

Stevia One Project: Production and Industrialization of Natural Sweetener

Peru

ENVIRONMENTAL AND SOCIAL STRATEGY¹

I. PROJECT OVERVIEW:

- 1.1 Stevia One Peru SAC (“Stevia One” or the “Company”) is developing an integrated agro-industrial project to produce a high-purity and non-caloric natural sweetener known as Rebaudioside A (“Reb-A”) that is increasingly used as an additive in the food and beverage industries. Reb-A is derived from the leaf of the Stevia Rebaudiana (“Stevia”) plant. The Company plans to invest US\$66 million to: (i) acquire land and develop 1,000 hectares (ha) of Stevia plantations; (ii) implement water drip irrigation systems and mechanized harvesting; (iii) develop a Stevia tissue culture laboratory for propagation of Stevia plantlets; and (iv) build a Reb-A extraction and refining facility capable of processing up to 12,000 metric tons of Stevia leaf (collectively, the “Project”)².
- 1.2 Stevia One was founded in 2009 and its current shareholders are Saverco NV (80%) and a Peruvian shareholder (20%) with field expertise in Stevia agronomics (the “Shareholders”). Saverco is a Belgian family-owned company with large interests in global maritime shipping businesses, and the sponsor of Durabilis NVSO, a private foundation that invests in and manages several small-scale sustainable agribusiness projects in Latin America and Africa.
- 1.3 The Project is located in the San Martin region in northern Peru, where climatic conditions have proven conducive to growing high-yielding Stevia.³ Following four years of agronomic trials utilizing tissue culture-based Stevia propagation and drip irrigation, the Company has planted 90 ha of a Stevia variety that shows one the industry’s highest annual leaf yields of 10.50 ton/ha, and average overall Reb-A content of 13% of the leaf.⁴ Of its expected total capital contribution, the Company has already invested to purchase 600 ha of land, machinery, irrigation systems and to develop Stevia plantations.

¹ This Environmental and Social Strategy (ESS) is being made available to the public in accordance with the Bank’s Policy on Disclosure of Information. The ESS has been prepared based primarily upon information provided by the project sponsors and does not represent either the Bank’s approval of the project or verification of the completeness or accuracy of the information. The Bank as part of its due diligence on the feasibility of the project will assess the environmental and social aspects.

² Stevia is a small shrub like perennial plant, whose leaves are a source of natural zero-calorie sweetener. The leaf has 10 compounds known as steviol glycosides responsible for the sweet taste of the leaves, which add sweetness in a range of 40 to 300 times more than sugar, and that are not assimilated by the human body. Reb-A is one of these compounds, with the sweetest and the least bitter taste.

³ The warmth of the climate in the region is expected to produce between 4 and 6 harvests of Stevia leaf per year, providing a year-round leaf supply. Stevia plants are productive for 3-4 years, before replanting is necessary, therefore providing up to 24 harvests from a single planting cycle. In China, the largest leaf supplier, Stevia leaf is typically harvested only twice a year, thus yielding 1.9-3.5 tons/year/ha of leaf.

⁴ Plant tissue culture is a practice used to propagate plants under sterile conditions, often to produce clones of a plant.

- 1.4 Stevia One is evaluating proven Reb-A extracting and refining technologies under turn-key arrangements.⁵ It expects that large-scale Stevia plantations and control over its own supply chain and leaf quality will be major competitive advantages. Today, an estimated 90% of the world's commercial Stevia is grown in eastern China by individual farmers.
- 1.5 Stevia One plans to develop 240 ha of Stevia by year-end 2011. While the plantations scale up to 1,000 ha and an on-site extracting and refining facility is built over a period of 2 years; the Company will enter into an agreement (the "Service Agreement") to supply dry Stevia leaves to Chinese sweetener manufacturers, to refine them into Reb-A for commercialization.⁶ Upon completion of its vertical integration, Stevia One will secure long-term supply contracts for high purity Reb-A with food and beverage manufacturers like Cargill, Coca Cola, PepsiCo, and Nestlé, which increasingly use all-natural, low-calorie sweeteners in their products.
- 1.6 Stevia One will employ 350 people, primarily in the fields but also in laboratory and administration positions. As the Company completes its vertical integration, it expects to generate an additional 200 jobs. Furthermore, the Company's business philosophy of sustainable production of socially responsible and local value-added products also supports the human capital development of its workforce.
- 1.7 Reb-A has a negligible effect on blood glucose, hence it is attractive as a natural sweetener for diabetics and beneficial in weight management to people on carbohydrate-controlled diets. Thus the Bank's support would not only enhance the Project's sustainability operations and contribute to the further industrialization and diversification of the agriculture sector in Peru, but also help promote solutions to some health conditions.⁷

