Palacký University Olomouc

University of Clermont Auvergne

University of Pavia

Analysis of the social foundation of the safe and just space framework: dimensions, indicators, and thresholds

Oscar Antonio Rodríguez Valdiviezo

Supervisor: Miroslav Syrovátka

GLODEP 2022

Declaration

I, Oscar Antonio Rodríguez Valdiviezo, hereby declare that the Master Thesis "Analysis of the social foundation of the safe and just space framework: dimensions, indicators, and thresholds", submitted to Palacký University Olomouc to fulfill the requirements of the Erasmus Mundus Joint Master Degree in Development Studies and Foresight - GLODEP, was authored by myself under the supervision of associate professor Miroslav Syrovátka. This document is my original work, except where explicitly stated otherwise, and it has not been submitted for any other degree or professional qualification except the one mentioned above.

May 2022

UNIVERZITA PALACKÉHO V OLOMOUCI

Přírodovědecká fakulta

Akademický rok: 2021/2022

ZADÁNÍ DIPLOMOVÉ PRÁCE

(projektu, uměleckého díla, uměleckého výkonu)

Jméno a příjmení:	**Oscar Antonio RODRIGUEZ VALDIVIEZO**
Osobní číslo:	**R200649**
Studijní program:	**N0588A330003 Development Studies and Foresight**
Specializace:	**Development Studies and Foresight – specialization in Global Development Policy**
Téma práce:	**Safe and just space framework for developing countries: social indicators and thresholds**
Zadávající katedra:	**Katedra rozvojových a environmentálních studií**

Zásady pro vypracování

The doughnut economics of social and planetary boundaries, safe and just space (SJS), constitute an innovative approach to the measurement of sustainable human well-being. However, there is not a single nation capable of meeting its citizens' needs at a globally sustainable level of resource use. The studies that applied the SJS framework showed particularly poor performance of developing countries in the social aspect, with some of them not being able to achieve more than a single threshold. Thus, it’s imperative to analyze to what extent is the social dimension of the SJS framework (i.e., indicators and thresholds) appropriate for developing countries.

Rozsah pracovní zprávy:	**10-15 tisíc slov**
Rozsah grafických prací:	**dle potřeby**
Forma zpracování diplomové práce:	**tištěná/elektronická**
Jazyk zpracování:	**Angličtina**

Seznam doporučené literatury:

- Fanning, A.L., O’Neill, D.W., Hickel, J. *et al.* The social shortfall and ecological overshoot of nations. *Nat Sustain* **5**, 26–36 (2022). https://doi.org/10.1038/s41893-021-00799-z
- O’Neill, D.W., Fanning, A.L., Lamb, W.F. *et al.* A good life for all within planetary boundaries. *Nat Sustain* **1**, 88–95 (2018). https://doi.org/10.1038/s41893-018-0021-4
- Raworth, K. (2017). Doughnut economics : seven ways to think like a 21st-century economist. London: Random House.
- Raworth, K. (2017). Why it’s time for doughnut economics. IPPR Progressive Review, 24(3), 217-222. doi:10.1111/newe.12058

Vedoucí diplomové práce: **doc. Mgr. Miroslav Syrovátka, Ph.D.**
Katedra rozvojových a environmentálních studií

Datum zadání diplomové práce: **21. ledna 2022**
Termín odevzdání diplomové práce: **30. května 2022**

L.S.

doc. RNDr. Martin Kubala, Ph.D.
děkan

doc. RNDr. Pavel Nováček, CSc.
vedoucí katedry

V Olomouci dne 20. ledna 2022

Acknowledgments

This thesis would not have been possible without the invaluable assistance, opinions, and patience of my research supervisor, associate professor Miroslav Syrovátka, to whom I am very grateful for all the guidance that helped me to improve this investigation remarkably.

To my classmates of the GLODEP 4th cohort, thank you for all the learnings given out in every interaction we had, not only in the classroom but also in our day-to-day. Your sharing has broadened my knowledge and understanding of life.

I would also like to express my gratitude to all of my friends who have kept attentive to me during this journey, especially to José Jerónimo Olvera León for all the helpful insights and support throughout the process of preparing this thesis.

To Klára Poštulková, we accidentally concur in this journey, but since we did, you have become my motivation and inspiration to achieve every goal that I have set for myself. Thank you for being by my side and giving me peace and support. To your parents (Andrea and Aleš) and all your family, I would like to express my most sincere appreciation and indebtedness for their generous support and kindness whenever I needed it.

Above anybody else, I'm grateful to my parents (Petrona and Antonio) and siblings (Alexis and Nicole); none of this would be possible without you… we made it. There are no words to describe how lucky I am that you are my family; I carry you in my heart in every step I take, and if life gave me another chance, I would choose you as my family again… I love you.

"… and the world we live in will be either better or worse, depending on whether we become better or worse. And that's where the power of love comes in. Because when we love, we always strive to become better than we are."

— *Paulo Coelho, The Alchemist*

Abstract: The doughnut economics' safe and just space (SJS) framework constitutes an innovative approach for measuring sustainable human well-being. However, since it was first published, little attention has been paid to the process of selecting the dimensions, indicators, and thresholds that shape the socially just space (social foundation). This thesis evaluates how adequate the social foundation is for measuring progress toward human prosperity. It seeks to identify potential shortcomings that need to be corrected so that the socially just space can serve as an accurate global-scale compass for human well-being. Likewise, it attempts to serve as input for future discussions on the suitability of the SJS framework for developing countries. The analysis comprises a critical review of the origins of the social foundation and an evaluation of its sufficiency in assessing human deprivations. The results reveal that Raworth's social foundation cannot grasp complex social challenges adequately; its scope is constrained but can be substantially enhanced without changing the criteria used for its establishment. The recommendations for improvement contemplate four new dimensions, five complementary and three substitute indicators, which result in a "reinforced socially just space" that depicts a considerably different snapshot in the current state of human deprivations than the one presented by Raworth.

Keywords: sustainable development, human well-being, doughnut economics, safe and just space (SJS), socially just space, social foundation.

Contents

List of tables

List of figures

List of abbreviations

CCI	Control of Corruption Index
CPI	Corruption Perception Index
FAO	Food and Agriculture Organization
FIES	Food Insecurity Experience Scale
GPI	Global Peace Index
GWP	Gallup World Poll survey
HDI	Human Development Index
IEA	International Energy Agency
IHDI	Inequality-adjusted Human Development Index
ILO	International Labour Organization
ILOSTATS	International Labour Organization Statistics database
IMF	International Monetary Fund
ITU	International Telecommunication Union
MDGs	Millennium Development Goals
MHD	Medium Human Development
MPI	Global Multidimensional Poverty Index
OECD	Organization for Economic Co-operation and Development
OPHI	Oxford Poverty and Human Development Initiative
PISA	Programme for International Student Assessment
SDGs	Sustainable Development Goals
SDSN	Sustainable Development Solutions Network
SJS	Safe and Just Space framework
UN	United Nations
UN DESA	United Nations Department of Economic and Social Affairs
UNCSD	United Nations Conference on Sustainable Development
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNSTATS	United Nations Statistics Division
VAI	Voice and Accountability Index
WB	World Bank
WGI	World Governance Indicators project
WHO	World Health Organization
WHR	World Happiness Report

Introduction

This thesis was initially intended to analyze the adequacy of the social foundation of the safe and just space (SJS) framework for developing countries. However, during the research process came to light that its sufficiency to serve as a global-scale compass for human well-being has never been assessed. Thus, the scope was redirected to evaluate how adequate the social foundation is for measuring progress toward human prosperity at the global level. In any case, in the "further discussion" section of this thesis, some ideas on how the suitability analysis for developing countries could be carried out are disclosed.

