

Editorial: the contribution of sustainable production and consumption to a green economy

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Responsible production and consumption are associated with crucial factors for the planet and are indispensable components to be evaluated to achieve global sustainable development. The last decades have been observing increase in the global population, extensive use of resources, serious environmental degradation and increased social and economic inequalities around the globe.

Concerning consumerism or the rampant consumption habits of modern society, it is necessary to expand environmental education, directing good habits and practical actions in partnership with public and private agencies. Inappropriate and irresponsible consumption generates large volumes of waste, as well as greenhouse gases. The excessive use of pesticides, used in production worldwide, is another issue related to waste in the production, distribution, and transport of food, with serious consequences for the health of the population. The current economic models lead to serious environmental and health problems, the culture of waste and unsustainable production approaches.

The low-carbon system implicates the use of clean energy sources, more efficient use of resources, and decrease in waste generation. Green economy therefore emerges as a process to adjust this path to a more sustainable one, stimulating the transition to economies that are low carbon, resource efficient and socially inclusive.

By connecting these issues with the rationale of the Sustainable Development Goal 12, this collection encompasses studies related to environmental, economic, and social aspects of sustainable production and consumption, including fair trade, water management, plastic waste, mitigation strategies and sustainable energy. The selected papers obviously do not cover all issues connected with sustainable production and consumption to green economy, but the authors presented a variety of formats (research, review and case study) and methodologies, and also covered a variety of regions (Americas, Europe and Africa), representing an important addition to the state-of-the-art.

Below follows an overview of the papers in this Collection.

- Fair trade governance: revisiting a framework to analyse challenges and opportunities for sustainable development towards a green economy [1].

Ribeiro-Duthie, Gale and Murphy-Gregory focus on the fair trade of food production and consumption as a potential innovative model. They build on a sustainability governance analytical framework to deepen understandings of fair-trade governance and its possible responses to the dilemmas of food production for ethical consumption and thus sustainable development in transnational relations. The literature on governance pointed

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in the paper, highlights those decision-making processes tend to reproduce top-down approaches. This research contributes to the literature on improving compliance with global sustainability standards and through this, inform practices that allow for cooperation towards a green economy.

- The duty to cooperate in state interactions for the sustainable use of international watercourses [2].

In this review, Oranye and Aremu determine how the application of the duty to cooperate in the development of transboundary water can be achieved through the procedural norm of equitable participation and the substantive norm of taking all appropriate measures not to cause significant harm. The sustainable development of the water resources is essential for the development of a green economy, including the aspects of sharing access to waters without jeopardizing environmental development and the international cooperation for equitable utilization of the waters and their resources. The analysis is particularly important in a context of increased concern on climate change and the impacts that transboundary waters cooperation have on green economy and related activities, such as energy generation, international trade, and environmental conservation, among others.

- The production of valuable products and fuel from plastic waste in Africa [3].

Amankwa, Tetteh, Mohale, Dagba and Opoku explore the topic of plastic waste generation and challenges and potential solutions in Africa. Two main aspects are covered: eco-friendly techniques to transform this waste into valuable products and valorisation into fuels. Benefits and challenges of these strategies are discussed, and the review concludes with recommendations for Africa to deal with the plastic waste management, including the implementation of novel technologies and the use of plastic waste to support the construction industry.

- Global externalities from avoided emissions in the Costa Rican cattle sector: opportunities for more efficient mitigation policies [4].

The case study by Dall'Orsoletta and Cechin performs a cost–benefit analysis of a climate policy in the Costa Rican cattle sector. Its innovative aspect relies on the inclusion of the positive global externality of emissions reduction and its effect in attractivity into the analysis. This paper shows that taking externalities into account makes sectorial climate mitigation policies more efficient and appealing for investments. The contribution to green economy happens by means of generating a negative carbon balance while promoting socio-economic outcomes such as investments and new jobs. In addition to representing an opportunity for future investigations in different economic sectors and national contexts, the study also poses the challenge on how to make the consideration of global positive externalities advantageous to both funders and beneficiaries and represent an efficient global climate mitigation strategy.

- Human development, greenhouse gas emissions and sub-national mitigation burdens: a Brazilian perspective [5].