II. REGULATORY FRAMEWORK

- 2.1 Considering Peruvian environmental regulations, it is estimated that an environmental impact assessment will be required and any other environmental permits according to the forestry and water resources regulations. In a similar way, the national archeological authority needs to be notified in the presence of any historical, archeological or paleontological site is found during the preparation of the 1000 hectares for the cultivation of stevia.
- 2.2 After extensive study, the Joint Expert Committee on Food Additives (JECFA) administered by the World Health Organization and the Food and Agricultural Organization of the United Nations (FAO), published in 2008 approval for human consumption of Stevia derivatives⁸. On December 2008, the U.S. Food and Drug

⁵ To produce Reb-A commercially, Stevia leaves are dried and then subjected to a water-based extraction process. The resulting crude extract is about 50%-70% Rebaudioside-A, which is then refined again using ethanol, methanol crystallization, and other patented technologies to separate molecules and isolate pure Rebaudioside-A from the steviol glycoside extract.

⁶ The initial term of the Service Agreement is six months; however it may be extended prior agreement of the parties. The nature of the Service Agreement consists of extraction and refining services only and delivery of Reb-A (the finished product) to Stevia One warehouse in China. Stevia One will form an export/import trading subsidiary in Hong Kong to commercialize the Reb-A in the Chinese market.

⁷ The MIF has a Technical Cooperation in Paraguay to support 2,000 small Stevia producers (AT-ME-11677-PR). The TC is in the implementation phase.

⁸ http://www.fao.org/ag/agn/agns/files/jecfa69_final.pdf

Administration (FDA) approved the use of high quality Stevia extract (Reb-A 95) in food and beverages.

- 2.3 The use of Stevia derivatives has been approved in all major markets, except throughout the European Union (France is the exception which approved its use in 2009). However, following last July 2011 vote of the EU's Standing Committee on Food Chain and Animal Health to recommend the approval of Steviol glycosides; regulatory approval in the EU Member States is expected by December 2011.
- 2.4 Further regulatory approval of Reb-A and other Stevia-derived sweetener products such as Stevia extract is important for the market to further develop. While in many countries, Stevia was initially approved as a health supplement, substantial medical and lab-based study has been required in each jurisdiction prior to approval for its use as an ingredient in mainstream food and beverage products.
- 2.5 **Relevance to country and sector strategy.** The Project is consistent with the IDB Peru Country Strategy (2007-2011), approved by the Board of Executive Directors in April, 2008 (GN-2472-2), which calls for support by the Bank of the competitiveness of the agribusiness sector. The proposed Project is consistent with the SCF vision targets related to positively impacting people's livelihoods, through its creation of employment and the health benefits of Stevia derivatives.
- 2.6 **IDB's Environmental and Social Policies:** according to IDB's Environmental and Social Compliance Policy (OP-703), this Project was categorized as Category B, medium to high risk Project for the potential impacts and risks related to critical and natural habitats; and the affectation to indigenous communities and vulnerable small producers. The policies and directives triggered were the followings: B.4 other risks; B.5 environmental impact assessment or environmental analysis; B.6 public consultation; B.9 natural and critical natural habitats; B.10 waste management; B.11 agrochemicals and other hazardous substances. Also are activated the Indigenous Policy (OP-765); public information disclosure (OP-102); gender equality (OP-270); and management of risks for natural disaster policy (OP-704).

III. ENVIRONMENTAL AND SOCIAL CONTEXT:

- 3.1 The project is located in the San Martin Department in Northern Peru, in the districts of Alto Mayo Norte, Rioja and Moyobamba where cultivation of stevia will be undertaken on already deforested areas, on marginal lands that were formerly covered by tropical Amazon rainforest at an elevation of 900 meters above sea level. The type of vegetation found in the valley areas where cultivation will take place were once considered natural habitats, that includes broadleaf tropical Amazonian forest and Yungas forest in the Western edge of the Peruvian Amazon. See Annex I.
- 3.2 However, it is important to note that in the San Martin Department, there are several protected areas that covers a significant portion of the department, which includes the following: i) *Parque Nacional Rio Abiseo*, a World Heritage Site; ii) *Cordillera Azul* National Park; iii) *Moyobamba* IBA; and iv) *Alto Mayo* Protection Forest. See Annex I and II.

