International Forum on Sustainable Value Chains ISVC

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ISVC Project Proposal

"Identifying Relevant Sub-Suppliers Based on Impact"

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0.) Summary

Being confronted with a vast number of sustainability issues in a value chain, companies must prioritize, focusing their resources on developing those steps in the value chain with the biggest sustainability impact. Yet, most sustainability issues occur out of their observation, beyond their direct reach at sub-supplier levels. With procured material often accounting for 50-80% of cost of goods sold, problems usually arise deep within value chains. Upstream sub-suppliers are often the origin of those problems, making Western buying companies realize the relevance of upstream value chains (beyond their direct suppliers) pointing towards a multitude of sub-suppliers. How companies can better identify relevant sub-suppliers and reliably evaluate their sustainability impact is the goal of this project?

Sub-suppliers relevance in a value chain varies with respect to the various aspects, e.g. stage of production and supply chain, position in the life cycle, geographical location of operations, and industry norms in those locations. The impact of non-compliant sub-supplier practices related to social, environmental and legal requirements need to be assessed. Several factors make the impact determination a difficult proposition including informal contracts, industry collusion, concentration of production capacity, intellectual property concentration, ownership, and dependence on other sectors/regions. Together many of these issues may set the context for any models or approaches developed in this project.

This project addresses these issues and asks two fundamental questions: “How can a buying company identify sub-suppliers in the upstream supply chain (beyond their direct suppliers?)” and “Which sub-suppliers are considered relevant (which are critical and which are not)?” The project aims to develop a hands-on tried-and-tested solution for business practice to detect and quantify the sustainability impact of sub-suppliers, and determine legitimate procedures to prioritize.

1.) Project Objectives

1.1) Problem Description and Evaluation

Western companies, experiencing rising stakeholder expectations and growing regulation on the social and ecological characteristics of their procured material and services need to expand their capabilities to be able to detect sub-supplier that are in conflict with specific expectations (e.g. corporate sustainability standards, new regulation, new issues). They aim at increasing their knowledge and influence on organizations identified as non-compliant.

Existing methodologies to detect and measure impact of the various parties in the value chain provide limited support in identifying sub-suppliers and ranking them by their respective impact in a specific value chain. Instead of building from scratch, this project suggests building from readily available methodologies established for Life Cycle Assessment (LCA), and readily available databases used in Input Output Tables (IOT). The project aims at developing a clear methodology to identify the critical sub-suppliers with the biggest impact by employing the advantages of LCA and IOT while overcoming their limitations. Part of this evaluation will be to identify linkages to other models and enhancements.

1.2) Benefit / Deliverables for Business (Value Chain Members)

Participants will obtain a hands-on tried-and-tested guidance or solutions that detect and estimate sub-supplier impact. Results are applicable for original equipment manufacturers and retailers as well as producers, traders and intermediaries. Companies benefit from collective action reducing

necessary investments, sharing of experiences, and scientific support and legitimizing. Sector initiatives and other industrial organizations obtain access to methods they can recommend among their membership.

1.3) Benefit / Deliverables for Government

Regulators gain a better understanding of current business practices, the drivers for such behavior, as well as the impact of existing or potential regulation. They further obtain access to tools they can recommend in their respective economy.

1.4) Benefit / Deliverables for the Civil Society & Public

The public and civil society benefit from better understanding of current business practices, the drivers for such behavior, as well as the options available. This provides them higher alignment in language and problem understanding to better influence the development and adoption of solutions.

1.5) Benefit / Deliverables for Science

The participating scientists can scientifically publish the generic project results they were part of in the development. There are also opportunities to further identify research streams to further enhance the reliability and validity of approaches.

2.) Project Content

2.1) Status-quo of Best Practices in Practice

Identifying sub-suppliers and their sustainability impact is a new initiative in supply chain management in general, and even more in sustainable supply chain management practices. Supply chain visibility tools and technologies have been geared towards product tracking, information flow, and financial reporting with no particular emphasis on sub-suppliers, let alone their sustainable impacts. The rising need for tracing the ‘sustainability footprint’ of sub-suppliers is yet to be established.

