Comment

O Discover

The economics of the UN Sustainable Development Goals: does sustainability make financial sense?

Walter Leal Filho^{1,8} · Maria Alzira Pimenta Dinis² · Salvador Ruiz-de-Maya³ · Federica Doni⁴ · João Henrique Eustachio⁵ · Julia Swart⁶ · Arminda Paço⁷

Received: 19 April 2022 / Accepted: 7 June 2022 Published online: 20 June 2022 © The Author(s) 2022 OPEN

Abstract

The implementation of the UN Sustainable Development Goals is a global priority, but one whose full implementation is vulnerable to the high costs associated with it. This raises the question: does the implementation of the SDGs make financial sense? This article addresses this question and outlines the need to raise awareness of the economic benefits of implementing the global goals. Further, it presents and discusses the main financial gaps to achieve the Sustainable Development Goals by 2030.

Keywords Sustainable Development Goals (SDG) · Economic impact · Investment · SDG financing

1 Introduction

The 17 United Nations Sustainable Development Goals (SDGs) were designed to create a vision for achieving a sustainable future. An international framework was formed to help countries with their development efforts. Furthermore, it is intended to create a sense of accountability and pressure that allows positive progression toward sustainable development [1]. The SDGs target developing or less developed countries by urging richer nations to support programmes in the less deprived or developed regions [2, 3].

More specifically, the SDGs were designed to, among other things, provide a basis to end poverty, eradicate hunger, protect the planet, and improve the quality of life in the world, ensuring a balance is achieved between social, economic, and environmental sustainability [4]. These challenges are more pressing in the least developed countries, which are precisely those countries lacking the (financial) resources to implement the necessary changes. In this article, we analyse the importance of financial instruments for achieving the SDGs, and we assess the gaps in attaining the SDGs in a timely manner. The costs to achieve the SDGs, the challenges faced by investors, and the various factors related to sustainable

Arminda Paço, apaco@ubi.pt; Walter Leal Filho, walter.leal2@haw-hamburg.de; Maria Alzira Pimenta Dinis, madinis@ufp.edu.pt; Salvador Ruiz-de-Maya, salvruiz@um.es; Federica Doni, federica.doni@unimib.it; João Henrique Eustachio, eustachio@usp.br; Julia Swart, j.swart@uu.nl | ¹Department of Natural Sciences, Manchester Metropolitan University, All Saints Building, Oxford Road, Manchester M15 6BH, UK. ²UFP Energy, Environment and Health Research Unit (FP-ENAS), University Fernando Pessoa (UFP), Praça 9 de Abril 349, 4249-004 Porto, Portugal. ³Marketing Department, University of Murcia, Campus de Espinardo, 30100 Murcia, Spain. ⁴Department of Business and Law, University of Milano-Bicocca, Via Bicocca degli Arcimboldi, 8, 20216 Milan, Italy. ⁵School of Economics, Business Administration and Accounting at Ribeirão Preto, University of São Paulo (USP), Avenida dos Bandeirantes 3900, Ribeirão Preto, SP 14040-905, Brazil. ⁶Utrecht School of Economics, Utrecht University, Kriekenpitplein 21-22, 3584 EC Utrecht, The Netherlands. ⁷NECE-UBI (Research Centre for Business Sciences), Universidade da Beira Interior, R. Marquês D'Ávila e Bolama, 6201-001 Covilhã, Portugal. ⁸Research and Transfer Centre "Sustainable Development and Climate Change Management", Hamburg University of Applied Sciences, Ulmenliet 20, D-21033 Hamburg, Germany.



investment are taken into consideration. Having this clear understanding of the economic and financial aspects related to pursuing the SDGs is fundamental for tracing the plans for achieving them within the 2030 frame.

2 The UN Sustainable Development Goals and their economic aspects

The implementation of the SDGs has deep economic implications. The urge for achieving the SDGs by 2030 implies that more attention should be placed on the analysis and assessment of the costs of implementing the SDGs and the (intertemporal) costs of not pursuing them [5–8]. Thus, several organisations have been carrying out costing exercises regarding the implementation of the SDGs, as well as estimates of the global resources needed to achieve them. The results, however, hardly allow comparisons [9].

