

Assessing the materiality of various sustainability issues in the agrifood sector with LCA-based tools: 3 case studies

Catherine Benoit Norris^{1,*}, Jon Dettling², Jean-Michel Couture³, Gregory A. Norris¹, Julie Parent³

¹ New Earth

² Quantis

³ Groupe Ageco

* Corresponding author. E-mail: catherine@socialhotspot.org

ABSTRACT

The Global Reporting Initiative's (GRI) recently launched fourth generation guidelines (G4) strongly emphasising the concept of materiality as a key concept for choosing where an organization should put its focus within its sustainability-related activities. What *are* those issue areas in which an organization has its most significant economic, environmental and social impacts? How can they be identified and prioritized? Environmental life cycle assessment (E-LCA) and Social life cycle assessment (S-LCA) are timely and useful solutions to operationalize the Materiality principle in the agri-food industry. Conducted together, E and S-LCA allow for identifying significant social and environmental impacts of an organisation's activities throughout its products' life cycles, pinpointing the Social and Environmental Material Aspects. These tools can complement other methods used to assess materiality, such as stakeholder surveys, by adding additional objective and scientific verification.

Keywords: Global Reporting Initiative (GRI), Materiality principle, Material Aspects, Aspects Boundary, Reporting, Social and Environmental LCA

1. Introduction: The new GRI G4

The Global Reporting Initiative (GRI) is an organisation promoting “sustainability reporting as a way for organizations to become more sustainable and contribute to sustainable development” (globalreporting.org). GRI is mostly known for the reporting framework it developed: a holistic set of economic, social and environmental indicators. Reporting organisations are invited to present data covering GRI indicators and also information about business partners within reach of their sphere of influence, which can extend more or less within the value chain.

Until the recent release of the fourth version of the Global Reporting Initiative (GRI) guidelines (G4), the concept of the sphere of influence was leading sustainability report's boundary setting. Therefore, if the reporting organisation had the known ability to influence the practices of some of its business partners, on its own, these were reported on.

With G4 the focus has shifted from the concept of sphere of influence to materiality. In an effort to help companies assess and report on “what really matters”, GRI is encouraging organisations to think beyond their fenceline and analyse the perceived and assessed significant economic, social and environmental impacts that their activities have on the planet, society and individuals.

Materiality is a concept stemming from accounting and being defined differently by standards such as SASB, IIRC and GRI. In this article, we will stick to the definition offered by GRI. G4 defines Material Aspects as issues “that reflect the organization's significant economic, environmental and social impacts” and incentivizes reporting organisations to only provide information on those aspects. Therefore GRI simultaneously try to limit the Aspects reported on and enlarge the scope of the value chain for which reporting is desirable. Organisations are encouraged to conduct a “materiality assessment” to identify the significant sustainability impact and the value chain links they should be focussing on.

Conducting a value-chain materiality assessment to understand where the biggest impacts occur, regardless of whether those impacts are within direct control, may be one of the greatest benefits and potential challenge for companies. Whether companies have a good grasp on their value chain sustainability impacts or need to build this exercise into their strategy, the new requirement will undoubtedly be a step forward helping companies to understand the bigger picture of sustainability performance across all their activities.

2. The importance of materiality for agri-food sector organization's sustainability strategy

Used in financial circles for decades, materiality assessment identifies issues that are critical to an organization's success, typically because of their implications to the company's financial situation or due to a high level of interest from their stakeholders. Outcomes can be used to direct business strategy, including fiscal investment, toward the most strategic areas.

The GRI's understanding of material aspects similarly narrows the universe of issues that a company reports on to those most critical to both the company and its stakeholders. The most significant change in materiality is the new consideration of the boundary attributes when determining material issues. This means that companies must not only consider what, but where an issue is relevant across the organization and its value chain (which sites, subsidiaries, countries, suppliers, products, etc.). It also means that a company may report a different boundary for different issues. For example, child labor could only be reported on from the perspective of the supply chain or specific buying categories or geographies in the supply chain, while greenhouse gas emissions could be reported on from the perspective of the company-owned fleet or the downstream impacts associated with product use.