Ambrósio, Da Cunha, Pires, Costa, Faria and Gurgel analyse greenhouse gas emissions and the Human Development Index of Brazilian microregions to design a mitigation scheme that considers the standards of living of each region and balances economic development with environmental responsibility. The principles of green economy are considered as the framework contributes to reducing the development gap between societies and achieving carbon emissions mitigation pledges. This research article represents an international reference for future investigations around carbon emission analysis in developing countries and the need for addressing environmental and socioeconomic development.

- Determinants of use of solar energy as an alternative means of energy by small and medium enterprises in Lagos State, Nigeria [6].

Anaba and Olubusoye collected data from Small and Medium Enterprises in Lagos State, Nigeria, to investigate the determinants of use of solar energy as an alternative means of energy. By using descriptive statistics and binary logistic regression, the authors found that policy support, the cost of electricity, and organizational processes of electricity distribution companies are among the major determinants of the use of solar energy in the region. In addition to recommendations for these enterprises and the electricity distribution companies, the study also provides insights on investment opportunities for the solar energy industry in Nigeria.

- Optimization of energy consumption and its effect on the energy use efficiency and greenhouse gas emissions of wheat production in Turkey [7].

Imran and Ozcatalbas built their study on the need for combining efficient use of energy in crop production and sustainable agriculture for a greener economy and a healthier environment. The authors modelled energy use, energy efficiency, and greenhouse gas emissions in rain-fed wheat production in Turkey by applying interviews with farmers and data envelopment analysis. Among the results is the fact that the use of diesel fuels and chemical fertilizers should

be optimized for increased energy efficiency and reduced carbon emissions, in addition to data of energy usage per hectare of production, total emissions and the potential for energy savings.

1 Future research

In addition to deepening into the matters discussed in this Topical Collection, future research may also cover the challenges of the second half of the period for the implementation of the Sustainable Development Goals, the impacts of global crises and conflicts on sustainable production and consumption, and the contribution of technology improvements to a more sustainable environment and to fighting climate change.

2 Tendencies

The mechanisms in place behind the delivery of good sustainability practices, standards and choice of products are under-explored or analysed.

The shortcomings of the fairtrade movement need to be recognised and addressed, so that a meaningful contribution to greening the economy is attained.

Many companies around the globe are committed to integrating sustainability into company strategy and into product development, but not all organizations follow up the change. The ESG (Environmental, Social and Governance) strategy framework can really help to greener economy and its potential should be further explored.

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References

1. Ribeiro-Duthie AC, Gale F, Murphy-Gregory H. Fair trade governance: revisiting a framework to analyse challenges and opportunities for sustainable development towards a green economy. *Discov Sustain*. 2021;2:58. <https://doi.org/10.1007/s43621-021-00063-6>.
2. Oranye NP, Aremu AW. The duty to cooperate in state interactions for the sustainable use of international watercourses. *Discov Sustain*. 2021;2:45. <https://doi.org/10.1007/s43621-021-00055-6>.
3. Amankwa MO, Tetteh EK, Mohale GT, et al. The production of valuable products and fuel from plastic waste in Africa. *Discov Sustain*. 2021;2:31. <https://doi.org/10.1007/s43621-021-00040-z>.
4. Dall'Orsoletta F, Cechin AD. Global externalities from avoided emissions in the Costa Rican cattle sector: opportunities for more efficient mitigation policies. *Discov Sustain*. 2021. <https://doi.org/10.1007/s43621-021-00045-8>.
5. Ambrósio G, Da Cunha DA, Pires MV, et al. Human development, greenhouse gas emissions and sub-national mitigation burdens: a Brazilian perspective. *Discov Sustain*. 2021;2:35. <https://doi.org/10.1007/s43621-021-00044-9>.
6. Anaba SA, Olubusoye OE. Determinants of use of solar energy as an alternative means of energy by small and medium enterprises in Lagos State, Nigeria. *Discov Sustain*. 2021;2:29. <https://doi.org/10.1007/s43621-021-00038-7>.
7. Imran M, Ozcataltas O. Optimization of energy consumption and its effect on the energy use efficiency and greenhouse gas emissions of wheat production in Turkey. *Discov Sustain*. 2021;2:28. <https://doi.org/10.1007/s43621-021-00035-w>.

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