For instance, the 2014 World Investment Report estimated that USD\$5 trillion to USD\$7 trillion per year, between 2015 and 2030, would be necessary to globally achieve the SDGs, where USD\$3.3 trillion to USD\$4.5 trillion per year would be dedicated to the developing countries, mainly for basic infrastructure, food security, climate change policies, health, and education [10]. One of the most prominent studies carried out later by OECD [11] defends that the policies and resources of OECD countries (e.g., taxation, investment, fees, transference of funds) can have a huge impact on enabling more sustainable financing. However, if it is then take into account that around 80% of global financial assets (USD\$ 379 trillion) are kept in OECD countries, the governments of low-income developing countries will need significant growth in fiscal income and international cooperation to enable them to finance the costs needed to implement the SDGs [12].

In addition to this complexity, with the unexpected event of the pandemic caused by COVID-19, the investments needed to implement the SDGs have been compromised. This is problematic, because even before the pandemic emerged, the progress to attain the targets was already meager, facing several constraints [13, 14]. Before the crisis triggered by the pandemic, most countries were already struggling to finance the 2030 Agenda, with a financial gap of USD\$ 500 billion for low-income countries and USD\$ 2 trillion for other developing countries [15]. Furthermore, McKinsey Global Institute [16] estimates that countries should spend about US\$3.3 trillion annually to close the infrastructure gap by 2030 (deficit of US\$0.8 trillion), which comprises the costs for basic and local infrastructure in high, middle, and low-income countries.

But the economic dimension of implementing selected SDGs, as highlighted by Black Rock [17], needs to include the estimated cost of inaction (as a share of global GDP). Biodiversity loss, for example, generated an estimated cost of USD\$ 10–31 trillion per year or 11% to 36% of global GDP in the period 1997 to 2011 [18]. Moreover, this cost of inaction is not limited to the SDGs that are not progressing at the required speed to meet the deadline (2030), which means that it is necessary to treat SDGs as a network and not as stand-alone targets. The elimination of this cost of inaction requires, in addition to funds, the engagement of different stakeholders—the private sector, official development assistance, international financing institutions, civil society, and philanthropies.

The Addis Ababa Agenda Action argues the need for more money to finance public services for achieving the SDGs [19]. The least developed countries, in particular, need a strict commitment of the public sector to stimulate the mobilisation of financial resources. International financial institutions can reduce the perceived risks, while national policies can incentivise the alignment of financial systems to long-term sustainable development and increase access to finance. To better align private sector incentives and practices with SDGs that foster long-term quality investment, some proposals have introduced a consistent framework [15], a SDG Industry matrix [19], and the identification of infrastructure assets that are likely to have certain outcomes in line with the SDGs [20], or the understanding of SDGs through the financial materiality lens [17].

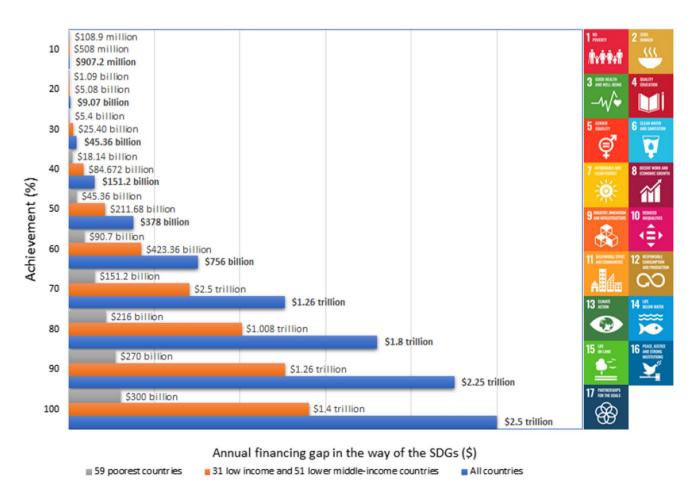
Few studies have also analysed specific SDGs. Prakash et al. [21], for example, evaluated the costs to achieve SDG 11, which relates to sustainable cities and communities and identified difficulties in its assessment due to the complexity and scope of the urban systems. Despite these difficulties, further research should be carried out to understand the costs of reaching SDG 11, given the need for smart, sustainable, and efficient cities, and the forecast that about 60% of the population will be living in urban areas by 2030 [21]. In turn, Hutton and Varughese [22] analysed SDG 6 (clean water and sanitation) and estimated that an investment of US\$13.8 to \$46.7 billion per year is necessary to achieve two out of the eight targets (6.1—Safe and affordable drinking water and 6.2—Sanitation and hygiene for all), predicting great difficulties in most low and middle-income countries, as well as in high-income countries with low WASH (Water, Sanitation, and Hygiene) coverage. Concretely, resources need to be moved to basic sanitation and hygiene in countries and areas where this gap is larger (for instance, urban areas account for 70% of the costs to achieve basic WASH). Regarding SDG 3 (good health and well-being), Stenberg et al. [23] analysed 67 countries with different health systems and estimated