- 3.3 The San Martin Department has a total extension of 51,253 Km² and 728,000 inhabitants, which equals to 14.2 inhabitants per square kilometer, one of the least populated areas of the country that was significantly affected by violence, crime and illegal activities during the Peruvian civil war, especially during the 1990s. The region also has a significant indigenous population from Amazonian and Andean origins; many of them were displaced from other regions as a result of the mentioned instability that affected the entire country for decades.

IV. ENVIRONMENTAL AND SOCIAL IMPACTS AND RISKS:

- 4.1 The impacts expected for this Project are minimal since the company will purchase most of the needed lands for its operations from degraded marginal lands that were already deforested by other stakeholders during the past decades. The project is not planning to deforest additional areas or use manual labor. Most activities will be mechanized. There are however, several risks related to any similar agriculture endeavor in the tropics. The **main environmental and social impacts and risks** associated with this Project are the following:
- 4.2 **Conversion of Natural Habitats:** the Project will not affect directly any protected area or critical natural habitat or cultural site. It is not planned to deforest additional areas of native forest since the project will only use around 1,000 hectares of degraded marginal lands. However, there is a potential risk for indirect and cumulative impacts resulting from the economic growth and increasing value to the nearby lands that could generate deforestation.
- 4.3 **Soil Erosion and water contamination:** considering the type of soil and the high rainfall during the humid season and during land preparation for cultivation, soil erosion and water contamination may occur if appropriate measures are not taken. It is unknown the level of impacts on underground or aboveground water systems, but it is estimated that this impact will be of low geographic extension, moderate intensity and highly reversible if appropriate measures are taken into practice.
- 4.4 **Potential Contamination for the Use of Agrochemical and waste generation:** as in any agriculture project, it is expected the use of fertilizers, acidity correctors, insecticides and fungicides for pest control. However, considering the type of cultivation and the implementation of best agriculture practices, the use of such products and the generation of wastes will be low to moderate.
- 4.6 **Social Impacts:** it expected that this project will be very positive considering the job opportunities and economic growth that will generate in the entire region. Stevia One will employ 350 people, primarily in the fields for cultivation activities but also in laboratory and administration positions. As the Company completes its vertical integration, it expects to generate 200 additional jobs. Furthermore, the Company's business philosophy of sustainable production of socially responsible and local value-added product also supports the human capital development of its workforce. Currently,

all the 22 tissue culture lab technicians are local workers with no secondary education but trained by the Company. It is expected that the Project would give direct and indirect income opportunities to women and indigenous communities, especially during the operation phase of the project.

- 4.7 **Risks related to natural disasters:** the area is prone to several natural disaster including flooding, landslides and earthquakes. However, the risks to this initiative are low considering the type of cultivation, and the minimal construction of infrastructure as part of the project.
- 4.8 **Other risks:** there are potential reputational risks and liabilities to the Bank for this project since there is a weak institutional capacity and political instability in the area where the consequences of several years of social and political conflicts still are under effect. Also, there are risks associated to illegal activities in the area of influence of the Project.

V. ENVIRONMENTAL AND SOCIAL STRATEGY:

The following is a list of activities that should be included as part of the strategy for the due diligence and the environmental and social analysis that will be undertaken for this initiative:

1. An assessment of Project compliance status with the applicable Peruvian (national, provincial, municipal, local) environmental, social, and health and safety regulatory requirements (e.g. laws, regulations, standards, permits, authorizations, applicable international treaties/ conventions, etc.), project specific legal requirements (e.g. concession contract, etc.), and any applicable Bank environmental and social policy or guideline.
2. An evaluation of the company's environmental, health and safety management systems, including plans and procedures, responsibilities and resources, training, auditing, and reporting, and in particular all the system components necessary to ensure future projects and works which will be implemented will not generate negative impacts and risks.
3. An evaluation of the proposed Project to confirm that the project's direct and indirect cumulative environmental and social impacts have been properly identified and evaluated.
4. An evaluation to ensure adequate environmental and social mitigation measures and monitoring, in terms of their completeness, sufficiency of detail, "implementability," cost, definition of responsibility, schedule, and quality control.
5. A determination of key indicators and requirements for the project execution, complete with timelines and milestones.
6. An evaluation to ensure adequate health and safety plans and procedures, including their technical adequacy given the potential project-specific health and safety risks, adequate level of training will be performed, and sufficient resources will be made available to ensure adequate implementation.
7. An evaluation to confirm an acceptable corrective action plan, as necessary, in order to correct or mitigate any existing environmental, social, or health and safety non-compliance or liability associated with the existing Project and company assets.