A big potential gain with the increased importance and new approach to determining materiality is a more targeted and meaningful identification of relevant issues. One potential concern around materiality is that companies become too selective, screening out issues that they should be reporting. Deciding on a realistic list of material issues will be a critical element of the G4 reporting process.

This is especially relevant for agri-food sector companies characterised by complex and often overlapping supply chains with low transparency and numerous interacting environmental and social issue areas. While many agri-food companies have a good grip on Life Cycle Assessment, CERES and Sustainalytics (2014) evaluation of the 24 companies of the CERES Gaining Ground report shows that while food and beverage companies have improved their sustainability performance overall, a more focused look at how they are addressing agricultural sourcing highlights the need for more action by the sector. In particular, it appears clearly that companies are just getting started. For example, almost half of the companies (11 of 24) do not disclose any evidence of conducting risk assessments of their agricultural suppliers.

Among CERES and Sustainalytics key findings, current goals and commitments are often narrowly focused and targeted primarily on agricultural inputs, such as coffee, soy, and palm oil, which are subject to third-party verification schemes. Managerial oversight is weak with the vast majority of companies not adequately disclosing how these issues are managed internally. According to CERES, this raises concerns about the priority placed on addressing agricultural risks to the business.

In addition and across the board, companies are failing to effectively measure and disclose how their efforts are addressing sustainability risks, such as increased exposure to the adverse effects of climate change, and ultimately changing farmer practices. In contrast to the lack of risk assessment practices, 75 percent (18 of 24 companies) outline at least a basic strategy to mitigate one or more supply chain risks. In other words, rather than developing a corporate-wide approach that is based on a broad assessment of supply chain risk, most companies appear to be addressing these issues on an ad hoc or project-specific basis.

CERES concludes that risk assessments are a critical component of prioritization, and companies should look to increase disclosure of these efforts to give stakeholders a better understanding of how the company plans to have impact. Tellus and Sustainalytics (2012) also highlighted the lack of sustainability and especially social sustainability disclosure of agri-food companies. In the same line, OXFAM (2013) recently urged agri-food companies to foster more transparency, implement sustainability policies and codes of conduct effectively, and report more thoroughly on their sustainability impacts.

GRI G4 offers the right incentive for agri-food sector's companies to integrate more effectively their sustainability efforts.

3. The role of LCA in assessing materiality

What does a materiality assessment for the sustainability space look like? It's flexible, and there's not yet a clear precedent or procedure. Many companies are therefore struggling with questions of how to conduct such an assessment and how to know that a given approach has been thorough enough. To best characterize the set of issues that are material to a company, it makes sense to combine a science-based, objective approach offered

through tools like life cycle assessment (LCA) with a more qualitative and subjective approach that can better account for stakeholder perceptions.

For the assessment of stakeholder perceptions, input from internal and external stakeholders is required. This might come in the form of interviews, surveys or both. A frequent option is to ask a set of stakeholders to rank issues in order of their importance to the company and in terms of the importance to the stakeholders and then to see where the issues fall in these rankings.

Crosswalk the importance of issues to internal stakeholders with their importance to external stakeholders to identify sustainability topics that rise to the top in every conversation. Combining stakeholder dialogue with quantitative tools can provide a robust approach for identifying material sustainability issues.

Although qualitative assessment of stakeholder input is useful, used alone it suffers from a potential for “group think”, where all stakeholders rank highly the things that they hear and talk about frequently without objective checks of whether these are really the key issues. A more quantitative, science-based approach can be used to validate and/or provide some corrections to the list of issues identified by stakeholders. Many companies—through their work on product LCA and corporate footprinting—already have available some tools to do this.