that an additional \$274 billion in spending on health is needed per year by 2030 to make improvements in this goal. In a more ambitious scenario, the total healthcare expenditure would raise around \$271 per person. Notwithstanding the increases in health investment, a financing gap of \$20–54 billion per year is forecasted by the authors. Development Initiatives (DI) [24] analysed the gaps in existing estimates for SDG 3 and SDG 4 (quality education) and found that the main problems were 'the costs of scaling up to cover the full population; the higher unit costs of reaching the most marginalised people and places; the costs of some health interventions; the costs of reaching people affected by future crises; the full costs of moving to more equitable financing models.

3 Overcoming financial gaps for SDG attainment at the country scale

Figure 1 illustrates the financial gaps hindering the SDGs to be achieved as a whole, according to data from the United Nations [25] and UNA-UK [26]. The graphics allow us to compare the needs in the three reported cases, i.e., the 59 poorest countries; the 31 low-income and 51 lower-middle-income countries; and all countries which, together need to further advance the SDGs. The values presented report the achievement percentage in each case. The annual SDG funding gap lies between \$1.4 to \$3 trillion and between \$300 to \$528 billion for the 'low-income and lower middle-income and the 'poorest' countries, respectively. However, for ensuring clarity, only the lower limits have been projected in Fig. 1 for both cases. The values mentioned above reflect the existing financial gap in case 100% achievement of SDGs is to be fulfilled by 2030.

The implementation of the SDGs is a global priority, and the role of economic instruments and sustainable financing options became essential in overcoming the costs associated with implementing the 2030 agenda through bridging the funding gaps for socioeconomic and environmental challenges [27].



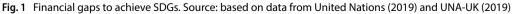


Table 1 Country-specific i	Table 1 Country-specific initiatives for green sustainable financing	
Country/sector	Reference	Description
Western Balkan countries Lukšić, et al. [29] G7 countries Yang et al. [30]	Lukšić, et al. [29] Yang et al. [30]	Use of both historical and innovative instruments for financing sustainable green development Green finance is observed as a key determinant of sustainable performance, measured through Envi- ronment Social & Governance (ESG) indicators)
Africa	Aust et al. [31]	Foreign Direct Investments (FDI) can benefit SDGs scores in developing economies
United Nations	Financing for Sustainable Development Report 2022. Inter-agency Task Force on Financing for Develop- ment [8]	The report recommends urgent measures to financing gaps and rising debt risks, to align financing flows with sustainable development, and to improve information transparency
European Council	EU Long term budget 2021–2027 [32]	The EU commitment to the SDGs includes an unprecedented target of green spending by allocating 30% of the total budget to fight climate change

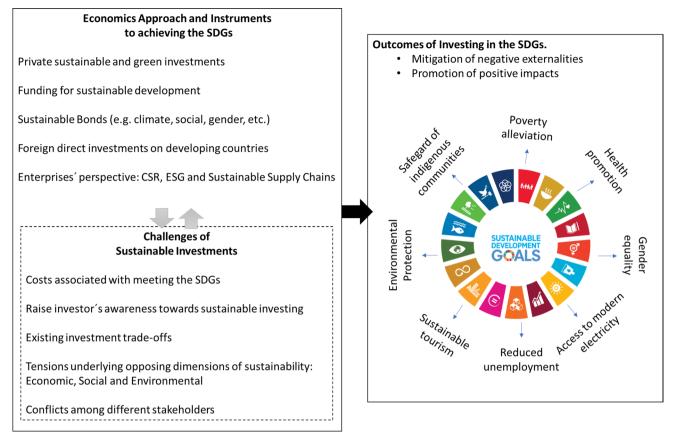


Fig. 2 Outcomes of investing in the SDGs

In particular, great attention has been paid to sustainable financing and investments [28]. Some examples of these instruments are private investments, foreign direct investments, funding sources for sustainable development, sustainable bonds, and other sources of capital from local, federal, and international sources [27. 28]. In addition, economic and policy instruments such as taxes, tax exemptions, or auctions could mitigate the negative externalities towards a more sustainable society. Table 1 shows a summary of the main recent country-specific initiatives undertaken for green and sustainable financing.