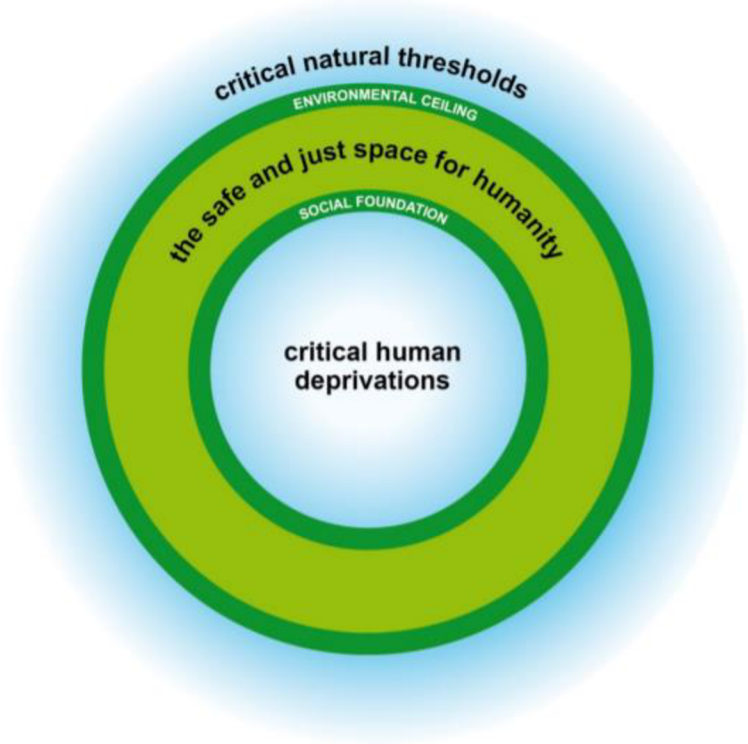
The doughnut economic concept was first launched in 2012 –in the context of growing discussions on how global development goals should be renewed, updated, or expanded since the target date for the Millennium Development Goals (MDGs) was approaching– as a possible new model for prosperity capable of promoting economic development while having equity as its core part.

According to (Raworth, 2012), the doughnut is both an *ecologically safe* and *socially just space* –*Safe and Just Space* (SJS)– in which humanity can blossom and is there (within the doughnut) where human well-being is ensured, and inclusive and sustainable economic development occurs. Moreover, when quantifying the social and ecological thresholds, the framework becomes a global-scale compass to track the current state of human well-being in relation to the boundaries of sustainable development.

The SJS framework (see *figure 1*) focuses on the interlinkages of the social and environmental dimensions of sustainable development; it consists of two focal rings that, when put together, create a sealed structure –a doughnut-shaped space– that safeguards against acute human deprivations as avoiding critical natural hazards.

The inner ring –*social foundation*– constitutes the life essentials that no one should lack; below its limits lies acute human deprivation. On the other hand, the outer ring –*ecological ceiling*– frames the planetary boundaries of the systems that give life to the Earth; going above them is considered critical planetary degradation.

Figure 1 Envisioning a space for sustainable development.



Source: Retrieved from (Raworth, 2012, p. 7), copyright 2012 by Oxfam International.

The SJS framework provided a groundbreaking proposal –bringing humanity into the doughnut to promote human well-being instead of seeking unlimited economic growth. For this reason, it has been well received and quickly adopted in discussions among different spheres (e.g., academia, policymaking, progressive business, urban planning, and civil society) as an innovative frame of mind for sustainable development.

Sometimes, it is even considered above the UN Sustainable Development Goals (SDGs), which pursue a similar objective, as the path that should lead to human prosperity. Nevertheless, this approach may not be the most appropriate since the SDGs constitute the global indicator framework that guides the decisions that countries must take to pursue sustainable development.

Moreover, the current socially just space (dimensions, indicators, and thresholds) was retrieved from agreed minimum standards for human well-being set out in the SDGs. Still, there is a substantial difference between the extent of these two frameworks in areas of critical importance for humanity. Thus, it may be unfeasible to achieve human prosperity through only part of the SDGs, as the SJS framework intends, since the global snapshot of human deprivations that the socially just space depicts may not be representative of the whole spectrum of social challenges for sustainable development.

The SJS framework's empirical research is still maturing; it has been incorporated in some studies (i.e., analysis of performance, trends, and forecasts of socio-ecological relationships at different levels –regions, countries, and cities), and some critics have been generated around it. However, these

focus on the frameworks' ecological ceiling, and little attention has been paid to the social foundation. Furthermore, to this day, no one has challenged Raworth's reliability and coherence in establishing the socially just space; everybody has accepted the given foundation without reviewing the process in detail (i.e., the criteria used for the selection of dimensions, indicators, and thresholds).

In that sense, without downplaying the ecological aspect, this thesis seeks to identify possible shortcomings (gaps, limitations, weaknesses, and opportunities for improvement) that need to be corrected so that the socially just space can serve as an accurate global-scale compass for human well-being. Likewise, it strives to evaluate how adequate and reliable is the social foundation for measuring progress toward human prosperity. Finally, it intends to serve as input for future discussions regarding the suitability of the socially just space of the SJS framework for developing countries.

For the purposes mentioned above, this research is organized by first delving into the historical context of sustainable development on which the social foundation was erected to provide the first insights into possible shortcomings with respect to the whole spectrum of social priorities for sustainable development.

Later on, it analyzes the sufficiency of its indicators and thresholds to adequately capture the human deprivations that each dimension intends. The in-depth review includes, when appropriate, recommendations on complementary or substitute indicators, which seek to broaden the social foundation scope and strengthen the analysis that can be derived from it. Lastly, based on the findings promotes further discussion regarding the adequacy of the social foundation for developing countries.

1 Overview of the socially just space

This chapter explores the sustainable development background that influenced the assembly of the social foundation and its evolution. It incorporates the findings of a critical and systematic review of official documents, reports, and public minutes of meetings of different international organizations, providing the first insights into the shortcomings of the socially just space scope with respect to the whole spectrum of social challenges for sustainable development.

1.1 The socially just space background

The SJS framework was elaborated in the run-up to the United Nations Conference on Sustainable Development (UNCSD), also known as Rio+20, in the context of growing discussions on how global development goals should be renewed, updated, or expanded –as the target date for the MDGs was approaching. In advance of an international agreement on the social priorities for sustainable development, Raworth derived a set of 11 social dimensions based on major social challenges stated by governments in their submissions for Rio+20, which can be grouped into 3 clusters:

- **Well**: food security, adequate income, improved water and sanitation, and health care.
- **Productivity**: education, decent work, modern energy services, and resilience to shocks.
- **Empowerment**: gender equality, social equity, and having a political voice.