Environmental LCA, social LCA and life cycle costing (LCC) enable us to compare the materiality of issues on an objective and quantitative basis. While stakeholder outreach identifies importance based on stakeholders’ perspectives, LCA quantifies importance from the vantage points of the environment and society. Coupling these tools provides an organization with a robust approach to identifying its material issues.

How can we answer these questions with LCA tools? An LCA of a company’s key products or a multi-indicator corporate footprint can identify the relative importance of issues. In fact, answering such questions is exactly the purpose of the endpoint metrics available in the most commonly used LCA impact assessment tools. An environmental LCA might indicate, for example, that the largest impact a given company has on the environment is in the areas of climate change, water use and toxic substance emissions, while issues such as ozone depleting substances, acidifying emissions, land use and smog-forming emissions are of much lesser importance. Regardless of whether these outcomes reinforce or contradict the input from stakeholders, they provide a valuable additional source of input to the materiality assessment process.

A multi-criteria footprint can tell us about the relative importance of various issues of concern. We can compare the categories at the “endpoint” to identify which are most impacting. This example justifies a heavy focus on a few issues.

The same now holds true for social issues. A report underscoring the importance of a life cycle-based approach to understanding and managing social risk in support of policies and decision-making was recently published by the European Union Joint Recent Center. The report, conducted a macro-scale analysis of the social risk profile of EU-27 imports by combining trade statistics regarding imports from intra- and extra-territorial trading partners in 2010 with country and sector-specific social risk indicator data in five thematic areas: Labour Rights and Decent Work; Health and Safety; Human Rights; Governance; and Community Infrastructure. It compared the apparent social risk profiles of EU-27 imports based on consideration of country/sector-of-origin social risk data only, compared to a life cycle-based social risk assessment which took into account the distribution of social risk along product supply chains.

The report shows that (1) the majority of social risks associated with imports to EU-27 countries are attributable to extra-territorial rather than intra-territorial imports, and (2) the risks of Injuries and Fatalities make the largest proportionate contribution to an overall, single-score measure of risk. However, these two approaches provide otherwise dissimilar “signals” as to the magnitude and distribution of social risk. The former approach would invariably prioritize interventions targeting only those direct trading partners known to have high levels of social risk in the sectors providing exports to EU-27 Member States. In contrast, the latter approach provides insight as to the distribution of risk along supply chains, which may be low in the sector of a given country exporting products to Europe, but high overall for those products due to the social risks associated with the activities that support production in that sector. Such supporting activities include physical flows of inputs such as raw materials and energy, and also the activities of service sectors. The life cycle approach hence affords a much more nuanced consideration as to for whom, where, and to what extent social risk may be of particular concern.

The study was conducted using the Social Hotspots Database (www.socialhotspot.org), a repository of social indicator data covering 225 countries and 57 economic sectors and relevant to five overarching thematic areas:

Labour Rights and Decent Work; Health and Safety; Human Rights; Governance; and Community Infrastructure. These indicators were developed based on the recommendations of the UNEP/SETAC Guidelines for Social Life Cycle Assessment (UNEP/SETAC, 2009), the ISO 26000 Guidelines for Social Responsibility (ISO, 2010), the Global Reporting Initiative (GRI) G3 Guidelines, (GRI, 2006) and the Global Social Compliance Programme (GSCP) Reference tools (GSCP, 2012) and are making use of over 200 sources of data. The Social Hotspots database also include a Global Input-Output model based on the Global Trade Analysis Project general economic equilibrium model.

The report demonstrates that it is now feasible for organizations to implement a life cycle approach to assess not only environmental impacts, but also social footprints, and that doing so will provides crucial insights regarding the materiality sustainability issues and this especially in economic sectors such as agri-food.

