



Poverty: A central barrier to the implementation of the UN Sustainable Development Goals

Walter Leal Filho^a, Violeta Orlovic Lovren^b, Markus Will^c, Amanda Lange Salvia^{d,*},
Fernanda Frankenberger^e

^a European School of Sustainability Science and Research, Hamburg University of Applied Sciences and Department of Natural Sciences, Manchester Metropolitan University, Chester Street, Manchester M1 5GD, UK

^b Faculty of Philosophy, University of Belgrade, Belgrade, Serbia

^c University of Applied Sciences Zittau/Görlitz, Theodor-Körner-Allee 16, 02763 Zittau, Germany

^d Graduate Program in Civil and Environmental Engineering, University of Passo Fundo, Campus I - BR 285, São José, 99052-900 Passo Fundo, RS, Brazil

^e Business School PUCPR, Pontifical Catholic University of Paraná, Rua Imaculada Conceição, 1155, Curitiba; and Brazil Business School, Universidade Positivo, Rua Pedro Viriato Parigot de Souza, 5300, Curitiba, Brazil

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ABSTRACT

Poverty is one of the central elements in the transformative promise of the 2030 Agenda: leave no one behind. Ending poverty in all forms and everywhere is the first Sustainable Development Goal (SDG) and much can be discussed about its impact on several other sustainability elements. In this context, this paper explores the role of poverty and why it poses a central barrier in the implementation of the SDGs in developing countries. The research questions intended to assess: i) to which extent poverty is seen as a sustainability challenge and properly included in governance actions, ii) which are the SDGs most negatively affected by poverty, and iii) which are the main challenges for the implementation of SDG 1. An international survey was performed with researchers, professors, and representatives of administrative sectors in universities from 34 countries round the world. The vast majority of those taking part in the study consider poverty to be a threat to the implementation of the SDGs in their countries. Practically all goals are seen to be hampered, especially SDG 2 'Zero Hunger', SDG 3 'Good Health and Well-being', SDG 4 'Quality Education' and SDG 6 'Clean Water and Sanitation'. The implications of this paper are twofold: it illustrates the need to pay a special attention to poverty reduction which may pose a central barrier to the implementation of the SDGs and describes a set of items needed, in order to foster the implementation of one of the key goals.

1. Introduction: defining poverty and assessing its implications

Despite several efforts undertaken by international organisations, countries, and communities, poverty is still one of the biggest problems in the world. Currently, 10% of world's population live under the defined international poverty line of US\$1.90 a day (United Nations, 2020). Whereas some industrialised countries may not perceive poverty as such a big issue, this phenomenon is also seen among them: even rich countries such as the UK, Germany, the United States or Sweden, have areas where poverty is widely spread, despite the fact that its consequences are not as dramatic as in the developing world since they have well developed social safety nets.

Poverty is in one hand simple to define, but on the other hand a very

complex concept. According to the United Nations (2020), it entails "more than the lack of income and productive resources to ensure sustainable livelihoods. Its manifestations include hunger and malnutrition, limited access to education and other basic services, social discrimination and exclusion, as well as the lack of participation in decision-making". For the World Bank (2018), "poverty encompasses [not only] a shortfall in income and consumption, but also low educational achievement, poor health and nutritional outcomes, lack of access to basic services, and a hazardous living environment".

This plurality and broadness of conceptualization comes from the multidimensionality of poverty (Oduwale, 2015), as it can be analysed in several ways following the indication of Laderchi et al. (2003): poverty aspects in life; the universality of poverty concept; objectiveness

* Corresponding author.

E-mail address: amandasalvia@gmail.com (A.L. Salvia).

and subjectiveness of poverty; poverty lines; unit of poverty definition; poverty time horizon; and lifetime poverty. Furthermore, the definition also depends on the aspects under analysis: while absolute poverty indicates the total amount of people living below a specific and official threshold – the line of US\$ 1.90 per day – relative poverty sets the analysis within a context, comparing household income with national average, for example (Collins, 2020). Either way, the current estimates may contain a high level of uncertainty (Moatsos and Lazopoulos, 2021), demanding more efforts and discussions in this area.

Poverty may be regarded as a puzzle, as it leads to and is mainly influenced by problems such as income inequality, unemployment, high vulnerability to disasters, poor health, crime and lack of education. Poverty is also negatively influenced by climate change, since it may be associated with reductions in agricultural yields or crop failure (Ubisi et al., 2017; Mtintsilana et al., 2021), droughts or floods, which may cause significant damages to properties, and endanger livelihoods, representing a set of “poverty traps” (Leal Filho, 2019a, 2019b).

Education has a potentially large impact on poverty increase or decrease. On an individual level, children with poor education have unequal opportunities for their development, and on a societal level, countries with poor education systems have difficulties in finding the necessary workforce (Tierney, 2015). With poor economic growth, there will be fewer work opportunities leading to unemployment and income inequality, hence closing the circle. Poor people tend to live in urban or peri-urban areas with little access to social services and facilities, with little environmental quality, and are consequently more vulnerable to health problems. In areas with social problems and limited work opportunities, crime rate tends to rise.