Substantial effort in Life Cycle Assessment (LCA) practices has been spent into tracking sustainability footprints and creating indicators, especially related to environmental impact. LCA is a methodological tool used to quantitatively analyze the life cycle of products / activities within the context of environmental impact. Numerous developments in LCA and supporting software have been occurring for almost three decades. Examples of Life Cycle Impact Assessment (LCIA) methodologies include; IMPACT 2002+, ReCiPe 2008, and ILCD. The IMPACT 2002+ framework links all types of life cycle inventory results via several midpoint categories to four damage categories (human health, ecosystem quality, climate change and resources). ReCiPe 2008 is a life cycle impact assessment method which comprises harmonized category indicators at the midpoint and the endpoint level. The International Reference Life Cycle Data System (ILCD) is coordinated and supported by the European Platform on LCA.

The measurement of social impacts and the calculation of suitable indicators are relatively less developed. An integrated approach, referred to as Life Cycle Sustainability Assessment (LCSA) has been developed and defined as ‘‘the evaluation of all environmental, social, and economic negative impacts and benefits in decision-making processes towards more sustainable products throughout their life cycle’’ (UNEP/SETAC 2011).

Input Output Tables (IOT) are also possibilities for supply chain impact assessment. Input-Output Life Cycle Analysis (IO-LCA) is used to assess the energy consumption and environmental impacts of products and services at a macro-level taking advantage of a country’s economic input-output tables. IOT were developed originally to describe an economic sector’s transactions, and then later became an effective tool for use by LCA practitioners in coping with environmental economic events. Commonly used Input Output Tables include: SUT, SAM and EUROSTAT.

Typical IO-LCA models augment environmental impact data with the economic input–output tables to form a comprehensive system boundary and are widely used for quantifying the environmental pressures of products or processes by tracing supply chains. Examples of hybrid IO-LCA include; MEIT, EIOLCA and Systain estell.

2.2) Status-quo of Knowledge in Science

Literature on Hybrid IO-LCA models has evolved over the past 10 years. The hybrid approach combines the advantages of both bottom-up and top-down approaches - namely the use of higher-resolution, process data (bottom-up) and the use of well-defined, regularly updated statistical data without truncation (top-down) (Suh et al. 2004; Suh and Huppes 2005). Environmental impact calculators have been developed (Koellner et al., 2007).

There are currently a number of initiatives being organized to implement a hybrid approach for LCA databases (Suh et al., 2010; Suh and Lippiat 2012). The literature has also contributed to the topic of Life Cycle Sustainable Assessment (LCSA) by shifting pressure from environmental to social related concerns (Brent and Labuschagne, 2007;im and Hur, 2009; Onat et al. 2014).

Overall, identification and prioritization of sub-supplier impact related to specific organizations has yet to be fully developed.

2.3) Guiding Questions / Knowledge Gap

The main question defines the project theme:

How can sub-suppliers be identified and evaluated upon their sustainability impact on the final product / service, and how can critical sub-suppliers be legitimately differentiated from non-critical ones?

Sub-questions are to be defined by the project board and could be:

a) Which impact measures should be used to evaluate sub-suppliers?

b) Are current impact measures suitable or are new ones required?

c) Can social and environmental impacts be combined in one impact measure?

d) Which input output data is most suitable for identifying and prioritizing sub-suppliers?

e) Which IO tables provide this data, or are new IO tables / new data required?

f) Which current IO-LCA methodologies / tools are most suitable for identifying and prioritizing sub-suppliers? What criteria allow evaluating them?

g) How to define the threshold separating critical from non-critical sub-suppliers?

h) What practices enable companies to identify the identity of critical sub-suppliers?

2.4) Limitations

The project puts its focus on "how to" instead of "why" or "for what benefit". The project further requires that the participating companies have defined specific measurable sustainability standards for their supply chain, yet does not evaluate whether the levels of those standards are "good".

3.) Project Description

3.1) Knowledge Generation (Research)

The research part of the project comprises of five major steps: (1) identifying the core criteria determining the level of impact of a sub-supplier, (2) deriving reliable proxy data for those impact measures, (3) analyzing the current hybrid IO-LCA models, (4) controlling for correlations among the factors, and (5) analyzing the conditions under which suppliers disclose the identity of sub-suppliers.