This example from the EU also helps to demonstrate that life cycle-based materiality assessment can quantitatively assist in identifying material impacts, issues, and risks which are themselves best measured in qualitative or judgemental ways. And this is both true and relevant for environmental as well as social issues of concern. While traditional LCA works with data reflecting units of “elementary flow” per unit of process output (e.g., kg of CO₂ released to air or liters of water consumed, per unit of process output), this approach can be complimented by Life Cycle Attribute Assessment (Norris 2006).

Some issues of concern are better characterized through a qualitative or a summary expert judgment assessment about the overall attributes of processes. For example, forestry operations may be certified as sustainable or unsustainable, based on extensive, expert-based, site-specific assessments which take all sorts of context-relevant nuances into account in a systematic and pre-determined way. These assessments can provide *more* information than a purely quantitative characterization of the same forestry operation. Thus, a company or its stakeholders may want to assess to what degree the company’s supply chain is sourcing sustainably-sourced forest product output, and to push for and document continuous expansion of such sourcing. Conversely, the company or stakeholders may identify as material any major instances of non-certified forest sector output in the supply chain.

Life Cycle Attribute Assessment (LCAA) enables users to harness quantitative models of product supply chains together with a mix of quantitative and qualitative information about the processes in those supply chains in order to identify material risks and opportunities for sustainability improvement. LCAA provides information about the *share of relevant activity* within supply chains that has any attributes of interest or concern to the company and its stakeholders.

In the case of the EU social supply chain assessment, the results highlighted the share of worker-hours which were at elevated risk relative to a comprehensive set of social indicators. And in the case of sustainable forestry assessment, LCAA can identify the share of forest acreage at elevated risk of unsustainable management – pinpointing where such management is occur geographically, where within the supply chain, and at what quantitative level of participation across the supply chain. Specific to the Agri-food sector, an LCAA could identify the share and major instances of land use which occur in high-risk zones for biodiversity, or the share and instances of crop cultivation which is certified organic, as two examples. Materiality can also arise via the interaction of two or more attributes, such as being located in region with endangered species and lacking certification of management practices which respect or enhance survivability of the relevant species.

This however shows that contrarily to financial materiality assessment where standardised revenue-related quantitative cut-off criteria exist to determine whether an item is material or not (a 10% threshold is suggested by many audit manuals), LCA-based materiality assessment for CSR reporting also needs to take into account subjectivity and judgment in the process. Stakeholders’ perception, business strategy, geopolitical context, etc. all provide relevant yet qualitative information which must be addressed in the analysis.

4. Applying LCA-based materiality assessment in the Agri-food sector

As we stated in the introduction many agri-food companies and associations are already experienced applying LCA based tools. However, as we highlighted, frequently LCAs are conducted on a project basis and not as part of a corporate-wide approach. We selected three case studies to demonstrate how LCA can be mobilized in a wider strategic context.

4.1. The case of a leading coffee roaster

A coffee roasting company has an interest to understand the materiality of various social and environmental issues to support its strategy for measuring and disclosing its performance in the sustainability area to its business customers, investors and others. In addition to a questionnaire and set of interviews conducted with stakeholders, a review has also been done of several existing environmental LCAs of coffee systems to understand: a) among which environmental impact categories do the most important environmental impacts occur; and b) within which stages of the coffee life cycle are these impacts occurring.

Applying an endpoint impact assessment methodology allows the results to speak directly to the first of these two issues, providing a science-based weighting of more than a dozen mid-point impact categories based on the extent to which they cause impairments on ecosystem quality, human health and resource availability. In this case, it is found that carbon footprint is a highly important issue for both human health and ecosystems, land use is an additional important issues for ecosystems, and fossil fuel consumption is most important for resource availability. Many other environmental issues, such as ozone depletion, acidification and others are shown to be of much lesser importance. It is further acknowledged that because none of the references reviewed allowed for the inclusion of water quantity issues in the endpoint analysis, the review does not adequately address this issue (although this could be done with an LCA that does address this issue at the endpoint).