Another view of poverty is its connection to social exclusion and inclusion, even though the terms refer to broader aspects than economic issues (Azmat, 2020). One may argue that social exclusion is a broader concept and poverty would be included in it, but they are in fact distinct terms, and have a different focus. Poverty on the one hand focuses on the conditions of individuals, on households, and on distributional issues; social exclusion on the other hand focuses on the society as a whole, and in relational issues, including political, cultural, and social rights (Azmat, 2020; Madanipour et al., 2015). Poverty might be considered as part of social exclusion, but can also lead to it.

Fig. 1 presents a group of elements that have an important role in the process of fighting poverty. In addition to education and training resources, resilience to climate change, and social protection, as discussed above, this list also highlights the importance of economic resources and

basic needs, related to employment, socio-economic development, and access to health and sanitation, for example (United Nations, 2015a); financial support, in relation to aid and availability of resources (Antoniades et al., 2020); and governance, as the set of policies, planning and strategies to lead against poverty (Doumbia, 2019).

Along with the increased interest and global concern for issues of poverty, reflected in policy documents and declarations of historical events, such as the Agenda 21 (United Nations, 1992), the Johannesburg Plan of Implementation (JPI) (United Nations, 2002) as well as the Millennium Declaration (United Nations, 2000) and the 2030 Agenda (United Nations, 2015a), the varying concepts of poverty and their related phenomena may be identified. While, for example, in its Chapter 3, Agenda 21 contains the topic and the aim of ‘combating poverty’, in chapter II of the JPI it is stressed that ‘eradicating poverty’ is one of the greatest challenges and requirements for sustainable development; adopting the Millennium Declaration, participants agreed to “free” poor people from “dehumanizing conditions of extreme poverty”, establishing the framework of eight Millennium Development Goals (MDGs) with the first one aimed at “eradicating extreme poverty and hunger”(United Nations, 2000). Building upon the achievements of the MDGs, oriented towards “halving the proportion” of poor, hungry and economically excluded people (MDG Monitor <https://www.mdgmonitor.org/mdg-1-eradicate-poverty-hunger/>), the 2030 Agenda for Sustainable Development with its set of Sustainable Development Goals (SDGs) again brings particular attention to poverty, formulating the Goal 1: “End poverty in all its forms everywhere” (de Jong and Vijge, 2021; United Nations, 2015a). It clearly sends the message that poverty still exists in different parts of the world, including developing but also some areas within developed countries, promoting the holistic and transformative approach and calling for the responsibility of all countries in addressing the complex phenomenon of poverty.

Bearing in mind the central role that poverty plays in the context of the SDGs, the purpose of this paper is to provide a contribution to a better understanding of how poverty as a SDG is perceived among members of the academic community, and of the barriers they see, which may hinder efforts to fight it. In other words, the paper discusses the role of poverty and why it poses a central barrier in the implementation of the SDGs in developing countries. Additionally, it seeks to explore the following research questions:

- i) Is poverty seen as a sustainability challenge and properly included in governance actions?

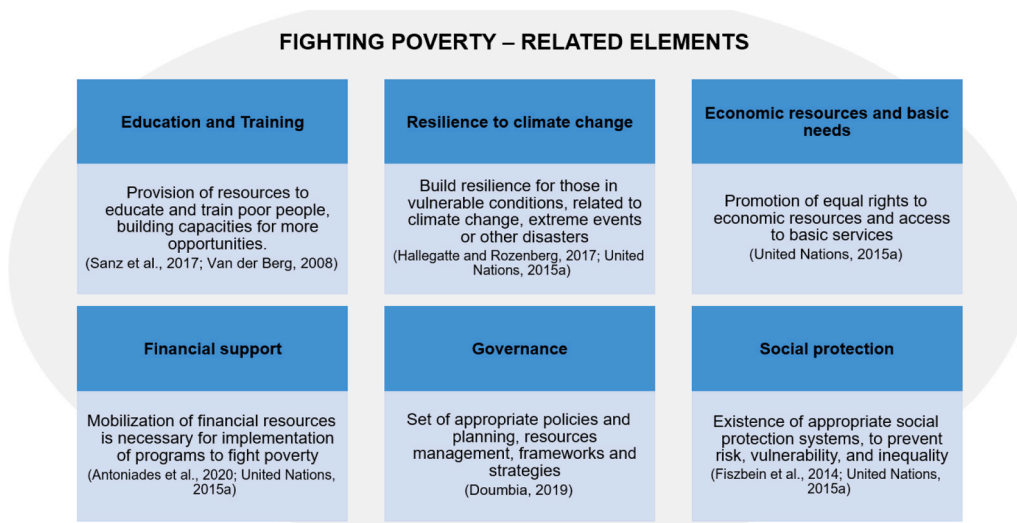


Fig. 1. Main elements related to the process of fighting poverty and what they entail.

Source: based on Antoniades et al. (2020), Doumbia (2019), Fiszbein et al. (2014), Hallegatte and Rozenberg (2017), Sanz et al. (2017), United Nations (2015a), Van der Berg (2008).