3.2) Pilot Application

In the pilot application of the project, participants develop and apply new developed methods and data as well as new procurement practices in field experiments. Sharing experiences among the users as well as scientific comparison of the different pilots allows optimizing the recommendations developed

in the research project part to ensure not only effectiveness and efficiency but also practicability in business environments.

3.3) Guidance or Tool Development

The guidance or tool development part of the project takes the developed recommendations and transforms them into practical support for business practice for day-by-day use. This project part creating scalable support might be strongly supported by sector initiatives, government organizations, or even private organizations with the objective to add this service to their commercial portfolio.

3.4) Communication of Results

The final communication part of the project plays an important role in disseminating the developed solutions to the many different parts of society across the world. ISVC collaborates with media experts, journalists, and artists to transform the problem and its proposed solution into the unique language, culture, and mindset of the respective target audience. That way, the project fuels the societal debates legitimizing both problem and proposed solutions.

4.) Project Plan

4.1) Time Plan

The project is planned for an initial duration of two years, and shall be extended upon need. Project part 3.4 (communication of results) is planned to start with the 18th month of the project for one year, and shall also be extended upon need.

4.2) Work Packages

The four project parts follow a logical sequence. The project parts start once substantial results have been achieved by the prior project part, and shall run concurrently to allow mutual adaptation.

4.3) Estimated Project Efforts and Costs

The project efforts consist of predominantly labor costs for the academic researchers and artists, some out of pocket expenses (e.g. travel, communication), limited investments (e.g. data), and some service sourcing (e.g. media expertise). In project parts 3.1, 3.2, and 3.3 academic researchers and representatives of the participating organizations work together under the lead of an academic project manager. Project part 3.4 shall be run by media experts, in collaboration with journalists and artists.

4.4) Funding Plan

The required financial resources shall be covered by the participating organizations and other sources. Government funds and other potential financial sources shall be explored and used whenever possible or available. The labor cost for the participating company representatives or journalists shall be covered by the respective employers. The labor cost for the academic researchers or artists shall be covered by individual grants for the respective person. The service providers shall work on a fixed contract.

4.5) Participant Qualification and Collaboration History

All participating organizations and individuals are required to have a proven track record on either sustainability in procurement or required methodological capabilities. Successful prior collaboration among the participants is preferred.

4.6) Potential Project Risks and Risk Mitigation

To be evaluated and developed once the project plan and project members are defined.

4.7) Potential for Collaboration (only if needed)

To be evaluated once the project plan and project members are defined.

4.8) Intellectual Property Rights on Project Results (only if needed)

To be evaluated once the project plan and project members are defined.

5.) Project Organization

5.1) Project Governance

The project will be overseen by a project board consisting of one senior representative per project participant under the lead of an ISVC council member. The project board meets at the project start, at the project end, and at least every 12 months. The project board defines project content, monitors and evaluates project progress and success, suggests strategic adjustments, and decides on the project's funding and budget.

5.2) Project Management

The project shall be managed by a senior academic scientist with a specified (realistic) workload. Project management shall make use of state-of-the-art project management practices.

5.3) Project Reporting

The project manager reports the project current status and next steps every six months to the project participants and the project board members.

5.4) Participants

The project shall consist of companies of different sectors, regions and supply chain positions, government organizations, sector initiatives, academics, and other organizations interested in constructive development of recommendations for procurement.

5.5) Advisory Board

An advisory board of experts shall be established. The role of the advisory board is to critically reflect the project approach and results, support the project with constructive recommendations, link the project team with experts in a required domain, and help in disseminating project results.

5.6) Role of Funding Organizations

The funding organizations separate by (a) participating organizations, (b) project financing organizations, and (c) sponsors & donators. All participating organizations (a) have their interests represented in the project board. The project funding organizations (b), supporting the project based on a contract with clear definition of project content and expected results, are only involved in a project board meeting in case the project board intends to substantially alter the project content definition. Donators & sponsors (c) have no role in the project.

5.7) Project Success Evaluation

The project plan defines specific measurable objectives. The project management evaluates completion and fulfillment. The final evaluation is in the responsibility of the project board.