Regarding stages of the coffee life cycle, the work shows that for each of the key impact categories identified, the growing of coffee beans is a highly important stage. This stage is where the great majority of the land use impact occurs. It also corresponds to a significant area of focus for climate change. The brewing of coffee is a significant area of impact of fossil fuel consumption and for climate change. In addition, the cleaning of coffee brewing equipment and/or cups is identified as a potentially important area of focus, although this will vary widely depending on consumption and washing habits.

The value of this work is that it provides a science-based confirmation of several issues that have been identified by the company and its stakeholders as important, as well as providing additional justification for avoiding spending time on several of the issues that are shown to be of lesser importance.

4.2. The case of Pet Food

Several Pet food companies were interested to jointly identify their most significant social hotspots as a key input to the development of key performance indicators. The social hotspots database was used to provide a scoping assessment completed by a literature review and a stakeholder survey.

The study aimed at providing an overarching perspective on pet food social impacts. It was first necessary to identify the relevant sector, food products nec, from a specified list of 57 sectors used in the SHDB. This sector list corresponds to the sectors defined by the Global Trade Analysis Project's (GTAP) economic equilibrium model, which is used to develop the SHDB Worker Hours Model.

Next data on the location of the last manufacturing activities for pet food products sold in the US had to be found. The United States International Trade Commission's Interactive Tariff and Trade DataWeb indicated China, Canada, Thailand and the US to be pet food products sources for the US market. These countries, food products nec sector were tested using the SHDB to assess their supply chain impacts. The results were prioritized based on labour intensity, risk level and overlap.

The results showed that respectively, China, India, Thailand, Cambodia, Vietnam, Mexico and the US were countries responsible for a significant share of the total social impacts. The economic sectors of fisheries, food products nec, vegetables, fruits and nuts, were identified most often as being at high risk overall.

Labor rights and decent work, health and safety and to a lesser extent human rights were the most prominent types of impact identified. Low wages, migrant labour risks and fatal and non-fatal injuries were the most prominent contributing issues.

The results of the scoping assessment provided a necessary overview of some of the most salient social risks attributed to the pet food sector for products sold in the US. In particular the results served as a starting point to literature review and were a key consideration in the development of key performance indicators along with the stakeholder survey results.

5. Using LCA results in reporting – GRI and SAFA

Several Canadian Agri-food companies associations (for instance Canadian Sphagnum Peatmoss Association and the Fédération des producteurs de porcs du Québec) were interested to gain a better understanding of their environmental and socioeconomic performance. In these cases, the LCAs culminated years of efforts to document each association's sustainability profile by building on previous initiatives. In order to structure and organize in a coherent and synthetic way the results of these efforts but also to enhance and ease the communication of the work done so far, these two organisations commissioned CSR reports based on the FAO's SAFA framework (to be published in Spring 2014).

The SAFA Guidelines have been developed to “provide an international reference tool for assessing the sustainability performance of food and agriculture enterprises” [1] all across a product' supply chain, from production to retailing. To do so, SAFA draws upon several internationally recognised reference tools, including the ISO norms for Life Cycle Assessment and the GRI Sustainability Reporting Guidelines.

Integrating LCA results to the SAFA reporting framework was an opportunity for these organisations to focus on those issues that were identified as social and environmental “hotspots” and to define and communicate objectives directly related to them. For instance, the Quebec Pork Producers Federation decided to adapt the reporting framework – originally built on 4 dimensions (Governance; Economic resilience; Environmental integrity; Social well-being) – to add “Animal welfare” as a core aspect of social responsibility within the industry as the S-LCA demonstrated. On the environmental side, the Canadian Sphagnum Peatmoss Association has reported in more details and has adopted more ambitious commitments related to the sector's water and carbon footprints since these issues were identified as important “hotspots” within the sphere of influence of the companies, i.e. on which the sector could directly act. In these two cases, the LCA result provided sound and credible data that have legitimated the organizations, both internally and externally, in the choice of information to report and in the nature of the engagements to adopt.

