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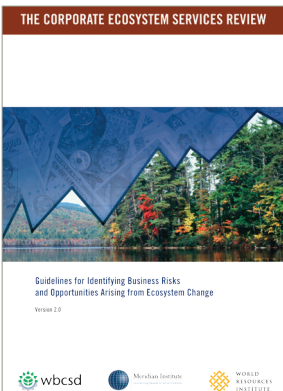# THE CORPORATE ECOSYSTEM SERVICES REVIEW CASE STUDY: WALMART BRAZIL

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THE CORPORATE ECOSYSTEM SERVICES REVIEW

Guidelines for Identifying Business Risks
and Opportunities Arising from Ecosystem Change
Version 2.0

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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
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WHY WALMART BRAZIL IS USING THE ESR

Brazil is the second largest producer of beef in the world; according to the Ministry of Agriculture, in 2020 Brazil will be responsible for an estimated 44 percent of global meat production. Over the past 20 years, about 10 percent of the Brazilian Amazon forest was lost, and more than half of this loss was due to the conversion of the forest to cattle pasture (Faminow and Vosti 1998). By 2020, Brazil is seeking to reduce the national deforestation rate by 80 percent from historic levels in order to achieve the greenhouse gases (GHG) emissions reduction target established by the National Climate Change Policy (Brazil 2010). While the country has made significant progress toward this goal already—it has already reached 76 percent of the target for reducing deforestation—there is still a need to improve and expand the sustainable production of beef.

Walmart Brazil is a major beef retailer in Brazil. A significant portion of its beef is procured from the Amazon Basin, which has one of the largest cattle herds in Brazil and a significant number of slaughterhouses. By 2015, the company has committed to not buy any beef from deforested areas in the Amazon in its global operations (Walmart 2010). This ambitious commitment sets Walmart Brazil apart as a leader, but also creates a risk of scarcity for the company and possibly increasing logistics costs. Will enough beef be available to meet Walmart Brazil's zero deforestation commitment by 2015, and where will it come from?

Rising to the challenge, Walmart Brazil is proactively working toward new solutions to scale up sustainable cattle ranching in Brazil. Natural ecosystems and sustainably managed pastures can play a role in the sustainable development of the Amazon by (a) protecting water resources in terms of quantity and quality, (b) improving soil physical and chemical properties, and (c) maintaining a stable climate. Managing these ecosystem services offers opportunities to shift to a more sustainable livestock production system, which is good both for business and the environment.

Walmart Brazil applied the Corporate Ecosystem Services Review (ESR) to evaluate how ecosystem change will impact beef production in the Amazon and consequently its supply of beef products. Walmart Brazil joined a Brazilian business sustainability initiative called Parceria Empresarial pelos Serviços Ecossistêmicos (PESE), a partnership among business and civil society to demonstrate the business benefits of ecosystem services. Through the ESR, Walmart Brazil was able to design a strategy to contribute to the sustainable development of its beef value chain.

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.

Walmart Brazil applied the ESR on its beef supply chain in the Amazon Biome, with a focus on the municipality of São Felix do Xingu in the state of Pará, an agricultural frontier with the highest rate of forest conversion to pasture. Although this municipality used to be mostly contiguous Amazon rainforest, today 20 percent of its area is composed of farmland and settlements (INPE 2012). This region has the highest density of cattle in the world. It is very visible in the national and international media, making it a strategic place for the company to be proactive in its beef sustainability commitment. The ESR had scoped to the meat product, produced in São Félix do Xingu.

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 analysis.

Walmart Brazil's ESR team held internal meetings—as well as meetings with important stakeholders—on this issue in São Felix do Xingu to fill out the ESR Dependence and Impact Assessment Tool. Four key ecosystem services were identified:

Maintenance of soil quality. Pasture, and therefore cattle and beef productivity, requires good pastures and soil quality. Poor pasture management practices in the region jeopardize local soil quality. Some farmers in the region employ more sustainable pasture management practices, enhancing this ecosystem service.

Water purification and waste treatment. Good water quality keeps cattle healthy and therefore improves production. The local ecosystem's ability to filter pollutants from water therefore provides a benefit to Walmart Brazil's beef suppliers. However, poor pasture and cattle management practices, as well as beef-packing activities, could potentially erode soil and release waste that negatively impacts water bodies.