3.1 CSR in the private sector and SDGs

The relationship between the private sector's CSR initiatives and SDGs is largely recognized and can generate positive financial effects [33–36]. For example, Schramade [37] explored the investment opportunities of SDGs by identifying two kinds of reasons for investing in SDGs: returns to society and returns to shareholders which evidences some differences among SDGs in terms of estimated amounts of opportunities. More recently, a study carried out by Consolandi et al. [38] offered a methodology for measuring the contribution of health care companies to achieve SDG 3 linking the goal's targets with the SASB's generic ESG issues by adopting the financial materiality perspective. Nevertheless, a scarce engagement with the SDGs for organizations may create a process of "SDGs washing" [39], this is, a process in which firms use SDGs to market their positive contribution to achieving some objectives while neglecting their negative impact on others, or it can negatively affect the "sell" recommendations of financial analysts [40].

4 Implementing the SDGs: investment and cost of not implementing

Achieving the SDGs should not, however, be seen only from a cost perspective, but also as an investment. The SDGs can open up relevant growth opportunities in terms of market opportunities, estimated at USD\$ 12 trillion in four relevant economic systems, i.e., food and agriculture, cities, energy and materials, and health and well-being. This global economic advantage can be higher by considering the whole economic system and the increase in labour and resource productivity [17].

However, despite the several existing approaches to deal with sustainability challenges, there is a latent need to perceive the positive economic aspects of sustainability when implementing the SDGs and to overcome the costs involved. The economic perspective with several instruments—such as sustainable investments, accountability and transparency mechanisms [11]—play an essential role in helping societies meet the SDGs, either by reducing the negative externalities or by fostering the positive ones. Figure 2 synthesises this perspective by illustrating how economic approaches and sustainable investments and funding make sense for sustainability promotion. The figure illustrates, for example, that the SDGs promote more justice around the world, which has an economic benefit (e.g., less money devoted to security and prosecution processes). Many other arrows can be added to Fig. 2, which all lead to a positive economic impact.

5 Conclusion

As this article has shown, although sustainable investments make sense for pursuing the 2030 Agenda, there are still challenges to overcome, such as the costs associated and the lack of investors' awareness in making sustainable investments, changing the old belief that sustainable investing is not profitable. In addition, recent research on the paradox of corporate sustainability points to the complexity of dealing with sustainable investing, as it is a decision-making process that happens in several contexts that involve several trade-offs, competing interests among various stakeholders, and even conflicting objectives when considering the dimensions of sustainability. Despite these challenges, there is an urge for researchers and organisations to deepen their understanding of the mechanisms to maximise sustainable investing and of how it can become common and not an exception among investors and other stakeholders so that the SDG financing gap can be addressed, benefiting the people and the planet [11]. In summary, the social cost of not achieving the SDGs should urge us to join efforts and make use of synergies to reach a better world for current and future generations.

Acknowledgements Not applicable.

Author contributions Conceptualization—WLF; literature review—FD and AP; methodology and data analysis: MAPD, Salvador Ruiz-de-Maya and JHE; writing—reviewing and editing—JS. All the authors read and approved the final manuscript.

Funding Not applicable.

Data availability Not applicable.

Declarations

Ethics approval and consent to participate Not applicable.

Consent for publication Not applicable.

Competing interests We disclose that there is no actual or potential conflict of interest including any financial, personal or other relationships with other people or organizations within three years of beginning the submitted work that could inappropriately influence, or be perceived to influence, their work.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit http://creativecommons.org/licenses/by/4.0/.

