IBIMA Publishing
Communications of International Proceedings
https://ibimapublishing.com/p-articles/40ECO/2022/4040522/
Vol. 2022 (5), Article ID 4040522

Pollution Control: An Intertemporal Analysis*

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* Presented at the 40th IBIMA International Conference, 23-24 November 2022, Seville, Spain

Abstract

As announced in our previous works, this paper is part of a larger research that deals with sustainable development and environment protection in extractive industry. In doing this, the next papers will deal with issues related to environmental pollution. In this respect, this paper is aiming to identify ways for pollution control through setting efficient environmental targets by analysing efficient levels of flow pollutants and stock pollutants. As such, we shall be able to appreciate the importance of the degree of mixing of a pollutant stock, while recognising and understanding the role of spatial differentiation for emissions targets. These findings will give us the opportunity of choosing pollution targets on grounds other than economic efficiency. As a result, in the end, to conclude on the first part of this analysis, a numerical model will be given to demonstrate that a marginal emission today has benefits only today, and so the present value of that marginal emission is identical to its current marginal benefit; in contrast, this paper demonstrates that the damage arising from the marginal emission takes place today and in future periods.

Keywords: pollution damage, pollution flows, pollution stocks, pollution targets, steady-state solution.

Cite this Article as: Cornelia NEAGU, Marius BULEARCĂ, Cristian SIMA and Daniel Fistung, Vol. 2022 (5) "Pollution Control: An Intertemporal Analysis " Communications of International Proceedings, Vol. 2022 (5), Article ID 4040522.