Climate change: global, regional, and local. Ecosystems influence the global climate by emitting or absorbing greenhouse gases or aerosols from the atmosphere. Ecosystems also play a role in maintaining local or regional temperature, precipitation, and other climatic factors. Extreme climate events like severe drought and floods jeopardize beef production. On the other hand, conversion of native vegetation to cattle farms contributes to climate change due to carbon emissions from deforestation as well as enteric methane emissions.

Freshwater provision. Cattle and pastures are highly dependent on water, which is also important for the region's beef-packing plants. Cattle and pastures also can impact freshwater through pollution or changing water runoff patterns through land use change.

STEP 3. ANALYZE TRENDS IN PRIORITY ECOSYSTEM SERVICES

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

Ecosystem services provided by natural areas are declining in the region of São Félix do Xingu. These trends are expected to continue.

Climate and water. Walmart Brazil's ESR determined that water is currently plentiful in São Félix do Xingu. However, deforestation and climate change may alter the local patterns of the Amazon's hydrological cycle; the consequent reduced rainfall could in turn undermine the viability of some frontier farms in other ecosystems (Senna et al. 2009). If current trends continue, some climate and land use models suggest that most of Pará's land area will be either deforested or shifted to a dry savannah ecosystem by 2030 (Nepstad et al. 2008; Marengo et al. 2011; Saatchi et al. 2013). This implies less water availability, more erratic climate, and changes to soil chemistry that could present risks to pasture growth, thus affecting cattle ranching and the communities of São Félix do Xingu.

Soil fertility. Correspondence with The Nature Conservancy (TNC) and other local stakeholders indicated that the chemical properties of the soils in São Félix do Xingu are poor, but with good physical properties such as drainage and porosity. The low fertility implies that the carrying capacity of the pastureland (density of cattle per hectare the land can support) has the potential to be increased through nutrient management.

Direct drivers of these trends

Deforestation. With an average annual deforestation rate higher than 1,000 km² in the last decade, São Félix do Xingu is the leading municipality in Brazil in terms of deforestation—primarily due to ranching (INPE 2012). Forest loss has dropped considerably in this region in recent years, but the threat of further deforestation still remains. The cattle herd is expected to increase over the next few years, creating potential for further local forest loss in three main ways:

- Poor pasture management practices cost the ranchers less in the short term, but they degrade the land and consequently give rise to deforestation.

- Most of the pasture grasses used in the Amazon are exotic invasive species. Pasture ecosystems have been documented to spread into unopened forest and to be more susceptible to fire events than natural forest ecosystems, contributing to unintentional deforestation (Nepstad et al. 2008).

- The local demand for food—driven by the construction of new infrastructure projects such as new mines and dams—drives the growth of the cattle industry in the region. Discussions with other stakeholders indicated that new mines opening in the area will potentially increase immigration, which could lead to further forest loss with the development of new settlements.

Indirect drivers of these trends

Unclear land tenure and challenges with land use permitting processes in Pará are indirectly linked to São Félix do Xingu's pattern of deforestation (Imazon 2013). The adoption of sustainable farming practices, sustainable intensification, and the responsible utilization of degraded lands would go far in diverting pressure on the forest frontier, as well as maintaining ecosystem services and bolstering business performance. However, adoption of such practices is slow for the following reasons, among others:

Lack of traceability in the supply chain. Without better information regarding which areas are at risk of deforestation and which management practices could be improved, it is difficult for companies like Walmart Brazil to know where to target their sustainability efforts, and also problematic as to how to verify the sustainability of their products. Pará has strongly promoted the Rural Environmental Registry and started the Green Municipalities program, aiming to leverage the landholders and rural farms registry to monitor deforestation and environmental licensing at farm-scale and to support decisions regarding credit-line concessions and more responsible supply chain management of agricultural commodities, including beef.

Insufficient incentives. The federal Low-Carbon Agriculture (ABC) program allocated US\$1.6 billion in available credit for low-carbon agriculture practices—such as restoration of degraded land, commercial tree plantations, and no-till agriculture—in the 2011–12 harvest year. These funds could help cattle ranchers in São Félix do Xingu transition to more sustainable ranching models that meet Walmart Brazil's sustainability criteria for beef. However, due to difficulties related to environmental licensing and land-tenure issues, the program only disbursed 12.5 percent of its annual target of low-interest loans in 2011, and the program's potential remains untapped (Stabile et al. 2012).