References

- 1. Fraisl D, Campbell J, See L, Wehn U, Wardlaw J, Gold M, Moorthy I, Arias R, Piera J, Oliver JL. Mapping citizen science contributions to the UN sustainable development goals. Sustain Sci. 2020;15(6):1735–51.
- 2. Doni F, Gasperini A, Soares JT. Monitoring, evaluation, and reporting on SDG 13 Implementation. In: Doni F, Gasperini A, Soares JT, editors. SDG13–climate action: combating climate change and its impacts. Bingley: Emerald Publishing Limited; 2020. p. 73–84.
- 3. United-Nations. United-Nations Goal 13: Take urgent action to combat climate change and its impacts. 2020. https://www.un.org/sustainabl edevelopment/climate-change/. Accessed 01 May 2022.
- 4. UNDP. The SDGs in Action. 2021. https://www.undp.org/sustainable-development-goals. Accessed 01 May 2022.
- 5. Bhamra A, Shanker H, Niazi Z. Achieving the Sustainable Development Goals in India- A Study of Financial Requirements and Gaps. A report by Technology and Action for Rural Development. Supported by United UNDP and MOEFCC, GOI. 2015. https://www.devalt.org/images/L3_ ProjectPdfs/AchievingSDGsinIndia_DA_21Sept.pdf. Accessed 01 May 2022.
- 6. UNEP. Making Waves: Aligning the financial system with sustainable development. United Nations Environment Programme. 2018. http://admin.indiaenvironmentportal.org.in/files/file/Making_Waves_lowres.pdf. Accessed 01 May 2022.
- Turner J, Burgess B. Estimating Financing to the Sustainable Development Goals: Methodology Note for V2.0. Williamsburg, VA: AidData at William & Mary. 2019. https://reliefweb.int/report/world/estimating-financing-sustainable-development-goals-version-20?gclid=Cj0KCQjwyM iTBhDKARIsAAJ-9VupfatZ6K1tGGRoz7tBfvrJ6NrMrnmlv5u0Epi4rTAOYM_ONL8xk5UaAkjkEALw_wcB. Accessed 01 May 2022.
- 8. United-Nations. Financing for Sustainable Development. Inter-agency Task Force on Financing for Development. 2022. https://desapublic ations.un.org/file/955/download. Accessed 01 May 2022.
- 9. Vorisek D, Yu S. Understanding the Cost of Achieving the Sustainable Development Goals. Policy Research Working Paper, Equitable Growth, Finance and Institutions Practice Group. Washington: World Bank; 2020. p. 9146.
- 10. UNCTAD (United Nations Conference on Trade and Development). Investing in the SDGs: an action plan. World Investment Report. New York: United Nations. 2014.
- 11. OCDE. Global outlook on financing for sustainable development 2021: a new way to invest for people and planet. Paris: OECD Publishing; 2020. https://doi.org/10.1787/e3c30a9a-en.
- 12. SDSN costing and financing team. SDG costing and financing for low-income developing countries. sustainable development solutions network. a global initiative for the United Nations. 2019.
- 13. Caiado RGG, Leal Filho W, Quelhas OLG, de Mattos Nascimento DL, Ávila LV. A literature-based review on potentials and constraints in the implementation of the sustainable development goals. J Clean Prod. 2018;198:1276–88.
- 14. Moyer JD, Hedden S. Are we on the right path to achieve the sustainable development goals? World Dev. 2020;127: 104749.
- 15. OECD, UNDP. Framework for SDG Aligned Finance. 2020. https://www.oecd.org/development/financing-sustainable-development/Frame work-for-SDG-Aligned-Finance-OECD-UNDP.pdf. Accessed 01 May 2022.
- 16. McKinsey Global Institute. Bridging global infrastructure gaps. New York: McKinsey and Company; 2016.
- 17. Black Rock. Sustainable Investing. Integrating the UN SDGs in Investments. July 1, 2021. https://www.blackrock.com/institutions/en-zz/liter ature/whitepaper/integrating-un-sdgs-investments.pdf. Accessed 01 May 2022.
- 18. OECD. Biodiversity, Finance and Economic, and Business Case for Action. 2019. https://www.oecd.org/env/resources/biodiversity/biodiversi ty-finance-and-the-economic-and-business-case-for-action.htm. Accessed 01 May 2022.
- 19. UN and KPMG. SDG Industry Matrix, Financial Services, United Nations and KPMG. SDG Industry Matrix. 2015.