According to (Raworth, 2012), the dimensions that constitute the social foundation are those social priorities mentioned in at least half of the national reports for Rio+20. Although the criteria seem adequate in terms of relevance, no one has challenged Raworth's reliability for the selection of dimensions, nor the scope (concerning the whole spectrum of social priorities for sustainable development) of the socially just space. In this regard, the upcoming sections assess if the social foundation effectively contains the social challenges that countries were facing at that time, as stated in their reports.

1.2 The framework that framed the socially just space

First, it is indispensable to understand the context in which Rio+20 national reports were formulated. Resulting from a technical and financial support program whose objective was to prepare and contribute effectively to the preparatory process prior to the UNCSD and the conference itself, the national reports were requested to be constructed in the context of the conference's three-pronged objective, themes, and priority areas[1].

[1] The preparations for Rio+20 highlighted seven areas that needed priority attention; these included decent jobs, energy, sustainable cities, food security and sustainable agriculture, water, oceans, and disaster readiness.

> *"The three-pronged objective of the conference is to secure renewed political commitment for sustainable development, assess the progress to date and the remaining gaps in the implementation of the outcomes of the major summits on sustainable development, and address new and emerging challenges. The themes of the UNCSD are identified in the Resolution as (a) a green economy in the context of sustainable development and poverty eradication, and (b) the institutional framework for sustainable development"* (UN DESA & UNDP, 2011, p. 1).

Since the content of the national report was narrowed according to the conference's guidelines, it is valid to suspect that they contained just the mainstream priorities for sustainable development (those at the center of the global political agenda) and, perhaps, these were not fully representative of social challenges that countries were facing at that time. As an example of the above, in some of the submissions (i.e., Bangladesh) can be read that, even though the topics that could be included were limited, the issues faced by countries were vast and beyond the conference's agenda.

> *"Rio+20 has set out to focus on seven critical issues of sustainable development which are common in the global context … However, for Bangladesh, there are a few other critical issues for sustainable development. The key priorities for Bangladesh according to its current and future (next 20 years) policies, plans, and development programs are food security and sustainable agriculture, water security, energy security, climate change, disaster management, transportation, and infrastructure. All of these are critical needs of the people or issues affecting their lives and livelihood and have to be addressed in order to achieve sustainable growth."* (Ministry of Environment and Forests et al., 2012, p. 47)

This becomes more relevant when knowing that, on the road to Rio+20, various preparatory meetings were held in which new and emerging social challenges were found (e.g., interrelated financial, economic, and food crises; political instability and social unrest; unsustainable consumption and production; the impacts of population growth and rapid urbanization). However, not all member states sympathized with adopting these challenges to the conference agenda, and only the already agreed topics were discussed (UN DESA & UNDP, 2011; United Nations, 2011). The foregoing confirms that the social challenges stated in the national reports were not fully representative of the social priorities for sustainable development that countries were facing at that time.

1.3 Assembling the social dimensions

According to (Raworth, 2012), one of the major intrigues that arose when creating the SJS was who must determine its dimensions, indicators, and thresholds. Ideally, these should be built based on declared deprivations suffered by people, especially the most vulnerable.

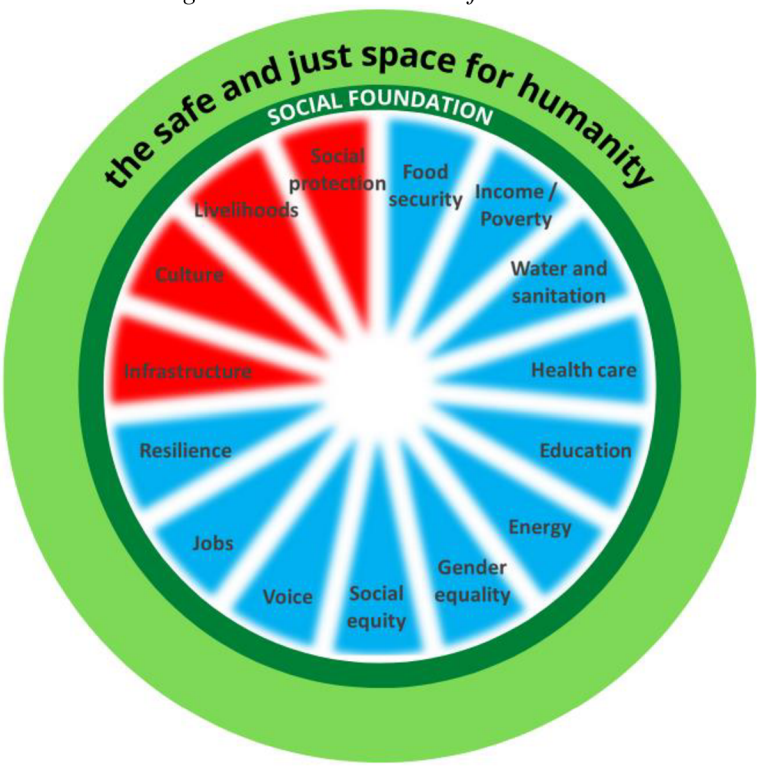
However, being able to consult with all the people worldwide is a utopia that is far from being achieved. Still, the preparations for Rio+20 brought us closer to this ambitious desire, and, even if only

38% of the sovereign states recognized at that time participated in the process (72 out of 192), this was a historically unprecedented level of involvement that represented the most significant event in the history of the UN and sustainable development (UN DESA & UNDP, 2012).

Although having derived the dimensions from the stated government's social priorities in their national reports to Rio+20 was the right choice, the following observations suggest arbitrariness behind Raworth's criterion and cast doubts on the adequacy of the social foundation to track the global progress in sustainable development and human well-being.

First, (Raworth, 2012) indicates that 80 submissions were reviewed to retrieve the socially just space dimensions. However, this number differs from the official number of national reports (72) disclosed by (UN DESA & UNDP, 2012) in the *Synthesis of National Reports for Rio+20,* and there is no explanation for this discrepancy. Second, given this difference, it might seem logical that the SJS provides a broader scope of social challenges. Yet, this is not the case; even if both parties used a similar methodology –Raworth considering the priorities mentioned in at least 50% of the reports, and UN comprising the observations stated in the majority of the submissions– substantial variations can be found between one scope and other (see *figure 2*).

Figure 2 A broader social foundation.



Source: Own elaboration, based on (Raworth, 2012), integrating (in red) major challenges mentioned in the Synthesis of National reports for Rio+20 that were left out.

As can be observed, the social foundation could have easily enlarged its scope, so it is unclear why Raworth did not include clearly stated people's critical needs. The preceding turns serious when considering that some of the left-out topics (i.e., adequate housing, indigenous culture and rights, and

social protection) are considered within the (United Nations, 1948) *Universal Declaration of Human Rights*, on which basis the social foundation claims to be built –as these form a common standard of achievement to live with dignity and opportunity.

Furthermore, the social foundation alleges to go beyond a social foundation of human rights since human rights only constitute the minimum that humans can demand and, in the context of sustainable development, individuals and societies must prosper far beyond this (Raworth, 2012). Nevertheless, as this historical review has shown, Raworth's socially just space only considers a reduced version of the minimums that people can claim.

