

## **Integrating participatory approaches in social LCA: What about functional units and impacts choices? Fish Farming case.**

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Works to develop the framework of Social Life Cycle Assessment (SLCA) are increasing and focusing on two categories of issues: on the one hand technical issues related to the measures in general, and on the other hand theoretical framework issues in order to position SLCA. Whereas the first type of issues is quite well documented, much less studies concern theoretical aspects. The review of the literature permits to emphasize two fields of research concerning the theoretical aspects, in order to reflect evolutions as well in the analysis paradigms of the value chain and company, as in evaluation paradigm. First it is the expansion of services provided by the functioning of the company, second the issue of identifying impacts thanks to stakeholders integrated into the SLCA building process. There is an interest to integrate both evolutions due to the role of SLCA as a tool for public decision making and as a tool for managing the company. The value chain and the system boundaries become broader due to both expansions of the matrix of stakeholders, and of the services provided by the company. Indeed, we acknowledge the product chain can provide a lot of services, through better utilization of the potentialities of its environment, as reported by the Millennium Ecosystem Assessment (2005).

We focus on the choice of both the functional unit, and the impacts categories, which have to be done when it comes to the construction of the SLCA framework with stakeholders. We emphasize the role of the integration of a participatory approach to choose the services provided by the system and the social impacts worthy to be assessed. This approach takes into account the legitimacy of the evaluators. For all practical purposes, the proposed approach consists in implementing focus groups and surveys about social representations at different stages of the assessment process. Doing so, we capture the opinions of the stakeholders about services and about the potentials or real impacts. The choice of involved stakeholders is constructed through a rational choice with respect to their roles and the impacts which could affect them. This approach uses deciphering methods and allows the emergence of “services” and “impacts” which make sense for the stakeholders. However, the technical construction of the indicators (relevant to catch the states of impacts) must be done by experts

Also, SLCA requires the definition of functional units depending on the services provided by the company, and considering their relationship with the impacts.

First, our presentation will show the advantages of using a participatory approach based on the Principle, Criteria and Indicator (PCI) method. This method provides a basis for discussion, allowing stakeholders to position themselves. Indeed, experience shows the difficulties of free expression of the stakeholders when it comes to evoking the social aspects. Second, we will display some examples of services provided by fish farming systems, and discuss the choice of functional units accordingly.