- 20. PRI, UNEP, UN. How infrastructure investors can contribute to SDG outcomes. 2020. https://www.unpri.org/download?ac=10896. Accessed 01 May 2022.
- 21. Prakash M, Kamiya M, Ndugwa R, Cheng M. Counting the costs: a method for evaluating the cost of achieving SDG 11. Front Sustain Cities. 2020;2: 554728.
- 22. Hutton G, Varughese M. The Costs of Meeting the 2030 Sustainable Development Goal Targets on Drinking Water, Sanitation, and Hygiene Summary Report. World Bank Group's Water Global Practice. 2016.
- 23. Stenberg K, Hanssen O, Edejer T, Bertram M, Brindley C, Meshreky A, Rosen J, Stover J, Verboom P, Sanders SA. Financing transformative health systems towards achievement of the health Sustainable Development Goals: a model for projected resource needs in 67 low-income and middle-income countries. Lancet Global Health. 2017;5(9):e875–87.
- 24. Development Initiatives (DI). How complete are financing estimates for the health and education goals? The cost of achieving SDG 3 and SDG 4. Development Initiatives Poverty Research Ltd. UK. 2020.
- 25. United-Nations. Resolution adopted by the General Assembly. 15 October 2019. https://undocs.org/en/A/RES/74/4. Accessed 01 May 2022.
- 26. UNA-UK. Filling the finance gap. https://www.sustainablegoals.org.uk/filling-the-finance-gap/. Accessed 15 July 2019.
- 27. Clark R, Reed J, Sunderland T. Bridging funding gaps for climate and sustainable development: pitfalls, progress and potential of private finance. Land Use Policy. 2018;71:335–46.
- 28. Migliorelli M. What do we mean by sustainable finance? Assessing existing frameworks and policy risks. Sustainability. 2021;13(2):975.
- 29. Lukšić I, Bošković B, Novikova A, et al. Innovative financing of the sustainable development goals in the countries of the Western Balkans. Energ Sustain Soc. 2022;12:15.
- 30. Yang Q, Du Q, Razzaq A, Shang Y. How volatility in green financing, clean energy, and green economic practices derive sustainable performance through ESG indicators? A sectoral study of G7 countries. Resour Policy. 2022;75: 102526.
- 31. Aust V, Morais Al, Pinto I. How does foreign direct investment contribute to Sustainable Development Goals? Evidence from African countries. J Clean Prod. 2020;245: 118823.
- 32. European Council. EU Long term budget 2021–2027. 2021. https://www.consilium.europa.eu/en/policies/the-eu-budget/long-term-eubudget-2021-2027/. Accessed 01 May 2022.
- 33. Malan D. Corporate support for the SDGs: a South African perspective. J Corp Citizsh. 2016;64:98–120.
- 34. Serafeim G. Investors as stewards of the commons? J Appl Corp Financ. 2018;30(2):8–17.

- 35. Bull B, Miklian J. Towards global business engagement with development goals? Multilateral institutions and the SDGs in a changing global capitalism. Bus Polit. 2019;21(4):445–63.
- 36. Lu H, Oh W-Y, Kleffner A, Chang YK. How do investors value corporate social responsibility? Market valuation and the firm specific contexts. J Bus Res. 2021;125:14–25.
- 37. Schramade W. Investing in the UN Sustainable Development Goals: opportunities for companies and investors. J Appl Corp Financ. 2017;29(2):87–99.
- 38. Consolandi C, Phadke H, Hawley J, Eccles RG. Material ESG outcomes and SGD externalities: evaluating the health care sector's contribution to the SDGs. Organ Environ. 2020;33(4):511–33.
- 39. Heras-Saizarbitoria I, Urbieta L, Boiral O. Organizations' engagement with sustainable development goals: from cherry-picking to SDG-washing? Corp Soc Responsib Environ Manag. 2022;29(2):316–28.
- 40. Garcia-Sanchez IM, Aibar-Guzman B, Aibar-Guzman C, Rodriguez-Ariza L. "Sell" recommendations by analysts in response to business communication strategies concerning the Sustainable Development Goals and the SDG compass. J Clean Prod. 2020;255: 120194.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.