1.4 Operationalizing the socially just space

Regardless, once the dimensions were defined, to prove that the social foundation could be put into practice, Raworth selected a set of illustrative indicators and thresholds –mostly retrieved from the MDGs targets– that served to assess the current global state of human deprivations.

Although the process looks adequate at first glance, for the following reasons, it is valid to ask whether the social foundation really tried to capture the social priorities stated by countries in their national reports or if it just constituted a different way to visualize the progress made towards the MDGs (the relation between the social SJS indicators and MDG targets is presented in *table 1* to illustrate this point).

First, the MDGs were at the heart of the global political agenda. Thus, considering the content mentioned above that the national submissions needed to have, it is evident that the MDG targets would appear in all of the reports and these will constitute the primary source of indicators. Second, the few new challenges incorporated into the social foundation did not have an indicator for their assessment; Raworth did not elaborate on how the shortcomings of the new challenges could have been measured.

Table 1 The social dimension indicators and their relation with MDGs.

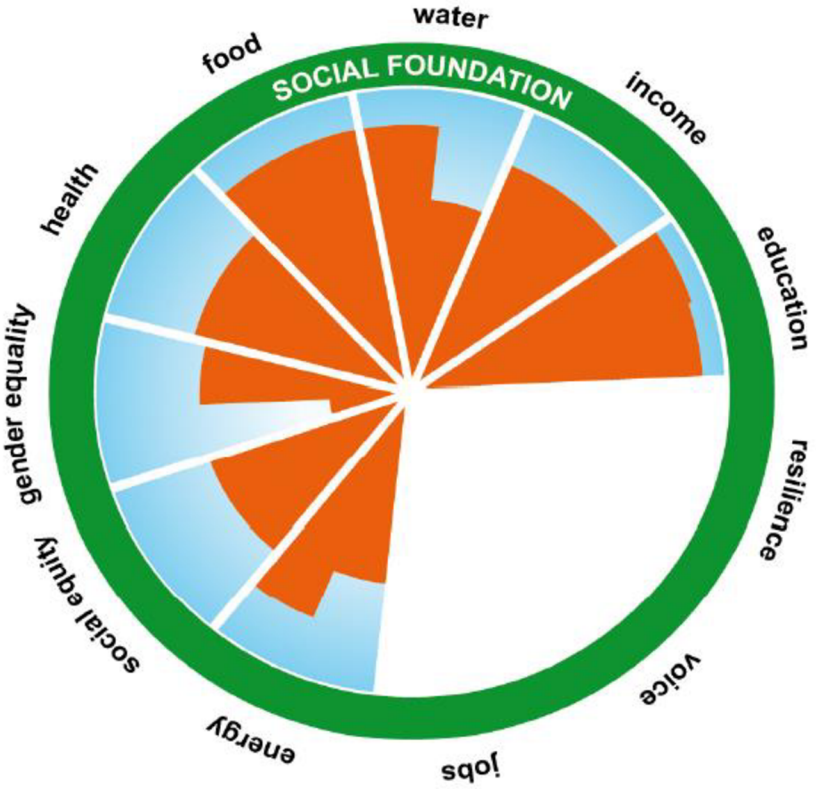
Social foundation	Illustrative Indicators	% of global deprivation	Year
Food security	Population undernourished	13	2006-08
Income	Population living below $1.25 (PPP) per day	21	2005
Water and sanitation	Population without access to an improved drinking water source	13	2008
	Population without access to improved sanitation	39	2008
Health care	Population estimated to be without regular access to essential medicines	30	2004
Education	Children not enrolled in primary school	10	2009
	Illiteracy among 15-24 years old	11	2009
Energy	Population lacking access to electricity	19	2009
	Population lacking access to clean cooking facilities	39	2009

Gender equality	Employment gap between women and men in waged work (excluding agriculture)	34	2009
	Representation gap between women and men in national parliaments	77	2011
Social equity	Population living on less than the median income in countries with a Gini coefficient exceeding 0.35	33	1995-2009
Voice	E.g., population living in countries perceived (in surveys) not to permit political participation or freedom of expression	To be determined	
Jobs	E.g., labor force not employed in decent work	To be determined	
Resilience	E.g., population facing multiple dimensions of poverty	To be determined	

Source: Own elaboration, based on (Raworth, 2012), the shaded dimensions and indicators are those identified as part of the MDG targets.

Once the indicators were chosen and the shortfalls calculated, the data was plotted to present the results within the doughnut (see *figure 3*). With the boundary of the social foundation being equal to 0% and the center of the circle 100%, the difference between the value of each indicator and the edge of the social foundation represented the level of the shortfall for each indicator (Raworth, 2012).

Figure 3 Falling below the social foundation: An illustrative assessment based on Rio+20 priorities.



Source: Retrieved from (Raworth, 2012, p. 11), copyright 2012 by Oxfam International.

Having shown that the social foundation can get a snapshot of the indicators' current progress, Raworth asserted the SJS framework as a global-scale compass to track the current state of human well-being. However, nobody noticed the limited scope of the socially just space with respect to the whole spectrum of major social challenges for sustainable development. Furthermore, as (Raworth, 2012)

acknowledged, behind this simplified global picture of shortfalls are hidden complex dynamics inherent to sustainable development (e.g., interlinkage between dimensions, inequalities among and between countries) that need to be addressed if the goal is to achieve human well-being.

Irrespective of the social foundation's constricted scope, the SJS framework enjoyed significant acceptance because it provided a new perspective on sustainable development and an innovative way to measure progress toward human well-being that moved away from economic progress through endless GDP growth and sought to thrive in balance within the doughnut.

1.5 Upgrading the socially just space

As a result of Rio+20, the UN General Assembly launched an ambitious process to develop a set of 17 SDGs with 169 targets (231 unique[2] indicators as of March 2021), which built upon MDGs and sought to complete what these did not achieve. Located at the center of the agenda for sustainable development, also known as the 2030 Agenda, the SDGs and their targets came into effect on the first day of January 2016 and, since then, have guided the decisions that countries must take to pursue sustainable development (United Nations, 2015).

Under the circumstances, it was necessary to update the SJS framework; thus, several changes were introduced in 2017, resulting in the social foundation as we know it today. T*able 2* summarizes the adjustments made to each of the socially just space dimensions and indicators.

Table 2 Brief overview of the modifications introduced into the social foundation.

Social dimension	Illustrative Indicators
Food security	Population undernourished
Health **~~Health care~~**	~~Population is estimated to be without regular access to essential medicines.~~ Population living in countries with under-five mortality rate exceeding 25 percent per 1,000 live births
	Population living in countries with life expectancy at birth of less than 70 years
Education	~~Children not enrolled in primary school~~ Children aged 12-15 out of school
	~~Illiteracy among 15-24 years old~~ Adult population (aged 15+) who are illiterate
~~Jobs~~ **Income and Work**	~~Population living below $1.25 (PPP) per day~~ Population living on less than the international poverty limit of $3.10 a day
	~~E.g., Labor force not employed in decent work~~ **Proportion of young people (aged 15-24) seeking but not able to find work**
Water and sanitation	Population without access to an improved drinking water source
	Population without access to improved sanitation
Energy	Population lacking access to electricity
	Population lacking access to clean cooking facilities
~~Resilience~~	~~E.g., population facing multiple dimensions of poverty~~

[2] According to UNSTATS, the total number of indicators listed in the global indicator framework of SDG indicators is 247, but twelve indicators repeat under two or three different targets, resulting in 231 unique indicators.

