

Sustainability Index for Agribusiness Products Considering Territorial Bases and Life Cycle Thinking

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Abstract

The sustainability index (SI) development for agricultural products was a Brazilian Agricultural, Livestock and Provisioning Ministry, (MAPA) demand. This work seeks by participative process, to define sustainability principles, criteria and agricultural products patterns. These principles have universal characters liable to expand its application to several agribusiness links by future criteria in the several territorial contexts through out the patterns to be defined to each biome monitored by satellites. The SI must have credibility and international recognition. Among their principles are: Conformity with the agreement, treaties and international conventions; Conformity with the national legislation; Localization; Integration; Monitoring and continuous improvement. The participative elaboration of the sustainability principles with the more representative agribusiness sectors, science and technology areas and the public and private institutions is allowing delineating the environment conduct, innovation and business for a future guiding to criteria formatting of the and SI patterns.

Keywords:

sustainability index, geotechnologies, life cycle

1 INTRODUCTION

"Sustainability is the relationship among dynamic economical systems and larger and also dynamic ecological systems, although of slower change, in that: a) the human life may continues indefinitely; b) the individuals may prosper; c) the human cultures can grow; but the d) human activities results, obey limits for not destroying the diversity, the complexity and the ecological system function to support the life, Constanza, (1991), p.854; Apud Sachs (1993). The international union for nature and natural resource conservation [IUCN (2004)], takes in account, the sustainable development process that improves the human communities' life conditions as the same time their respect to charge capacity of the ecosystem limits.

A frequently sustainable development definition referenced is presented by the World Commission for Environment and Development: "Sustainable development is that satisfies the needs without committing the future generation needs to satisfy their own necessities" (OECD, 1993).

The developing sustainability indicators idea appeared in the World Conference on Environment (Rio-92), as registers its final document, the 21 Calendar. The proposal was to define development sustainable patterns concerning, environmental, economical, social, ethical and cultural aspects. For that, was necessary to define indicators that monitored and evaluated the environment sustainability.

The external buyers' demands of the Brazilian farming products and the internal consumers' understanding, as the quality and sanity of the presented foods and environmental conservation from productive areas, lead to the need of the establishment of an index that allows the attendance and validation of the adopted technologies in the production, in the sustainability of the land uses, as well as, in the monitoring of the life cycle of the agricultural products. Being applied by the life cycle

product administration, there is the several groups' interest integration, assisting demands previously not incorporated.

Therefore, the Sustainability Index (SI) is a market instrument, by which agricultural companies incorporate the sustainability as a business strategy to aggregate values to the product in order to increase its consumer credibility. A value aggregation goes by the clean technological development, minimizing residues and emissions from the generating source, wastes and unnecessary costs.

In February of 2005, during the organic products fair in Germany (Biofach) the need to develop a sustainability index for Brazilian agricultural products was raised up. This way, the Brazilian Agricultural, Livestock and Provisioning Ministry, (MAPA), and EMBRAPA (Brazilian Agricultural Research Institution), started a project for to develop this index in territorial bases. The index will be the result of a series of social, economical and environmental sustainability indicators and will attest certain qualities of the productive process. Therefore, it is a self-declaratory qualification based on sustainability parameters that incorporate territorial subjects, with objective of reaching the following goals:

- a) Recognized and internationally accept;
- b) High credibility and legitimacy;
- c) Articulate with the public politics;
- d) To support the international negotiations;
- e) To aggregate value and quality;
- f) To enlarge the agribusiness sustainability;
- g) To demonstrate the territorial sustainability.

For so much the SI must to consider the Brazilian system environment (biomass) diversities and the country's socio-cultural characteristics and yield structure.

In order to have credibility and legitimacy in the process, besides the connection among the productive aspects and their respective actors, there will be the society participation through a knowledge net, innovation and business.

2 METHODS FOR ELABORATION OF THE SI PRINCIPLES

The SI are being built through a knowledge net, innovation and businesses, fed with scientific data from sustainable territorial administration, of the satellite monitoring and by representative actors' of the agribusiness, science and technology and of the public and private institutions participation.