- ii) Which are the SDGs most negatively affected by poverty?
 iii) Which are the main challenges for the implementation of SDG 1?

The objective of the analysis is to provide a basis upon which we can better understand the central role that poverty plays in reducing the abilities of countries to pursue other central SDGs.

The following section describes the relevance of poverty as a Sustainable Development Goal.

2. Ending poverty as a Sustainable Development Goal

As stated above, the United Nations formally acknowledged in the year 2000 the problem of poverty by establishing the MDGs, which were eight global goals to be reached by the year 2015. “Eradicate extreme poverty and hunger” was the first one, including targets such as reducing extreme poverty, achieving employment for all and reducing the proportion of people suffering from hunger. According to The Millennium Development Goals Report published in 2015 (United Nations, 2015b) the global mobilization provided by the MDGs was the most successful anti-poverty movement in history.

Despite the remarkable achievements, including the decline in extreme poverty (population living on less than US\$1.90 a day) in developing countries from nearly 50% in 1990 to 14% in 2015 and the decline by more than 50% in the number of people living in extreme poverty worldwide (MDG Monitor, 2017), the progress reached was uneven across countries (Fehling et al., 2013) and many challenges remained. In this context, as a continuity of the MDGs, the Sustainable Development Goals (SDGs) were set up as part of the 2030 Agenda for Sustainable Development (United Nations, 2015a). With a set of 17 goals and 169 targets to be achieved by 2030, the SDGs have “leaving no one behind” as a key aim, evidencing the significance of poverty reduction for sustainability and world development (Liu et al., 2015). Even though each SDG has its specific role in the pathway towards sustainability, goals and targets are not independent and should act in an integrated and balanced way, considering its synergies and trade-offs (Biggeri et al., 2019; Sachs et al., 2019).

“End poverty in all its forms everywhere” is the first goal of Agenda 2030 (SDG 1) and contains a set of 7 targets to guide actions for its implementation by 2030, acknowledging topics such as extreme poverty (target 1.1), poverty in all dimensions (1.2), vulnerability and control over natural resources (1.3 and 1.4), in addition to recognising the connection between poverty and climate-related extreme events and other disasters (1.5), and the importance of mobilising resources and creating policies for poverty eradication actions (1. A and 1. B) (United Nations, 2015a; Schleicher et al., 2018). Furthermore, SDG 1 represents a noticeable example of goal that has great synergies with most of the other SDGs, especially SDG 3 (Good health and wellbeing), SDG 4 (Quality education), SDG 5 (Gender equality), SDG 6 (Clean water and sanitation), and SDG 10 (Reduced inequalities) (Pradhan et al., 2017), indicating that progress among them are highly associated.

Although this association among SDGs is complex and much deeper than relating sets of targets, Table 1 shows how each goal has at least one target associated with poverty-related issues – ranging from provision of basic services to development of capabilities. Additionally, the implementation of various goals can also help to address poverty. For instance, sustainable production and consumption (SDG 12) envisaged action in respect of energy efficiency, sustainable infrastructure, and the provision of access to basic services, green -and decent jobs- and a better quality of life for all. These elements also help to reduce poverty, and so does education (SDG 4) and addressing climate change (SDG 13) which is known to negatively influence the livelihoods of many people in the developing world. Since climate change is a matter known to influence (or worsen) poverty, a proper understanding of how these issues interact is important in identifying appropriate solutions.

As discussed by Cichos and Salvia (2018), some challenges to the implementation of SDG 1 should be considered and overcome to ensure

Table 1

Sustainable Development Goals and examples of targets with connection to poverty-related issues.

	2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.
	3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.
	4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship
	5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate
	6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all
	7.1 By 2030, ensure universal access to affordable, reliable and modern energy services
	8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training
	9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all
	10.1 By 2030, progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average
	11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums
	12.1 Implement the 10-year framework of programmes on sustainable consumption and production, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries
	13. B Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities
	14.7 By 2030, increase the economic benefits to Small Island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism
	15. C Enhance global support for efforts to combat poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities
	16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels
	17.4 Assist developing countries in attaining long-term debt sustainability through coordinated policies aimed at fostering debt financing, debt relief and debt restructuring, as appropriate, and address the external debt of highly indebted poor countries to reduce debt distress

Source: Based on United Nations (2015a)

that its targets are met and efforts are effectively put into practice. They include underestimated poverty definitions, lack of specific financial/political commitments and need for integrated policies. In addition, both Jacob (2017) and Schleicher et al. (2018) highlighted the need for accurately measuring the goals and its indicators, since inefficient measurements can result in performance failures, especially for poverty aspects which can be subjective and difficult to assess.