Networks	**Population stating that they are without someone to count on for help in times of trouble**
	Population without access to internet
Housing	**Global urban population living in slum housing in developing countries**
Gender equality	~~Employment gap between women and men in waged work (excluding agriculture)~~ Worldwide earnings gap between women and men
	Representation gap between women and men in national parliaments
Social equity	~~Population living on less than the median income in countries with a Gini coefficient exceeding 0.35~~ Population living in countries with a Palma ratio of 2 or more (the ratio of the income shares of the top 10% of people to that of the bottom 40%)
~~**Voice**~~ **Political Voice**	~~E.g., population living in countries perceived (in surveys) not to permit political participation or freedom of expression~~ **Population living in countries scoring 0.5 or less out of 1.0 in the Voice and Accountability Index**
Peace and Justice	**Population living in countries scoring 50 or less out of 100 in the Corruption Perception Index**
	Population living in countries with a homicide rate of 10 or more per 10,000

Source: Own elaboration with data retrieved from (Raworth, 2017). The dimensions and indicators in bold represent new elements of the social foundation (compared to the first version); the crossed-out elements were replaced by those indicated underneath the same row; the shaded elements did not change.

According to (Raworth, 2017), the renewed and strengthened framework was built based on internationally agreed minimums, identified as critical challenges humanity faces in the 2030 Agenda. However, again, no one has challenged the truthfulness behind this argument. In that sense, the following chapter includes an exhaustive review of the new social foundation (dimensions, indicators, and thresholds) with respect to the criterion followed for its upgrade and the context in which Raworth placed them.

2 Analysis and recommendations

This chapter presents the findings of an in-depth review of indicators and thresholds included in the social foundation, in terms of the guidelines for their selection and the social challenges in which they are contextualized. Likewise, it unveils the results of a systematic and critical assessment that evaluates the sufficiency of the dimensions (indicators and thresholds) to adequately capture the deprivations that they intend. Recommendations on complementary or substitute indicators are included when appropriate. The summary of the findings is presented in *table 4* at the end of section 2.4.

2.1 Evaluating the socially just space upgrade

According to (Raworth, 2017), the update of the social foundation resulted in a modern portrait of humanity's 21st-century challenge since the new dimensions and illustrative indicators were retrieved from the agreed minimum standards for human well-being stated in the SDGs. However, this argument is feeble, and the statement can be questioned for the following reasons.

First, progress toward human well-being can only be achieved through sustainable development since this is the core of the social foundation (Raworth, 2012, 2017). Although the SDGs constitute a global indicator framework for sustainable development (United Nations, 2015), various criticisms have arisen around them (see Bali Swain, 2017; Demaria, 2019). For this reason, complementary indicators at the regional and national levels are required to promote sustainable development effectively. Thus, it may be unfeasible to achieve human well-being through only part of the SDGs, as the SJS framework intends.

Second, there is a significant disparity between the areas of critical importance for humanity that the SDGs cover compared to the SJS framework. Even though, at a high level, the dimensions certainly align (O'Neill et al., 2018), to consider this as the only argument to validate the social foundation as a global-scale compass to track the current state of human well-being could be a mistake, given that the scope of the SDGs is vast, and is almost impossible that issues related to sustainable development fall outside its framework.

Moreover, substantial differences can be found when downscaling the analysis to the indicators and threshold level. While the SJS framework barely reflects the minimum of human claims by only considering 30 indicators (including the ecological ceiling), the SDGs incorporate seven times more indicators (231) also more elements (goals and targets) into the analysis of sustainable development.

2.2 The five clusters

According to (Raworth, 2017), the new indicators for each dimension were selected against the following five clusters criteria:

1. Global relevance, also serving as effective proxies for broader issues.
2. Data sufficiency, incorporating the most up-to-date information.
3. Focus on tracking global deprivations rather than national averages.
4. Being part of SDG targets for monitoring progress.
5. Have officially recognized thresholds of minimum acceptable standards.

At first glance, the criterion seems adequate and enough to account for human deprivations. However, this might not be the case since the assessment of shortfalls on broad and complex social problems is also limited to two indicators per dimension. In that sense, an in-depth review is carried out in the following section to evaluate the adequacy and extent to which the dimension (indicators and thresholds) can account for human deprivations.

2.3 Assessment

The analysis considers: (a) how well aligned are the indicators to the selection criteria defined by Raworth; (b) according to the context in which the dimensions are placed: constraints, weaknesses, robustness, and extent to which the indicators capture the deprivations they intend to assess; (c) recommendations on complementary or substitute indicators, when appropriate, using the same criteria[3] followed by Raworth for the update of the socially just space, seeking to widen its scope and reinforce the analysis that can be derived from it.

2.3.1 Food

This dimension assesses shortfalls in caloric intake with the indicator *undernourished population*, which accounts for the proportion of the population whose habitual food consumption is insufficient to provide the dietary energy levels required to maintain a normally active and healthy life.

Though the indicator complies with the five clusters criteria, some constraints can be found within it [i.e., the undernourishment condition applies to individuals, but the indicator does not allow for the identification of which individuals in a given group are undernourished; It does not account for variations in energy requirements by gender, age, or levels of physical activity; Data on the focus of attention categories –poor, vulnerable, infants– is limited (Gil et al., 2019)]. Moreover, it is built on the assumption that everybody has access to food, failing to account for more than 2.3 billion people who lack adequate year-round access to food (WHO, 2021).

As identified by (Raworth, 2017), *undernourished population* ideally should be accompanied by a malnutrition indicator that captures the results in terms of nutritional status. However, such an indicator is not available yet and, even if available, including the state of malnutrition might not be enough if the goal is to align the dimension to the SDG 2 commitment of ending hunger and achieving

[3] At the dimension level, aligning them to the SDGs framework. As for the indicators, and threshold, following the five clusters' criteria and respecting the restriction of a maximum of two indicators per dimension.

food security –in which this dimension is contextualized. In that sense, the indicator *Prevalence of food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)* –which is also part of the SDG target 2.1 *End hunger and ensure access by all people all year round*– with a threshold of 0%, constitutes an ideal complementary indicator for this dimension.

Although subjective for being based on perceptions, the FIES is built on the four pillars of food security –availability, access, utilization, and stability– (FAO, 2008). Besides, it is recognized as a global standardized measure that accounts for the percentage of the global population that has experienced food insecurity at moderate or severe levels during a reference period. Finally, data sufficiency is not a problem since the indicator has been applicable since 2014 in more than 140 countries worldwide through the Gallup World Poll survey (GWP).

2.3.2 Health

In this dimension, the aim is to assess deficiencies in access to health care; for that purpose, two indicators widely accepted as proxies for broader health outcomes were included: *under-five mortality*, which accounts for the proportion of the population living in countries exceeding 25% per 1,000 live births; and *life expectancy* with a threshold of 70 years.

