

Assessing and measuring environmental impact and sustainability

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“Sustainability” is an issue attracting a lot of attention. Just a quick search on 25 February 2015 in SCOPUS <www.scopus.com> has shown 96,290 publications containing this word. However, looking for both “Sustainability” and “Assessment” in the title and keywords brought just 1,648 papers and the search for “Sustainability” and “Measurement” revealed even less—105 papers dealing with both issues.

It means that just 1.7 % of the papers related to sustainability deal with “Sustainability and Assessment” and only 0.1 % with “Sustainability and Measurement”. This has been underlining the importance of the extended effort facilitating works and projects dealing with “Sustainability”, but not only, the research results, which combine also “Sustainability” with “Assessment” and especially “Sustainability” with “Measurement” and of crucial importance.

Various questions have been coming up in relation to sustainability measurement and assessment:

- i. How to define sustainability?
- ii. How to assess sustainability?
- iii. How to measure sustainability?
- iv. How to set up a policy for sustainability?
- v. The role of system analysis approach to sustainability?
- vi. How can the Environmental Performance Strategy Map help?
- vii. How to specify Sustainable Process Index?

- viii. Which metrics to use: Environmental/GHGE/Nitrogen/Water footprints?
- ix. What are the lifecycle sustainability aspects?
- x. What is a decision point in sustainability analysis?
- xi. How to obtain a sustainable design?

These questions highlight various important problems related to assessing and measuring environmental impact related to sustainability. However, they do not cover all issues related to this topic.

With climate change and other negative environmental impacts, there should be an increased interest in measuring and reducing environmental burdens. But the question how to measure and reduce environmental burdens is still waiting for an answer. Recently researchers, organisations, policy-makers, and others are putting efforts to develop concepts and metrics measuring environmental sustainability. However, the world society needs rather urgently the tools and methods to be implemented.

Amongst those concepts and metrics developed, environmental footprints are gaining increasing popularity and play an ever increasing role in sustainability evaluations and research. Footprints have become ubiquitous for researchers, policy-makers and the general public. Over the past years, Carbon Footprint, or better Greenhouse Gas Footprint, has been almost the sole environmental protection indicator. Step by step the evaluations have moved to include variety of other footprints and yet there is no generally accepted footprint or footprint family to be deemed as representative of the overall impact on the environment.

An as-wide-as possible discussion should be initiated in the near future bringing together engineers from different fields—mechanical and electrical, chemists, chemical and power engineers—to mention at least some. Very

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important and welcome is the involvement of agriculture researchers and practitioners as well as environmentalists. However, sustainability goes well beyond engineering. The human beings should be motivated and directed to the sustainable way of the life. This is the task of humanitarian sciences. That is it not always straightforward as examples of developing countries show—they become richer and the population likes to enjoy as much luxury and advanced life as the countries developed during the previous decades. The author has good and very valuable experience how this synergy can cross-fertilise both sides during his involvement at the Tyndall Centre for Climate Change Research at that time UMIST (University of Manchester Institute of Science and technology) <www.tyndall.ac.uk>. The recent

research demonstrated that Greenhouse Gas Footprint could be substantially reduced if the population in highly developed countries were ready to change their diet, reducing the consumption of meat. Also the figures are available showing that more than half of food bought in supermarkets has been wasted. In this direction should be noted an interesting initiative of the British supermarket chain Sainsbury's to offer a mobile phone like box suggesting the recipes to use the leftovers in the fridge.

This journal—Clean Technologies and Environmental Policies—has got the sustainability and reducing the environmental impact as its main mission statement. We are welcoming innovative works and suggestions from all possible fields of human activities.