The latest report on the implementation efforts for the SDGs indicates that the world is not on track to end extreme poverty by 2030 (United Nations, 2020). Additional data show that extreme poverty is

affecting mostly rural populations and that the problem is exacerbated by conflicts and climate change, especially in poorer countries (Khanal et al., 2021). Notwithstanding these obstacles and concerns, several efforts have been put into practice in order to fight poverty and the challenges associated with it, and contribute to the implementation of SDG 1, including vocational training for the unemployed, support for small businesses, and improved access to infrastructure and public services (Cichos and Salvia, 2018), mostly supported by actions of the United Nation Development Programme that has poverty as one of its priorities (United Nations, 2017). The role of the business sector should also be highlighted as an important component of social and economic development, especially by promoting improved employment opportunities and therefore addressing one of the main causes of poverty (Frey and Sabbatino, 2018; Maksimov et al., 2017).

Current efforts to address poverty are being negatively influenced by the surge of the Coronavirus disease (COVID-19). It was officially named as a pandemic by the World Health Organisation in March 2020, and it keeps adding a significant pressure to the health systems of both industrialised and developing nations. As shown by the early evidence, the impacts of COVID-19 pose an additional burden to wider social and economic systems, affecting again the most vulnerable social groups, who “suffer disproportionately both from the pandemic and its aftermath” (UN-DESA, 2020). It certainly hinders efforts towards reducing poverty and increases challenges for implementing the SDGs, having in mind the above presented synergy between SDG 1 and all the other goals.

3. Methodology

In order to investigate the possible influence of poverty in the implementation of the SDGs, an international survey was performed by means of an online questionnaire, targeted at environment and education experts from around the world. A set of questions (Appendix A) was prepared by the authors and pre-test among colleagues with experience in sustainability issues. The research team aimed at preparing a straightforward questionnaire to answer the research questions and facilitate data collection.

The instrument for data collection was then sent via Google Forms to about 480 professionals which are part of, or associated with the Inter-University Sustainable Development Research Programme (IUSDRP, <https://www.haw-hamburg.de/en/ftz-nk/programmes/iusdrp.html>). These members are researchers, professors or representatives of

administrative sectors in their universities, and share involvement with sustainable development efforts. The strategy for data collection is characterised as voluntary response sampling, since the potential respondents received the invitation to participate and decided whether or not to respond to the survey, based on their experience. Reliability and validity are ensured since respondents are familiarised with the concepts of sustainability and of the 2030 Agenda. As standard in such cases, where no personal information is collected or stored, and where the answers are anonymous and cannot be traced back to any respondent, no ethics application is needed or ethical approvals are required.

The survey received 106 responses (representing a response rate of ca. 22%) from 34 countries between August-September 2019. The majority of respondents are from Brazil ($n = 13$), Kenya ($n = 13$), Nigeria ($n = 11$) and Ethiopia ($n = 9$), while other low- and middle-income countries are represented with lower shares i.e., Ghana ($n = 6$), Uganda ($n = 5$), Zimbabwe ($n = 5$), India ($n = 4$). There were also respondents from South Africa ($n = 4$) and China ($n = 3$). All participating countries are represented in Fig. 2.

In addition to investigating the negative influence of poverty on the SDGs, the survey was also useful to collect data on the integration of SDG 1 with governance, relation to climate change and analysis about the barriers which hinder the implementation of this goal. Closed-ended questions were analysed through simple descriptive statistics and the open-ended question followed a content analysis with support of the software NVivo, where responses were grouped using a pre-defined set of categories (the main elements related to the process of fighting poverty), as presented in Fig. 1.

4. Results and discussion

The purpose of this study was to explore the possible influence of poverty in achieving the other SDGs, i.e., if poverty hinders their effective implementation. The vast majority (98% of the respondents) consider poverty to be a threat to the implementation of the SDGs in their countries. For this question, the respondents have been asked to assess which SDGs are most negatively affected on a 5-item Likert scale (i.e., 1 – not at all, 2 – to small extent, 3 – to some extent, 4 – to a moderate extent, 5 – to a great extent). Fig. 3 illustrates these results. Practically all SDGs are seen to be hampered, especially SDG 3 ‘Good Health and Well-being’, SDG 2 ‘Zero Hunger’, and SDG 4 ‘Quality Education’. If weighted values are considered, these goals return the highest values: 3.23, 3.07 and 3.00, respectively. Goals that had over