Regarding *under-five mortality*, although the indicator fulfills the 5 clusters criteria, some minor concerns can be found within this indicator, such as a lack of high-quality data sources since, according to UNSTATS; ideally, these should come from a civil registration system that continuously records all births and deaths in a population. Still, these are not well developed in many low and middle-income countries, which leads to underreporting of child deaths.

Also, this indicator does not allow us to know if access to health services is increasing for the entire population, either through more investment in infrastructure, service coverage, or any other means (McGuire, 2006), because it only reflects the access of children and mothers to basic health interventions (i.e., vaccination, medical treatment of infectious diseases, and adequate nutrition).

As for its threshold, even if it was taken from the internationally agreed benchmark, the following observations are worth to mention. First, the shortfall outcome is highly sensitive to the threshold, meaning that if it is raised or lowered, the results will vary significantly. Second, the evaluation of the global outcome against the benchmark does not allow for the identification of the severity of the deprivation at different levels (i.e., regions, countries, communities, and households). Third, even if there is no shortfall, the deprivation will prevail because *under-five mortality* would still occur at lower rates.

Now, turning the attention to *life expectancy,* the indicator accounts for the number of years that a newborn would live if the mortality patterns prevailing at the time of birth were maintained

throughout their life. Although broadly accepted, the relation with access to health services can be arguable given that its calculation is based on a proxy of the average age that a sample population will be when they die, and it does not reflect real events as much as observed data; thus, it fails to reflect the mortality pattern that a person experiences during their life (Ortiz-Ospina, 2017).

Besides, *life expectancy* does not comply with clusters 4 and 5 of the criteria (being part of the SDG targets, having an officially recognized threshold). Moreover, since the global outcome of this indicator is expressed in number of years, it is logical to assume that the percentage of global deprivation was determined through a binary (above or below) country-by-country analysis against the benchmark. Thus, the indicator neither complies with cluster 3 of the criterion –tracking global deprivations rather than national averages.

Regarding its threshold, it was arbitrarily set by Raworth at 70 years. Although she argues that the decision was based on an outcome typically achieved by countries classified as Medium Human Development (MHD) within the UNDP *Human Development Index* (HDI); if what is sought is a better and more dignified life, it is unclear why Raworth did not consider a higher threshold (i.e., 75 or 80 years) outcomes typical achieved by countries classified as High and Very High Human Development (UNDP, 2015).

Similarly, considering that the framework has equity in its core (Raworth, 2012, 2017), it is uncertain why *life expectancy adjusted by inequality*, as in the *Inequality-adjusted Human Development Index* (IHDI), was not included in the analysis. In this way, Raworth could have noticed that MHD countries show significant rates of inequality for this indicator, meaning that the benefits "associated" with a higher life expectancy (i.e., local improvements in access to health such as technological advances in medicine, nutrition, and sanitation infrastructure) are not distributed equitably among the population.

Furthermore, likewise to *under-five mortality*, the analysis of the shortfall is binary, when it should preferably be continuous (i.e., percentage of the global population, similar to the poverty headcount ratio). Otherwise, entire populations are considered as achieving the goal or not, when it might not be the case.

To conclude, based on the observations mentioned above and seeking to adequately capture access to health services for the whole population that this dimension intends, a better approach could be to remove *life expectancy* and, in addition to *under-five mortality*, include the SDG indicator 3.8.1 *Coverage of essential health services*[4], with a benchmark of 100%.

[4] This indicator tracks the coverage of essential services based on broad categories –reproductive, maternal, neonatal, and child health, infectious diseases, non-communicable diseases, and capacity and access to services–

2.3.3 Education

This dimension assesses the shortfalls in the accomplishment and gains in education among various groups, with a set of two indicators: *proportion of adolescents (aged 12 to 15 years) not enrolled in lower secondary school* for a school-aged population and *rate of adult illiteracy*, which measures the percentage of the adult population (aged 15+) who are unable to read and write a simple sentence.

Following the five clusters, no issues were found for this set of indicators. Also, they go beyond the minimums regarding free access to elementary education stated in the *Universal Declaration of Human Rights* (United Nations, 1948). Still, considering that the minimum is not enough to eradicate deprivations, it would be worthwhile to include more elements in the analysis (i.e., SDG indicator 4.1.2 *Completion rate for lower secondary education*, to keep track of the percentage of completeness among different cohorts through time, or an indicator that measures the *quality of education*[5]).

Nevertheless, this alternative is encumbered given the criteria restriction of maximum of two indicators per dimension. In that sense, the current pair of indicators represent the better option available to assess this dimension shortfall.

2.3.4 Income and Work

This is perhaps the most constrained dimension of the social foundation; partly because it incorporates two major commitments of the 2030 Agenda, but primarily because of the limitation mentioned before regarding the number of indicators that can be included in each dimension, which forces a very simplified vision of complex social problems –under which it is impossible to capture deprivations adequately.

On the one hand, this dimension assesses income deprivation through the *population living on less than $3.10 a day*[6], which is no other than the international poverty line with a higher threshold. Though having considered a higher threshold was the right decision since "*the cut-off point for extreme poverty does not constitute a social foundation of income for a life of dignity and opportunity*" (Raworth, 2017, p. 6), the plausibility of achieving minimally acceptable levels of well-being with this, and even higher poverty lines, has been strongly disputed, resulting on poverty lines of up to $15 per day (see Pritchett, 2003).

---

among the general and the most disadvantaged population, and reported on a unitless scale of 0 to 100 (UNSTATS).

[5] Although no international agreement exists to define "quality" in education and trying to do so will result in endless perspectives and possibilities (Scheerens, 2004). There are currently some options to measure quality in education, such as the Programme for International Student Assessment (PISA) initiative developed by OECD, which measures 15-year-olds' ability to use their reading, mathematics, and science knowledge and skills to meet real-life challenges. However, barely 93 countries (as of 2022) participate in this initiative, so data is not enough to account for global deprivation.

[6] According to (WB, 2020) classification, the poverty line is $3.20 per day. With this threshold, the shortfall was 23.2% in 2012. There is no further explanation on why Raworth is using $3.10.

Though a poverty line of $15 per day would be ideal, it is not internationally accepted. Still, considering that a higher cut-off was already welcome to the analysis, it is unclear why Raworth did not push further and decided, at least, on the $5.50 per day poverty line, commonly used for developed countries (WB, 2020).

Still, constraints in the threshold are not the only problems for this indicator. By design, it contains numerous limitations, among the most relevant are: It misses magnitudes and severity of poverty since it cannot capture variations in income distribution among the poor; It assumes that people who live just above the poverty line are no longer poor or vulnerable. The constraints mentioned above can be quickly addressed by considering a poverty gap squared (Todaro & Smith, 2015) to focus on poverty severity. However, although the poverty gap squared is typically used for poverty analysis, unfortunately, it is not an internationally agreed indicator.

Similarly, several times, it has been pointed out that measuring poverty in absolute terms promotes policymakers to exclude others than the poor close to the poverty line to "achieve" quick results. The aforementioned can be fixed (to a certain extent) by using a poverty line expressed in relative terms so that only a more equitably distributed income will reduce absolute poverty (Perkins et al., 2013). By doing this, the analysis would capture income deprivation and inequality. Nonetheless, there is not such an internationally agreed indicator that incorporates a relative poverty line, and there is not an official threshold for income inequality.

