuses on creating new business strategies that address the risks and opportunities identified in the previous step. Actions can be grouped under three categories: internal changes, external engagement with stakeholders or sector players, and public policy engagement.

Based on these risks and opportunities, the André Maggi Group's ESR leadership team developed various ideas and strategies to consider for confronting the future challenges of their biomass energy supply and further understanding the environmental, social, and economic consequences of alternative procurement strategies.

The company is currently vetting and developing detailed descriptions of these alternative biomass procurement strategies. The team is also examining opportunities to apply ecosystem service assessment in other aspects of the company.

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