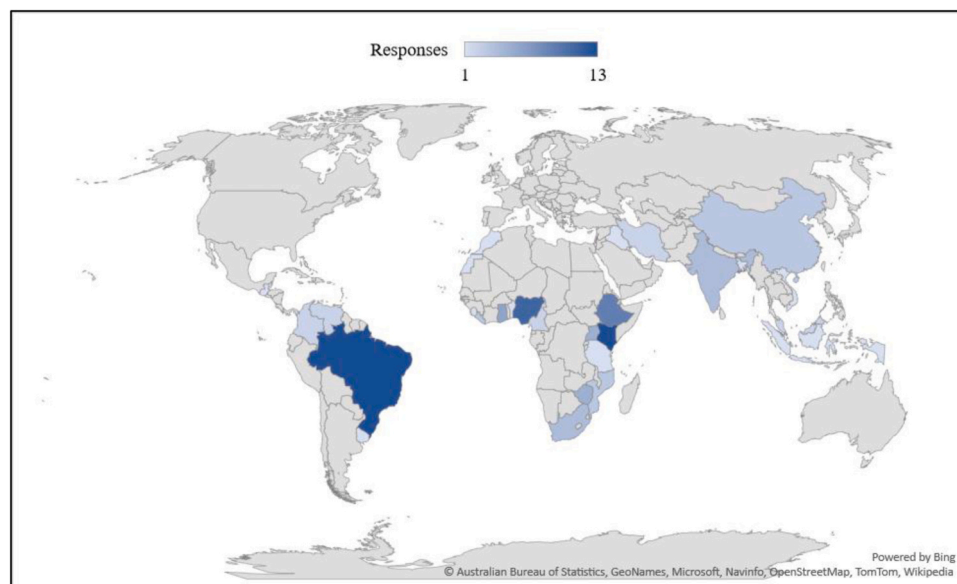


Fig. 2. Participating countries according to number of responses.

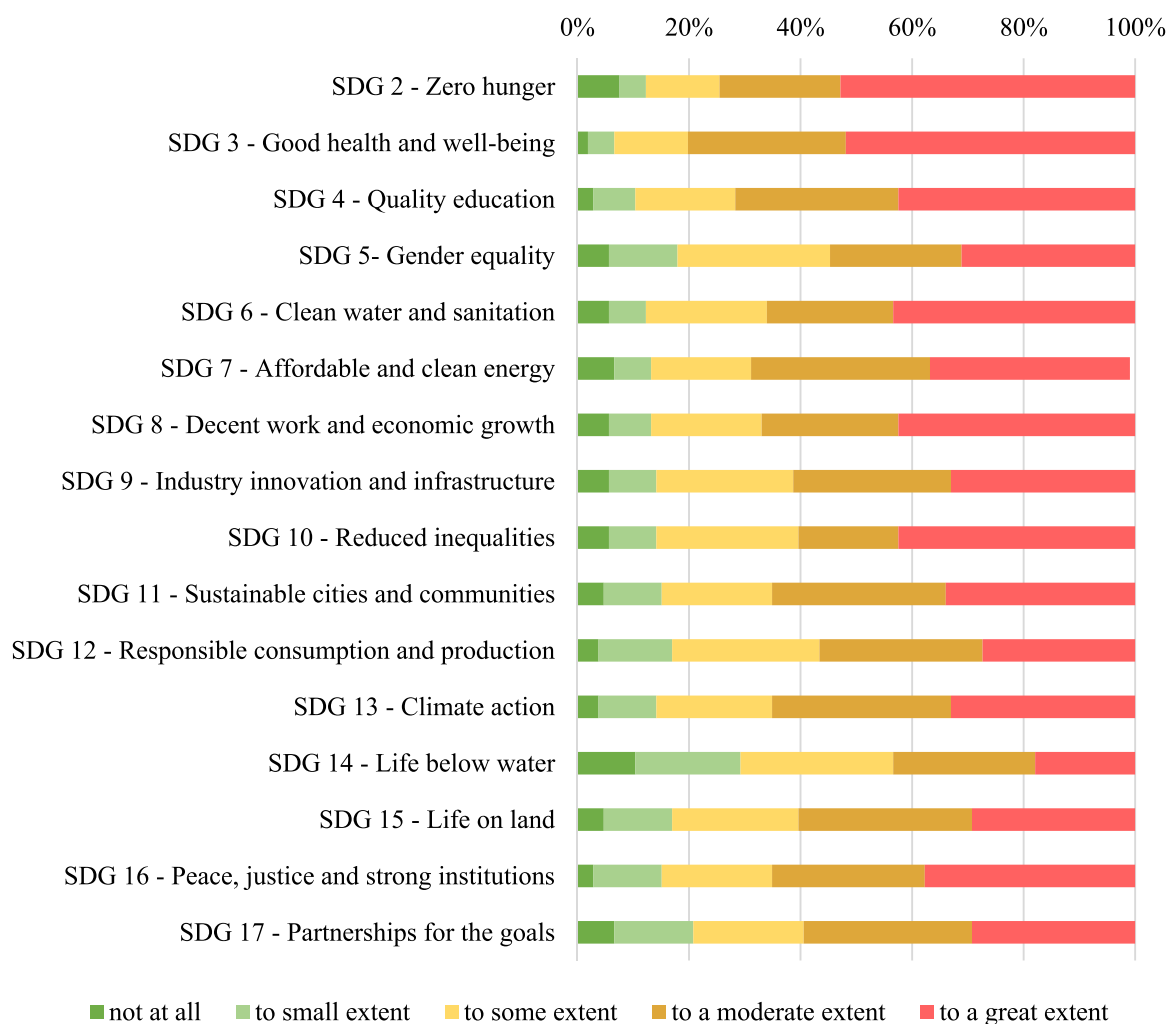


Fig. 3. Emphasis to negative impacts of poverty in each SDG.

40% of the sample indicating the most negative impact were SDGs 2, 3, 4, 6, 8 and 10, with close connection to the synergies presented by Pradhan et al. (2017).