STEP 4. IDENTIFY BUSINESS RISKS & OPPORTUNITIES

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

In Step 4, Walmart Brazil's ESR team organized an evidence base that shows the operational and reputational benefits of sustainable beef production for the company.

The most significant risk discussed in Step 4 is the scarcity of beef that meet the criteria established in the deforestation-free beef goal. This risk is intricately linked to poor management of ecosystem services in the region. Cattle ranching is the primary source of deforestation because of low productivity in the region caused largely by poor pasture management practices, which thus require extensive areas of pasture to compensate for the low productivity in order to increase the beef supply—resulting in further deforestation.

The combined future trends—the increasing size of the cattle herd, increasing population, and declining ecosystem stability—are leading to the following challenges in São Félix do Xingu:

- Increased scarcity and competition for water and rising costs of water treatment
- More severe and less predictable floods and droughts as extreme climatic events.
- Soil quality (physical and chemical) degradation.

These challenges could present risks to Walmart Brazil's beef supply chain in terms of increased costs, decreased viability, or increased reputational risk (negative image) due to continued deforestation linked to beef production.

The main opportunity identified to combat this risk is to inform and proactively influence the behavior of beef suppliers and customers, so that beef that meets Walmart Brazil's sustainability criteria is preferred by customers and is in the suppliers' own interests. Producers could shift to more sustainable models of agricultural production to protect ecosystem services and boost their business performance. For example, producers could sustainably intensify their operations. They could commit to restoration of degraded areas, including improvement of pastures through better cattle management and weed control, among other tactics. This could increase the quantity of beef that meets Walmart Brazil's criteria. It would also benefit Walmart Brazil's image by making progress on their commitments and tackling a major environmental issue in Brazil.

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.

The Walmart Brazil ESR team recognized that to meet their global target of eliminating deforestation from the company's beef supply chain by 2015, the company must proactively work to support establishment of new models of cattle ranching that relieve pressure on ecosystems and reverse the trend of deforestation, but also make business sense for beef suppliers. The following corporate efforts, combined with improved government enforcement and utilization of existing incentive programs, could shift Amazon beef production to a more sustainable path.

In order to support this shift, the following ideas were discussed:

- *Develop a zero-deforestation beef brand.* Walmart Brazil could develop a zero-deforestation beef brand that ensures good environmental practices in the Amazon. This differentiated brand could promote sustainable development of the region and build "loyalty" throughout the value chain.

- *Expand knowledge and incentive programs.* Walmart Brazil can help expand knowledge and incentive programs for sustainable agriculture, targeting areas where they would be most effective. For example, Walmart Brazil is already collaborating—with The Nature Conservancy (TNC), the beef processing company Marfrig, and ranchers in São Félix do Xingu—to develop a new model of responsible beef production that contributes to the preservation of the Amazon without reducing beef supply and productivity. Along these lines, the company will continue to support and align with other programs that are creating the conditions necessary to scale up sustainable beef production in Brazil, such as CAR, the ABC program, the Brazilian Roundtable on Sustainable Livestock, and the Global Roundtable for Sustainable Beef.

- *Invest in monitoring tools.* Walmart Brazil could invest in monitoring tools that guarantee the purchase of products free from deforestation. For example, Walmart Brazil is investing in a monitoring system that contributes to the attainment of tenure and CAR and to the sustainable development of the value chain, accelerating the registration process and securing access to verifiably sustainable beef. Walmart Brazil's planned system for monitoring and management of social and environmental risks of the beef chain could include ecosystem service considerations going forward.

CONCLUSION

Walmart Brazil is taking on a challenge that many companies face regarding how to motivate indirect suppliers to adopt environmentally and socially responsible business practices. Because commodity supply chains are so complex, beef and other agricultural producers are not often directly subject to "green" customer preferences that motivate other companies to ramp up environmental efforts. The results of Walmart Brazil's ESR reinforced the business importance of the company's ongoing pilot projects to build information on responsible ranching models, as well as efforts to increase supply chain monitoring. The ESR also provided a platform to discuss new ideas, such as a differentiated product line and how to develop an environmental and social risk monitoring toolkit.

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