The stages in course for the SI principles elaboration can be divided as follow:

1. Bibliographical revision, visits and presentations;
2. Involvement of the EMBRAPA centers, research institutions and each link of the agribusiness chain;
3. Technical meetings and workshops;
4. Consultations and specialists' involvement;
5. Construction of the knowledge net, innovation and businesses;
6. Validation in forum of discussions and workshops.

3 PARTIAL RESULTS

In a first moment looked for the sustainability indicators art state including a general reading on Global Report Initiative (GRI), Global Compact (GC), Dow Jones Sustainability (DJSI), FTSE4good, Socially Responsible Investing (SRI/JSE), Business Sustainability Bovespa Index (BSI), Index Ethos of Business Social Responsibility (RSE), Sustainability Development Indicators (SDI-IBGE) and Environmental Sustainability Index (ESI).

This survey objective was the search sustainability indicators concepts and applications trying to make analogy with the SI proposal. There was good reference at Environmental Sustainability Index (ESI), used to compare the country sustainability's. In this sense, the SI presents a similar idea, however with the inclusion of economical and social aspects, applied to agricultural products.

There was also a home page development, to show the SI development process transparency. In this home page can meet several information about the course of the project, stages and partial results.

Finally, through a participative process the SI principles for agricultural products with territorial base were preliminary defined. These principles have universal character and are susceptible to expand to application on diverse agribusiness chains.

The SI principles participative elaboration is allowing the outline of a knowledge environment, innovation and businesses and guiding to the SI criteria, indicators and patterns formatting.

The five starting SI principles are:

I- **Conformity with agreements, treaties and international conventions:** all of the agreements, treaties and international conventions agricultural production activities, related to environmental, social and economical areas, of which the country is signatory, should proceed.

II- **Conformity with the national legislation:** all agricultural production activities should be in agreement with the national legislation related to social, economical and environmental areas.

III - **Localization:** the agricultural production activities should be assessed territorially for the potentialities and restriction characteristics of the location, seeking to optimize their environmental, economical and social aspects.

IV - **Integration:** the agricultural production activities should be managed in view of the integration and product cycle, conserving the natural resources, minimizing the environmental, economical and social negative impacts and maximizing the positive ones.

V - **Monitoring and continuous improvement:** the agricultural production activities should be monitored through indicators that allow the data recovery, the attendance of critical or sensitive processes and the gauging of improvements in the environmental, economical and social aspects.

The principles do not change in short time period, while the criteria can be adjusted from 5 to 10 years scale. These sustainability criteria will be specific for each product, since applied specificities exist in diverse cropping systems. Thus, a soil conservation management doesn't apply in the same way in soybean cropping, sugarcane or in the citrus cropping. These criteria quantification will be represented by the indicators.

Finally, the regional characteristics should reflect in the index after the patterns incorporation, which should have regional character and be liable to eventual, extends for application in social, economical and environmental typologies. Patterns can vary in short time periods in function of public politics, technological evolution and land use.

The following figure illustrates the SI development process.

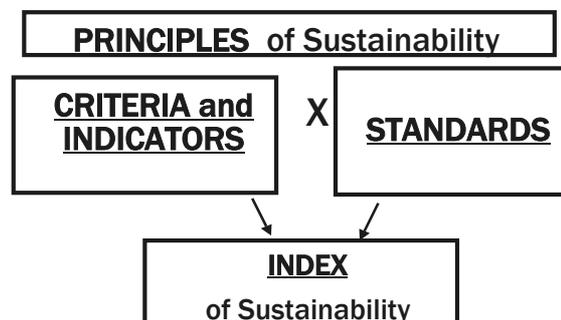


Figure 1: Sustainability process index development.

Initially the SI is being developed for the sugar and alcohol chain. Discussions are being initiated with other productive chains as coffee, meats, orange and soybeans ones.

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