Poverty is not the only issue which could adversely affect the achievement of the goals. Rather, there is a complicated mixture of influences. One of these important influencing factors could be seen in the consequences of climate change (Nilsson et al., 2016; ICSU, 2017). The participants have been asked if they feel climate change poses a threat to the implementation of SDG 1 in their countries. The vast majority state that climate change affects the implementation of SDG 1 (51% largely, 34% to some extent, 6% very little). Only a minor group (9%) consider climate change to have not much influence on achieving the poverty goal. Several authors and important international organisations indicate that the impacts of climate change include risks to eradicating poverty, especially due to the serious and disproportional effect in poorer communities (IPCC, 2018; Islam and Winkel, 2017; United Nations, 2019). These impacts can make more than 100 million people fall back into extreme poverty by 2030 (UNDP, 2018).

In the following question, respondents have been asked to indicate if they believe the efforts to integrate SDG 1 in policies and governance are being satisfactorily made in their countries. Most respondents (64%) expressed these efforts are satisfactory, but merely to “some” (20%) or “very little” (38%) extent; just 6% of the respondents indicated the efforts to be largely satisfactory. The remaining 36% of the sample consider the political efforts as not satisfactory (29% not much; 7% not at all). This result is especially alarming considering the sample of

developing nations, with several countries suffering from severe poverty rates. It also relates to the fact that current efforts to implement SDG 1 appear not to be enough to meet the set targets by 2030 (United Nations, 2020).

Asked to select all barriers that apply in their respective countries (Fig. 4), respondents have chosen *lack of proper governance* as the main barrier (80%), followed by *lack of financial resources* (71%) and *lack of training programmes* (58%) from a predefined set of answers (multiple answers were allowed). Besides the pre-defined set of answers, the participants were given the opportunity to add other barriers. Some of the answers seem to fit into the predefined categories (i.e., 9 out of 34 answers refer to the categories *lack of proper governance* and *lack of policies*, including references to transparency and political commitment, for example). The others could be clustered in four categories: stakeholder commitment, engagement and awareness raising ($n = 10$), corruption and social distortion (e.g., inequalities, nepotism, corrupt leadership, conflicts and political uncertainties) ($n = 9$), climate change impacts ($n = 4$), instruments and data (lack of appropriate tools to measure poverty, lack of reliable data) ($n = 2$).

In the last question, respondents were asked about which measures they think would be necessary to achieve the targets of SDG 1 in their countries. The responses were classified according to the main elements to fight poverty, as shown in Fig. 5. A total of 170 measures were indicated (by 93 respondents). Reflecting the results of the previous question on challenges, most responses refer to Governance issues (53% of the references), followed by Education and Training (14%), Economic

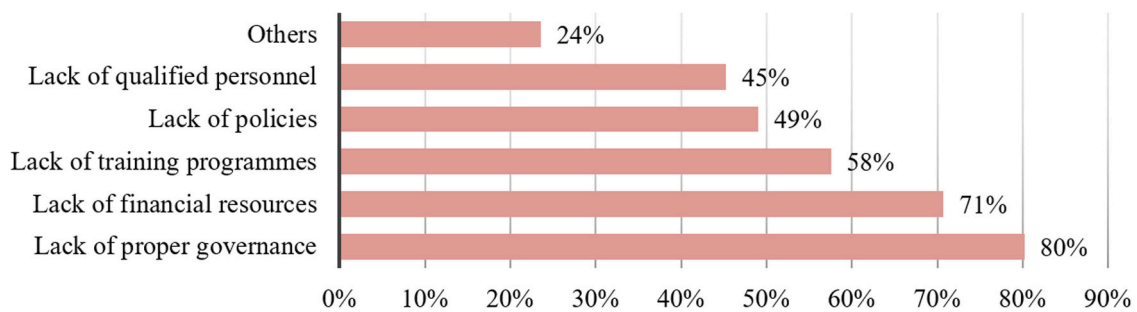


Fig. 4. Barriers that hinder the implementation of SDG 1 in the respondent's country.

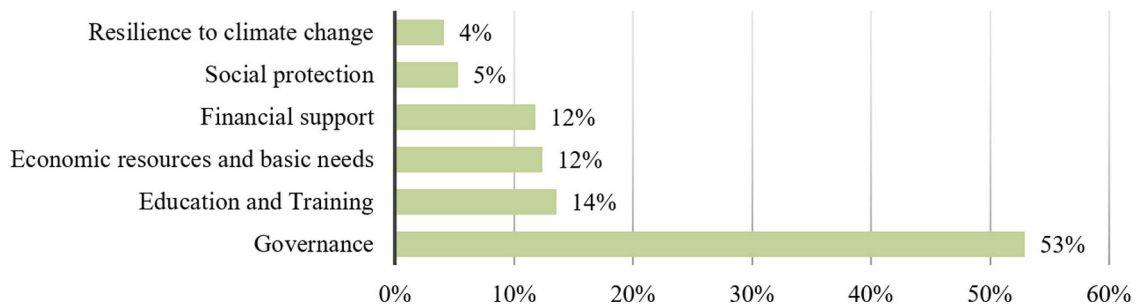


Fig. 5. Classification of measures indicated by the respondents to achieve SDG 1 in their countries.