In the context of SDG 1, *End poverty in all its forms everywhere* (in which Raworth placed this side of the dimension) and considering many researchers and international organizations appeal that poverty should be recognized as a multidimensional problem that must incorporate different dimensions (i.e., public services, health, education). A better approach would have been to include "poverty" in a single dimension and measure its shortfalls through the *population living on less than $5.50 a day*, together with the *Global Multidimensional Poverty Index* (MPI) –with a threshold of 0% for both indicators.

According to (WB, 2020), the MPI provides a better understanding of the complex nature of poverty since it identifies deprivations in three dimensions, using ten indicators according to people's deprivations (see *figure 4* for the MPI dimensions and indicators considerations). It assigns a score for each equally weighted dimension and constructs a final score (maximum of 100); the higher the value, the more severe the multidimensional poverty.

Figure 4 Multidimensional Poverty Index dimensions, indicators, and considerations.

Dimension	Indicator	Deprived if...	Weight
Health	Nutrition	Any adult under age 70 years or any child for whom nutritional information is available is undernourished. Adults ages 19–70 years (229–840 months) are considered undernourished if their body mass index (BMI) is below 18.5 kg/m². Individuals ages 5–19 years (61–228 months) are considered undernourished if their age-specific BMI values are below minus two standard deviations from the median of the reference population (https://www.who.int/growthref/en/). In the majority of countries, BMI-for-age covered individuals ages 15–19 years, as anthropometric data were available only for this age group; if other data were available, BMI-for-age was applied for all individuals ages 5–19 years. Children under age 5 years (under 60 months) are considered undernourished if their *z*-score for either height-for-age (stunting) or weight-for-age (underweight) is below minus two standard deviations from the median of the reference population (https://www.who.int/childgrowth/software/en/). Nutritional information is not provided for households without members eligible for measurement; these households are assumed to be nondeprived in this indicator.	1/6
	Child mortality	Any child under age 18 has died in the five years preceding the survey. When a survey lacks information about the date of child deaths, deaths that occurred at any time are taken into account.a	1/6
Education	Years of schooling	No household member of "school entrance age + six years" or older has completed six years of schooling.b	1/6
	School attendance	Any school-age childc is not attending school up to the age at which he or she would complete class 8.	1/6
Standard of living	Electricity	The household has no electricity.d	1/18
	Sanitation	The household does not have access to improved sanitation (according to Sustainable Development Goal guidelines), or it is improved but shared with other households. A household is considered to have access to improved sanitation if it has some type of flush toilet or latrine or ventilated improved pit or composting toilet that is not shared. When a survey uses a different definition of adequate sanitation, the survey report is followed.	1/18
	Drinking water	The household does not have access to an improved source of drinking water (according to Sustainable Development Goal guidelines), or an improved source of drinking water is at least a 30-minute walk from home, roundtrip. A household is considered to have access to an improved source of drinking water if the source is piped water, a public tap, a borehole or pump, a protected well, a protected spring or rainwater. When a survey uses a different definition of improved source of drinking water, the survey report is followed.	1/18
	Housing	At least one of the household's three dwelling elements—floor, walls or roof—is made of inadequate materials—that is, the floor is made of natural materials and/or the walls and/or the roof are made of natural or rudimentary materials. The floor is made of natural materials such as mud, clay, earth, sand or dung; the dwelling has no roof or walls; the roof or walls are constructed using natural materials such as cane, palm, trunks, sod, mud, dirt, grass, reeds, thatch, bamboo or sticks or rudimentary materials such as carton, plastic or polythene sheeting, bamboo or stone with mud, loosely packed stones, uncovered adobe, raw or reused wood, plywood, cardboard, unburnt brick, or canvas or tent.	1/18
	Cooking fuel	The household cooks with dung, wood, charcoal or coal.	1/18
	Assets	The household does not own a car or truck and does not own more than one of the following assets: radio, television, telephone, computer, animal cart, bicycle, motorbike or refrigerator.e	1/18

Source: retrieved from the technical notes: calculating the human development indices—graphical presentation of the (UNDP, 2020) Human Development Report.

Though the above suggestion may be controversial since, according to some critics, the interrelationships between the MPI dimensions are not transparent, and it does not account for intra-household dynamics; its inclusion undoubtedly strengthens the analysis that can be derived from the social foundation, by the simple fact that MPI not only focuses on income poverty.

Furthermore, the MPI allows to account for disparities across different groups (i.e., ethnic, racial, gender), one of the main limitations identified by Raworth when establishing the framework; thus, its inclusion can also contribute to the analysis of inequality of the social foundation.

It can also be argued that, with the inclusion of the MPI, some overlapping will occur with other dimensions of the socially just space (e.g., health, education, energy, water and sanitation, housing). However, the overlapping does not necessarily represent something wrong since, on the contrary, it can help to strengthen the analysis (i.e., by identifying the most disadvantaged groups in the society). Moreover, some overlapping exists with the current indicators for housing, water and sanitation, and energy dimensions, and still, these were included in the framework. Thus, overlapping does not impede the inclusion of indicators.

Finally, although the MPI identified deprivations at the household level, the composite indicator can be used for cross-country analysis and provide a global picture of human deprivations since it is applicable in 109 countries, as reported by (UNDP, 2020).

On the other hand, this dimension aims to compute the shortfalls in access to decent work. First, it is necessary to understand the concept of "decent work" since, according to (ILO, 2017), it is not just a goal but a driver to achieve the SDGs goals and targets because it represents *"the opportunities for women and men to obtain decent and productive work, in conditions of freedom, equity, security, and human dignity"* (ILO, 1999; as quoted in ILO, 2003, p. 1). Thus, ideally, progress towards decent work should be measured with a composite index built on the aforementioned four main conditions. However, this composite index is not yet available due to some dimensions' absence of information and data.

Because of the limitation mentioned above, Raworth re-oriented the scope to assess the shortfalls in work availability. She included the indicator *proportion of young people (from 15 to 24 years old) who seek but cannot find work*. This indicator arguably complies with cluster 4 of the criterion (being part of SDG targets) since it only considers a part of the SDG indicator 8.5.2 *unemployment rate, by sex, age, and persons with disabilities.*

Considering that the working-age population is 15 and over, it is not clear why Raworth decided to do this cut-off when the youth unemployment rate is not fully representative of the lack of job opportunities –the global youth age population only accounts for 38% of the global unemployment rate, and 15% of the global labor force (ILOSTAT, 2022).

Moreover, the assessment of work availability should be ideally accompanied by indicators like *labor force participation rate* and the *employment-to-population ratio*, as recommended by (ILO, 2003). However, this option is encumbered because "work" is included with "income" in one dimension, limiting the analysis to one indicator per element.

While having included "work" under the same slot as "income" may be justified by its importance as a means of income, this decision results in this social dimension falling short in adequately capturing both major social challenges. Besides, if the logic is to group interconnected dimensions, then the social foundation would have only one dimension since sustainable development matters are cross-cutting.

