

Evaluation of bio-based projects according to the SDGs

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Introduction

The global Agenda for Sustainable Development by 2030 has 17 Sustainable Development Goals (SDGs) and 169 associated targets. was adopted in September 2015. As a result, both private and business sector actors – from countries to companies – are working to integrate environmental, social and economic sustainability as part of their strategies, activities and business models.

Evaluation of bio-based projects towards the SDGs assessing the impacts and contributions by the bio-based industry on SDGs is a research field, with growing interest and increasing methodological issues. The research focuses on identifying those SDGs and SDG targets that are the key to relevance in the context of the bio-based industry sector and bio-based projects.

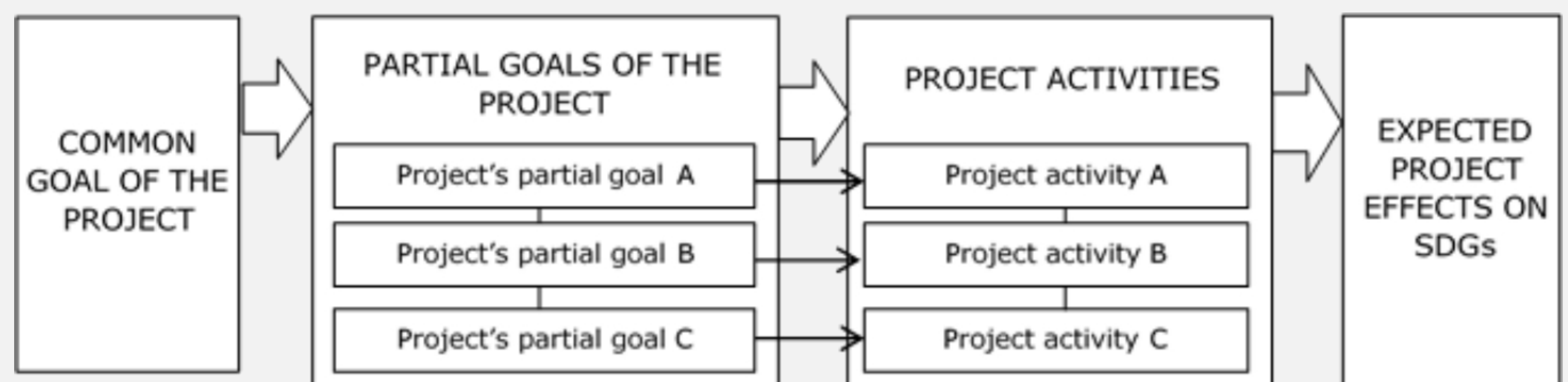
SDGs and their targets are globally oriented, not sector specific, and not all are relevant in the bio-based industry context. Therefore, SDG targets first need to be narrowed down to the most relevant ones and interpreted – in an action-oriented way – in the context of bio-based industry, in order to meaningfully apply them in practice.

The aim of the research – after performing a theoretical analysis how to interpret SDGs and their targets in a bio-based industry context, to develop a methodology for the bio-based project evaluation according to the SDGs.

In order to achieve the goal defined, the analysis and synthesis of the scientific literature, and the systematization, comparison and summing-up of information were used. Bio-based project alternatives were evaluated by the multi-criteria method SAW.

Methodology

The bio-based project's common goal can be split into partial goals for the achievement of which certain activities are implemented as a consequence of which bio-based project results and impact on the SDGs are expected.



In the presence of equal summarized numerical result of bio-based project alternatives is convenient to use one of simple formulas of multi-criteria assessment methods. These methods help choose one best option.

Combining indicators by the SAW (Simple Additive Weighting) method:

$$S_j = \sum_{i=1}^m \omega_i \tilde{r}_{ij}$$

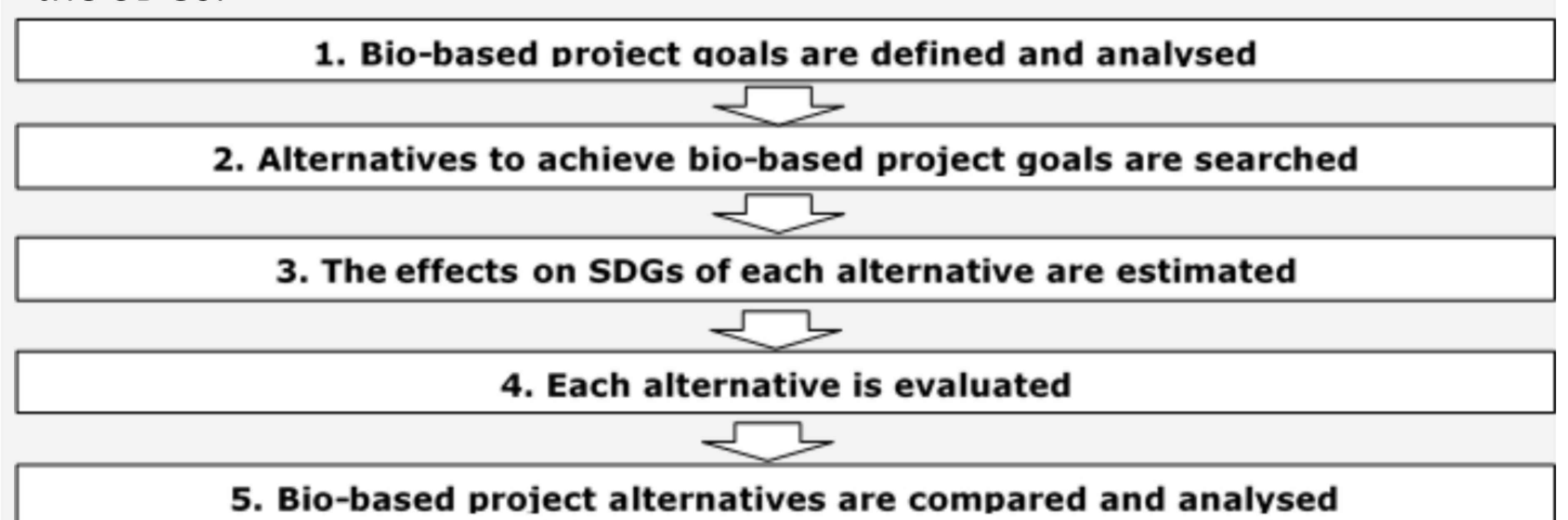
here: S_j – value of multi-criteria evaluation of the j -th option;
 ω_i – weight of the i -th indicator;
 \tilde{r}_{ij} – normalized value of the i -th indicator for the j -th option.

Results

Which SDGs are relevant in bio-based industry context?



Steps of the methodology of Evaluation of bio-based projects according to the SDGs:



With a view to making methodology suitable for the evaluation of bio-based projects the following conditions have to be met: determining a common goal or application for all relevant alternatives that must be achieved; the existence of alternatives to the achievement of the goal; the existence of defined effects to the SDGs.

Main conclusions

The methodology for bio-based project evaluation is provided. The methodology consists of aligning project goals to SDGs, identifying the evaluation indicators and setting the relevance according to the contributions to the SDGs and impacts of bio-based project. Finally, the comprehensive indicator is calculated using SAW multi-criteria method.