

# Sustainability metrics as a tool for decision-making/makers

Dr. Antonio Dominguez-Ramos

Department of Chemical and Biomolecular Engineering

Universidad de Cantabria, Santander, SPAIN

ד"ר אנטוניו דומינגואז, המחלקה להנדסה כימית, אוניברסיטת קנטבריה, ספרד. מומחה בניתוח מחזור חיים של תהליכים. אנטוניו מתארח במכללה האקדמית להנדסה ע"ש סמי שמעון במסגרת שיתוף פעולה אקדמי בין המוסדות.

The first agreed definition of the Sustainability concept was formulated precisely 30 years ago, in 1987. Yet today, how to be sustainable at different levels, from multinational private companies to small communities or individuals, is nothing but a challenging mission. Indeed, most of the human dilemmas in the advanced countries face the same limitations all over the world: political representativeness, corruption, welfare state, social rejection, unfair payment, environmental, economic imbalances, etc. Using simultaneously economic, environmental and social considerations rather than just one of them will help at avoiding mistakes, as short and long term aligns.

One of the most controversial topics regarding Sustainability is how to move from theory into action. Putting measures into action means that a set of proper metrics must be considered. Thanks to these metrics, it is possible to track the temporal progress towards a better future are necessary. In any case, choosing metrics is a difficult task. And even if a set of suitable metrics is found, do they capture the full picture (total release of toxic pollutants) or just a part of them (local pollution)?

Among the different environmental tools available for this purpose of "considering everything", Life Cycle Assessment (LCA) has emerged in the past decades as a powerful tool to avoid burden shifting and promote environmental coherence. Using well-established tools such as LCA means that environmental burdens all along the supply chain can be traced, that is the mentioned full picture. As the quantification of every single relevant mass/energy flow in every single process along the supply chain is quantified, both up and downwards, undesirable rebound effects can be prevented (increasing the amount of carbon dioxide when you just want to recycle materials).

This tool has been shown to be useful for helping decision-makers to make the right choice. Examples of industrial process, food sector and urban waste management will be provided to understand the potential of the LCA approach.