Module 1, part I – Q&A

Recording here: https://aaudk-my.sharepoint.com/:v:/r/personal/massimo_plan_aau_dk/Documents/Optagelser/MS%20Teams%20link%20Advanced%20LCA%202023%20online%20sessions-20230411_110214-Meeting%20Recording.mp4?csf=1&web=1&e=gVGSBu

Steve: marginal suppliers. Why long-term marginal suppliers? E.g. electricity, short term could be relevant (hourly changes)
Jannick: generally, LCA is to provide long-term decision support. Electricity good example. True that instantaneous changes in demand are reflected on the instantaneous supply (which plants reacts). However, we are interested in how capacity as a whole is affected in the long term as a consequence of decisions. New demand means new capacity and needs more investment (assuming increasing market, different if decreasing market).
Massimo: do not confuse electricity "marginal" (merit order) with "marginal" in consequential LCA. Same term but different meaning in the two domains.
Jannick: example of electric cars, the overall effect in the longer terms is that because of increase in demand then new capacity is installed and this new capacity is the marginal mix.

Erik: Assumption about market clearance. Example about fast fashion industry.
Jannick: Market clearance mainly relevant when you have several co-products with no alternative production routes. E.g. slaughterhouse (different cut of meats produced, e.g. high and low quality cuts). Prices are adjusted so that all products are sold. This is the market clearance.

Simon: Provocative examples in the videos. Doubts on lumber production example on non-certified lumber…clarification needed. How to make a model of lumber supply ("credible input")?
Søren: In a constrained market not buying the product (boycott) just makes it available to other consumers (no effect).
Jannick: We can have markets for certified or noncertified wood – both have inputs from suppliers. Constrained suppliers (e.g. Teak producer in Thailand) is not affected by change in demand. So who are the marginal suppliers / how do we identify constrained suppliers? There are various reasons for constrained supply, e.g. production capacity (no more land available), regulation (political), competitiveness (economic), co-production. Identifying these constrains, looking into production costs, regulations, market trends, is how you make a model of the marginal mix.
Simon: a lot of assumptions especially in the way we interpret these mechanisms.
Jannick: yes no model is better than the assumptions….but you can ensure high quality input to your model. Uniform procedures for identifying constraints. Transparent process so that others can review your procedures. Standardizing, harmonizing, consistency, transparency.
Søren: use uncertainty assessment and evaluate the soundness of your assumptions.

Mudit: standard way to address these constraints?
Massimo: there are various methods and depending on the application area they might be more or less fit. E.g. if you need to apply marginal supplier identification at database scale

(1000 of products) you need a sufficiently simple technique might not be accurate to the same degree for all products. And vice versa.
Jannick: In principle no difference between slaughterhouses and mining activities in terms of methodology. Looking at time series of production volumes identify where there are increases or decreases in production.

Erik: rebound effects or feedback loops into consequential LCA?
Massimo: look into work of David Font Vivanco (PhD thesis). Paper by Mikkel Thrane on cheese.
Jannick: rebound effect should be included in comparative LCA where there are significant price differences. Example of bicycle and car driving, when bike is a substitute for a car then the money saved will be used for other purposes.

Haitham: one building, is consequential "overkill" if I look only into production of "one door"?
Jannick: consequential is a modelling approach for LCA where you try to model as close as possible causes and effects. Attributional model is about what can be agreed on (consensus-based modelling, normative approach). If you want to know the effect of installing a specific door, then you can use the consequential approach.
Søren: in the building area a substantial share of the LCAs are attributional.
Massimo: difference btw marginal and incremental. Water circles…

Berfin: consumer behavior is important in consequential LCA…it makes things more complex.
Massimo: conseq. LCA a rather consistent theoretical framework and a variety of methods (some had hoc) needed to answer the questions.
Jannick: consumer behavior not so important in general but in specific cases it is important (e.g. rebound effect mentioned above). Important when defining functional unit. Market niches where you have different types of behavior in specific segments – this should be reflected in the functional unit.

Dominik: Modelling causes and effects. How to make sure we capture all the changes? Endless story if you want to include all the activities affected?
Massimo: in attirbutinoal need to model "more" activities because average supply (need to include all suppliers) whereas in conseq the constrained ones are removed so in the end need to model only "less" activities. So not endless. Regarding "making sure" this is about good modelling practice, try to conclude all relevant changes but trade-offs with resources and knowledge available.

Steven: EPDs, and consequential information in there?
Søren: it's a challenge ☺
Massimo: Some EPDs can technically be done using consequential. Attributional because of natural result of the consensus process on which the EPD system is based. Two issues 1) rule that now are at a very detailed level (products with only a handful producers) and it's hardly understandable why we need rules at such a narrow scope. 2) doing LCAs based on results

of EPDs is different from using a database because very poor consistency (due to the proliferation of rules PCRs, etc.) so very high risk of mixing results obtained with very different assumptions (e.g. allocation etc.)