resources and basic needs (12%), and Financial support (12%). Aspects of governance are widely discussed in the literature in connection with poverty (Doumbia, 2019; Hannan, 2014; De Matteis, 2013), especially highlighting its importance aiming at aiding allocation and effective results in poverty reduction. Terms covered by the classification and examples of responses on measures to achieve SDG 1 are presented in Table 2. The table also explores the connection between the mentioned terms with other SDGs. While the impacts are more strongly felt in SDGs 2, 3 and 4, the goals related to peace (SDG 16) and partnerships (SDG 17) have essential roles in overcoming the poverty challenges.

While poverty is often related to dependence and even harmful effects on environmental resources and ecosystems (UNDPandUNEP Poverty-Environment Initiative, 2019), the ecological footprint is still much higher in developed countries and households with higher income and consumption rates (WWF, 2012). There is an unequal distribution of risks in the world, with stronger regulation, more strategic orientation and higher investments in increasing community resilience in more developed countries (Orlovic-Lovren and Pejatovic, 2015). In spite of achievements gained and the adoption of the Hyogo and Sendai frameworks for disaster risk reduction, more than 1.5 billion people have been affected by disasters in various ways between 2005 and 2015. Also, between 2008 and 2012, 144 million people were displaced by disasters, caused largely by climate change and related processes, challenging progress towards sustainable development (United Nations, 2015c; Boyland et al., 2019).

Looking forward, the power of education to contribute to the implementation of SDGs in general, and to SDG 1 in particular, has its particular potentials when challenges related to social inclusion and resilience are concerned. Current data suggest that a 12% cut in global poverty could be gained, by assuring that all students in low-income countries acquired basic reading skills until the end of their schooling (Education and Academia Stakeholder Group, 2017). Based on this fact, an increase in the quality of school achievements and of teachers' professional development (as envisaged in SDG 4), may be one of the tools which may be deployed, to help to mitigate poverty.

The current problems posed by COVID-19 also mean that it may pose another barrier towards reducing poverty as a whole, and in addressing SDG 1 in particular. Whereas the consequences of COVID-19 are not

similar to those caused by previous pandemics such as SARS, avian influenza, and MERS, all of which led to damages to livestock, food shortages and food price hikes, it is already having a variety of global impacts such as:

















- disturbances in the stock market;
- reductions in economic activities such as industrial production, with factories and numerous service providers being shut down; and
- restrictions in people's movements, leading to a collapse of the world's largest industry: travel and tourism.

According to the International Food Policy Research Institute (2020), as a result of the partial paralysis of business activity caused by COVID-19 containment measures, global poverty would increase by a simulated 14 million people. This number could increase to 22 million if trade channels were disrupted (IFPRI, 2020).

Based on the study and a cross-check against the literature, future efforts in implementing SDG 1 could be enhanced by various measures, which could include:

- Developing and applying new analytical frameworks (Boyland et al., 2019) such as the framework for transforming relationships between development and DRR, and methodology of assessment (World Bank, 2018) with a view to better capturing poverty issues in development programmes.
- Strengthening of partnerships among UN agencies in undertaking initiatives addressing poverty (example: UNDP & UNEP's Poverty-Environment Initiative – PEI, <https://www.unpei.org/>).
- Strengthening the interrelations between academic communities and policy-making by means of schemes such as the Inter-University Sustainable Development Research Programme (IUSDRP, <https://www.haw-hamburg.de/en/ftz-nk/programmes/iusrp.html>) and the Inter-Academy Partnership (IAP, 2019), and also partnerships with the health sector as a means of monitoring the progress of epidemics and pandemics, which may negatively influence poverty-reduction efforts.
- Greater policy coherence at global and national levels, including improvements in the coordinated implementation of different SDGs

Table 2
Terms covered by the classification and examples of responses on measures to achieve SDG 1.

Element	Terms covered	Example of responses	Related SDGs
Governance	Adequate policy	<i>“Effective planning & implementation of policies and programs”</i> <i>“Strong policy framework and institutions”</i> <i>“Often top-bottom initiatives are implemented. We need to assess the initiatives that these communities need and want alongside with the people that will effectively be affected”</i>	 
	Align policies with the SDGs		
	Appropriate and proper governance		
	Better/Good/Effective/Proper/Strong Governance		
	Democracy		
	End corruption		
	Quality leadership		
	Transparency		
	Bottom-up approach		
	Citizen engagement		
	Partnerships		
	Poor people participation		
Strengthen Public Private Partnership			
Inclusive participatory processes			
Education and Training	Awareness	<i>“Train more personnel in climate change adaptation in agriculture and extension”</i> <i>“To implement training for the population”</i> <i>“To make sure people go through educational institutions”</i>	   
	Capacity building		
	Sensitization		
	Measures to improve education		
Economic resources and basic needs	Affordable food sources and health services	<i>“Create jobs, increase salaries”</i> <i>“Measures to provide access to decent jobs”</i>	    
	Basic needs/services		
	Economic development/equality/growth		
	Employment		
	Enhance access to basic services		
	Human development		
	Improved welfare		
	Income distribution		
Socio-economic development			
Financial support	Adequate financial resources	<i>“Providing adequate financial resources”</i>	
	Blended financing		
	Financial aid/resources		
Social protection	Ensuring social protection	<i>“By way of ensuring social protection”</i> <i>“Resume and strengthen social programs and create new social inclusion policies”</i>	  
	Equity across nations		
	Maintain peace and stability		
	Regulate standard of living		
	Social assistance/inclusion		
	Strengthen social programs		
	Women empowerment		
Resilience to climate change	Adaptation	<i>“State commitment to environmental conservation, mitigation and adaptation to climate change”</i>	
	Address climate change		
	Build resilience against natural disasters		
	Solutions for climate change		
	Vulnerability recognition		