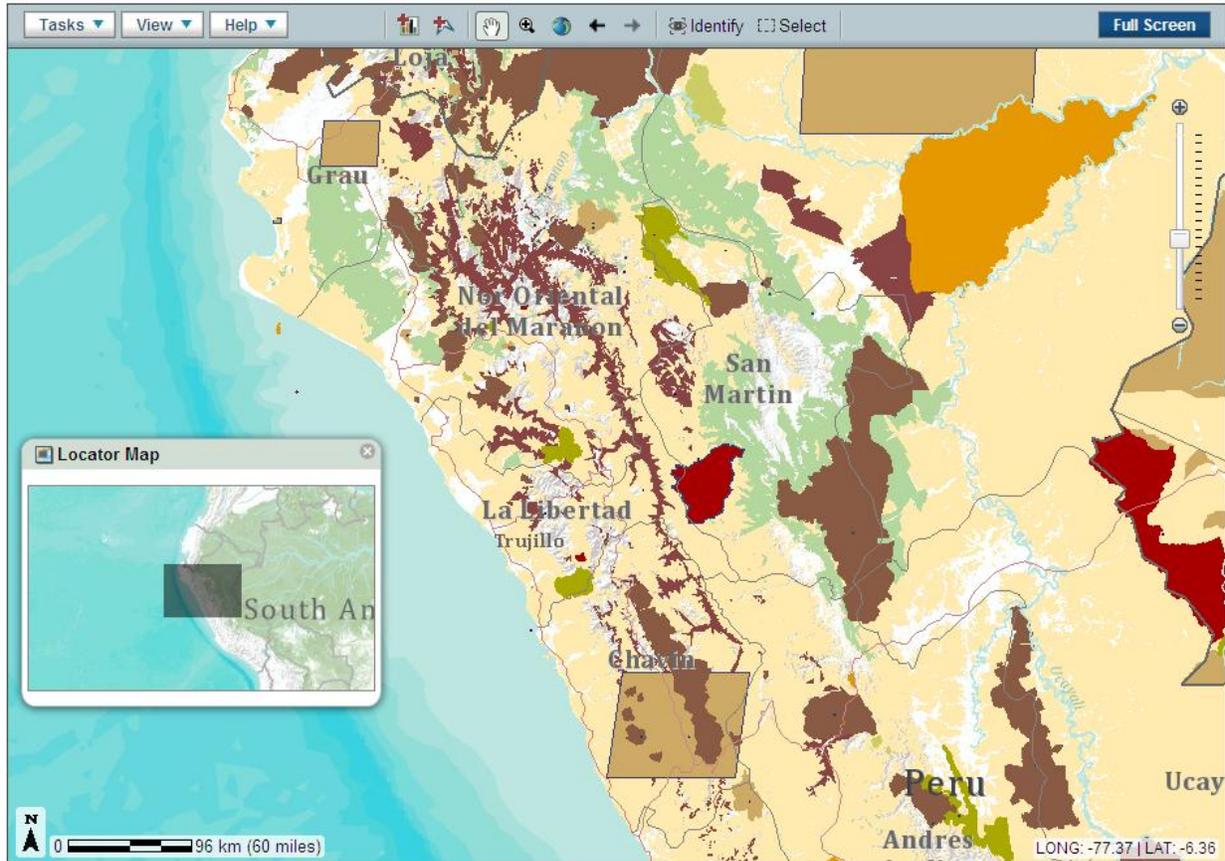
8. An evaluation to confirm adequate contingency plans (i.e. emergency and spill plans), including confirmation that all relevant project-related environmental risks have been identified, proper procedures have been developed, and sufficient resources will be made available to ensure adequate implementation.
9. An evaluation of project-related information disclosure and public consultation activities that have been performed and the proposed future actions to provide adequate ongoing information disclosure and public consultation with the local population.
10. An evaluation, and further development as necessary, of Project supervision and evaluation procedures to ensure proper implementation of environmental, social, and health and safety actions and requirements.
11. An evaluation of environmental, social and health and safety terms and conditions in relevant project legal documents (e.g. concession contract, construction contract, operations and maintenance contract, etc.), in terms of sufficiency, potential risks or liabilities, or issues.
12. An evaluation of existing and potential future environmental, social, or health and safety financial/credit risks and liabilities associated with the Project, the project site, and the company.

VI. ANNEXES:

ANNEX I: Geographical location of the Project



ANNEX II: Critical Natural Habitats in the Project's Area (dark colors):



Source: This map was created using the IDB Decision Support System depicting critical natural habitats in the Province of San Martín, Peru