

Ciência e Tecnologia: do princípio ao propósito Curitiba - PR - Brasil 16 a 18 de Outubro de 2019

## ARE THERE RIGHT INDICATORS FOR CLIMATE VULNERABILITY?

## Luís Miguel Samussone Tomas Buchir<sup>1</sup>

Daniel Henrique Marco Detzel<sup>2</sup> Miriam Rita Moro Mine<sup>3</sup>

ABSTRACT: Research shows that indicators are a critical start point for a good assessment tool because they reflect the measurability of the main goal. Therefore, if the criteria to choose them are not transparent and comprehensive, the results could be seriously affected. In the context of climate change, using indicators is one of the most common ways to measure climate vulnerability, because vulnerability is a theoretical phenomenon which cannot be measured directly. However, there are some concerns about criteria to choose vulnerable indicators. According to some researchers, "all existing indices of vulnerability to climate change show substantial conceptual, methodological and empirical weaknesses including lack of focus, lack of a sound conceptual framework, methodological flaws, large sensitivity to alternative methods for data aggregation. limited data availability, and hiding of legitimate normative controversies" (Eakin and Bojórquez-Tapia, 2008). Thereby, it is clear that the validation of indicators is a big challenge, mainly if we take into account the weight issues due to the difference between systems, and the quality of the available data. Therefore, the question is, what is the right indicator? To address this issue, we propose a set of indicators based on Indicator Method and Analytic Hierarchy Process (AHP), taking into account the role of decision-makers, and some previously defined criteria over four main components, Exposure, Sensitivity, Adaptive Capacity, and Governance. The result shows that good indicators need to be aligned with the main proposal and take into account a set of criteria to achieve the main goal. Concluding, there are no right indicators.

Keywords: Climate. Vulnerability. Indicators.

<sup>&</sup>lt;sup>1</sup>Doutorando em Engenharia de Recursos Hídricos e Ambiental, Universidade Federal do Paraná, Curitiba, PR, buchirmz@yahoo.com.br

<sup>&</sup>lt;sup>2</sup> Doutor em Engenharia de Recursos Hídricos e Ambiental, Universidade Federal do Paraná, Curitiba, PR, daniel@lactec.org.br

<sup>&</sup>lt;sup>3</sup> Doutora em Recursos Hídricos e Saneamento Ambiental, Universidade Federal do Paraná, Curitiba, PR, mrmine.dhs@ufpr.br