so that they are mutually complementary and not seen in competition with one another.

5. More shared efforts in investments at the international and national level, in particular in education, health and the social inclusion of those people living in extreme poverty.

Finally, dealing with the complexity of poverty, as obvious as it may be, requires coordinated efforts in the implementation of all the SDGs – so as to maximise synergies and reduce the risks of overseeing the implementation of SDG 1 – which is one of the central Sustainable Development Goals.

5. Conclusions

This study aimed at investigating the extent to which poverty influences the achievements of the SDGs. To this purpose, an online survey was undertaken and gathered responses from participants from 36

countries. They represent researchers, professors and administrative staff of universities, involved in sustainable development issues in their countries, as well as at the international level.

The results obtained through the online survey show that the vast majority (98%) of the respondents consider poverty to be a threat to the implementation of almost all the SDGs in their countries and in particular to SDG 2 ‘Zero Hunger’, SDG 3 ‘Good Health and Well-being’, SDG 4 ‘Quality Education’ and SDG 6 ‘Clean Water and Sanitation’.

According to most of the respondents (91%), climate change and its consequences are among the significant threats to the implementation of SDG 1 in their countries, adding to the complexity of interrelated influences which affect the achievement of this and the other goals. Asked to indicate the barriers for the implementation of SDG 1, respondents have chosen lack of proper governance as the main barrier (80%), followed by lack of financial resources (71%) and lack of training programmes (58%). Finally, the findings suggest that despite the achievements in respect of addressing poverty to date, persisting

inequalities among industrialised and developing nations remain.

A recent trend that has emerged during the completion of this study was the global crisis which is now being experienced due to the COVID-19 pandemic. Whereas this is a recent trend, this crisis has been posing a further barrier towards addressing poverty in developing countries. This is so for two main reasons:

- a) their fragile economic systems are unable to fully cope with the impacts caused by the closure of businesses, interruptions of industrial production and services such as travel, and the suspension of the many informal economic activities which millions of people rely on;
- b) being poor nations, they do not have the financial support seen in rich countries, which has helped them to cope with long periods of reduced economic activities. This, in turn, means that poverty is likely to be exacerbated in several developing countries, hence hindering efforts towards reducing it.

The implications of this paper are twofold: it illustrates the need to pay special attention to poverty reduction which may pose a central barrier to the implementation of the SDGs – outlined by unexpected pandemics such as COVID-19 – and describes a set of items needed, in order to foster the implementation of one of the key SDGs. A contribution from this study to the literature is seen in relation to the fact that it has examined the elements which influence poverty and its relation to the implementation of other SDGs. The central thesis of this paper, namely that full achievement of the SDGs is at risk if not sufficient emphasis is given to SDG 1, is corroborated by the evidence herewith presented.

The data obtained has some limitations. Firstly, no generalizable statements can be derived from the drawn sample, since it is not representative. A representative survey on a global scale, comprising at least 34 nations as in this non-probability purposive sample, would be extremely costly. Secondly, the specific composition of the sample with regard to demoscopic data or the professional or academic background of the respondents was not processed, apart from the fact that it entails experts on sustainable development.

However, despite these constraints – which are common in international surveys with multi-country participation – the paper provides a timely contribution to the literature since it has identified the influences of SDG 1 on the implementation of the SDGs. It also illustrates how the latter influence it. This type of understanding is needed, and should be taken into consideration by government and international donors, since tackling poverty requires a deeper knowledge of its roots and, as importantly, about the most effective ways to address it. This is especially so at present, when the world as a whole – and poor countries in particular – struggle to cope with the pandemic and its manifold impacts. In this context, it is hoped that this paper may provide a contribution to the process.

CRediT authorship contribution statement

Walter Leal Filho: Conceptualization, Supervision, Writing – review & editing. **Violeta Orlovic Lovren:** Writing – review & editing. **Markus Will:** Writing. **Amanda Lange Salvia:** Writing – review & editing. **Fernanda Frankenberger:** Writing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.envsci.2021.08.020](https://doi.org/10.1016/j.envsci.2021.08.020).

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