6. Conclusion

GRI G4 positions materiality assessment as a crucial component of sustainability reporting. Since G4 also expands the scope of reporting to supply chains issues, it makes materiality assessment even more relevant. G4 is not the only Social Responsibility instrument to invite companies to conduct supply chains risk assessments. The UN Business and Human Rights framework also encourages companies to conduct comprehensive supply chain due diligence.

Life Cycle Assessment is a technique which provides science-based information related to the potential sustainability impacts of companies, products and services. It can be used on a project basis but it can also be used to develop or support a comprehensive sustainability strategy. It supports materiality assessment by providing an objective overview of supply chains impacts, their relative contributions to the overall risk, and which phases and locations appear to be most significant.

LCAs supplement stakeholder surveys by providing comprehensive risk information that can include issues or phases of the supply chain which may otherwise be overlooked; at the same time, it may illuminate the small relative impact of issues or activities which were perceived as being more critical in the absence of a holistic and systemic assessment. It provides companies additional support in prioritizing the key activities and issues that truly drive their sustainability impacts and performance..

Two of our examples demonstrated how Agri-food sector companies are using LCAs to identify and prioritize impacts as part of reporting and KPI development processes. Our third example presented how this information helps companies to then report using sector specific reporting guidelines such as SAFA.

7. References

CERES and Sustainalytics. 2014. Gaining Ground: Corporate Progress on the Ceres Roadmap for Sustainability. Accessible online: www.ceres.org/resources/reports/gaining-ground-corporate-progress-on-the-ceres-roadmap-for-sustainability/view

- European Commission. (2013). Social sustainability in trade and development policy, a life cycle approach to understanding and managing social risk attributable to production and consumption in the EU-27. JRC Scientific and Policy Reports. Luxembourg: Publications Office of the European Union. doi: 10.2788/659
- FAO (2012) SAFA – Sustainability Assessment of Food and Agriculture systems; Guidelines. Test Version 1.1. 95 pages.
- Global Reporting Initiative G3. 2006 Accessible online: www.globalreporting.org/reporting/G3andG3-1/g3-guidelines/Pages/default.aspx
- Global Reporting Initiative G4. 2014. Accessible online: www.globalreporting.org/reporting/g4
- Global Social Compliance Programme (GSCP) Reference tools. 2012. Accessible online: www.gscp.net
- ISO 26000. 2010. Guidelines for Social Responsibility. ISO.
- Norris, G. A. (2006). Social impacts in product life cycles towards life cycle attribute assessment. *International Journal of Life Cycle Assessment*, 1(1): 97-104.
- OXFAM. 2013. Behind the Brands. Accessible online: www.oxfam.org/en/grow/campaigns/behind-brands
- Tellus and Sustainalytics. 2012. Worker Equity in Food and Agriculture. Accessible online: <http://www.sustainalytics.com/worker-equity-food-and-agriculture>
- UNEP-SETAC (Benoît C., and Mazjin B. (ed.). (2009). Guidelines for social life cycle assessment of products. Paris: UNEP. Retrieved from http://www.unep.fr/shared/publications/pdf/DTIx1164xPA-guidelines_sLCA.pdf

This paper is from:

Proceedings of the 9th International Conference on Life Cycle Assessment in the Agri-Food Sector



8-10 October 2014 - San Francisco

Rita Schenck and Douglas Huizenga, Editors
American Center for Life Cycle Assessment

The full proceedings document can be found here:
http://lcacenter.org/lcafood2014/proceedings/LCA_Food_2014_Proceedings.pdf

It should be cited as:

Schenck, R., Huizenga, D. (Eds.), 2014. Proceedings of the 9th International Conference on Life Cycle Assessment in the Agri-Food Sector (LCA Food 2014), 8-10 October 2014, San Francisco, USA. ACLCA, Vashon, WA, USA.

Questions and comments can be addressed to: staff@lcacenter.org

ISBN: 978-0-9882145-7-6