Having mentioned the above, building on the recommendation of dividing this dual dimension, a better approach would have been to include "work" as a single dimension and assess the shortfalls in work availability with the general *unemployment rate* (SDG indicator 8.5.2), together with the *labor force participation rate* –both indicators with a threshold of 100%. Like this, the analysis would have been more aligned to the SDG target 8.5 *Achieve full and productive employment and decent work for all*, in which Raworth placed this side of the dimension.

Although some limitations, such as accounting people in informal sectors as employed and *"underestimating people who must accept any job by force of poverty and circumstances, no matter*

how poorly paid or exploitative" (Raworth, 2017, p. 6) will prevail; the above recommendation substantially reinforces the extent of this dimension.

Finally, even though it can be argued that the *labor force participation rate* does not comply with clusters 4 and 5 (being part of SDG targets, having an official threshold), as observed with current indicators (i.e., life expectancy), not complying with some clusters does not impede its inclusion in the socially just space.

2.3.5 Water and Sanitation

This dimension seeks to account for deprivations in access to water and sanitation services. The indicators included (*population without access to improved drinking water* & *population without access to improved sanitation*) perfectly meet the five clusters' criteria and, currently, there are no better options to assess the shortfalls.

Howbeit, it is worth mentioning that these indicators might not reflect real progress since their starting point was the incorrect parameters presented as achievement at the end of the MDGs. Concerning access to water, people were accounted as having access to improved sources of water, even when the sources were proved to be fecal and chemical contaminated. In the case of sanitation, the achievement reported was based on basic sanitation when it should have been in terms of safely managed sanitation, in other words, considering treatment and disposal of wastewater (Tortajada & Biswas, 2018).

2.3.6 Energy

As in the previous dimension, the approach to measuring access to energy, including electricity and the quality of cooking facilities, seems adequate. In like manner, the indicators: *population lacking access to electricity* and *population lacking access to clean cooking facilities* comply with the five clusters' criteria and, currently, there are no better options to assess these shortfalls.

2.3.7 Networks

The core of this dimension is to promote the creation of support networks (without distinction between digital or vis-à-vis communication) because of its crucial role in promoting opportunities, assembling community, and building the resilience of the poor and those in situations of vulnerability. In that sense, two indicators were included to assess deprivation in terms of access to digital communications networks and the lack of social support networks.

The shortfall of digital communications networks is assessed through the *population without access to the internet*. This indicator is not part of SDG targets nor has an officially recognized threshold (failing to comply with clusters 4 and 5 of the criteria). In any case, having considered access to the internet instead of a mobile network was the right choice since, in 2015, there were already more than

7 billion mobile subscriptions, compared to 3.2 billion people with internet access worldwide (ITU, 2015).

Recalling that during the establishment of the social foundation, some major social issues were left out, such as infrastructure comprising roads, transportation, and information & communication technologies (Raworth, 2012; UN DESA & UNDP, 2012). Having included this element to the social foundation, amend a bit for the initial exclusion. Although, it would have been good to incorporate a new dimension called "infrastructure" that assesses shortfalls in access to transport and communication systems through the current indicator and the SDG indicator 11.2.1 *proportion of the population that has convenient access to public transport, by sex, age, and persons with disabilities*, Raworth approach to promoting supportive networks is adequate.

With regard to deprivation in terms of lacking a social support network, the shortfall is assessed through the *population stating that they are without someone to count on for help in times of trouble*. The indicator is retrieved from self-reported data of the GWP, where "social support" is assessed by the national average of binary responses (either 0 or 1) to the question *"If you were in trouble, do you have relatives or friends you can count on to help you whenever you need them, or not?"*. Although the indicator does not comply with clusters 3-5 (track global deprivations rather than national averages, being part of SDG targets, and having an official threshold), its inclusion was adequate since it aligns with the idea behind the SDG target 1.5 to *build the resilience of the poor and those in vulnerable situations.*

Though it would have been great to capture a broader picture of social support –by opening a new dimension called "social support" that assesses shortfalls through the current indicator and the SDG indicator 1.3.1 *proportion of the population covered by social protection floors/systems, by sex, distinguishing children, unemployed persons, older persons, persons with disabilities, pregnant women, newborns, work-injury victims and the poor and the vulnerable*, as mentioned before, Raworth's approach to promoting supportive networks is adequate.

Howbeit, the following observation regarding the stated shortfall for social support networks is worth to be mentioned. Since the indicator outcomes are expressed in national averages, it would seem logical that the global shortfall represents the mean of those national averages. However, this could not be verified first-hand since the GWP database is private and could not be accessed. Yet, based on other

studies (J. Helliwell et al., 2015, 2016) that used the same source of information[7], it was possible to verify that the global average for social support was 0.81 or 81% for the given year[8] (see *figure 5*).

Figure 5 Summary statistics - Fullest sample.

Variable	Mean	Std. Dev.	Min.	Max.	N
Life Ladder	5.44	1.13	2.69	8.02	1111
Positive affect	0.71	0.11	0.36	0.93	1086
Negative affect	0.25	0.08	0.08	0.70	1092
Log GDP per capita	9.15	1.19	6.32	11.8	1077
Social support	0.81	0.12	0.29	0.98	1091
Healthy life expectancy at birth	61.63	8.65	36.36	75.95	1104
Freedom to make life choices	0.72	0.15	0.26	0.97	1080
Generosity	0	0.16	-0.33	0.55	1026
Perceptions of corruption	0.76	0.19	0.04	0.98	1051

Source: (J. F. Helliwell et al., 2015), retrieved from the Statistical Appendix for Chapter 2 of the WHR 2015.

The above suggests that the shortfall should have been 19% instead of the 24% reported, representing a significant 5*pp* difference. Although this finding supposes an improvement, it would be ideal if Raworth could clarify the data/methodology used to determine the shortfall. As well, seeking to promote free access to information, it would be optimal for the data with which global deprivations are intended to be measured to become public.

2.3.8 Housing

In this dimension, living in slum conditions constitutes deprivation, and the shortfall is assessed by the *proportion of the urban population living in slum conditions in developing countries.* Although the indicator perfectly meets with the five clusters and aligns with the notion behind SDG target 11.1, *Ensuring access for all to adequate, safe, and affordable housing and basic services and upgrade slums*, it is far from perfect, and several limitations can be found.

First, as mentioned before, this indicator overlaps with the ones used to assess shortfalls in the water and sanitation dimension since the lack of access to these services is part of the characteristics of a slum. However, overlapping with other dimensions is the least of the issues of this indicator. In fact, its definition *per se* represents a more elementary problem.

With its origins in the 19th century, the term "slum" was used to describe the *"burgeoning urban working classes moved into overcrowded and poorly serviced tenements, living close to the factories and industrial plants that employed them"* (UN Human Settlements Programme., 2006, p. 21). Since then, the term has evolved, trying to incorporate the characteristics of the areas and their inhabitants;

[7] The World Happiness Report (WHR) uses the GWP to construct *national average life evaluations* on the basis of six key variables (GDP per capita, social support, healthy life expectancy, freedom to make life choices, generosity, and freedom from corruption). In the WHR, social support is considered in the same terms as in the SJS social foundation.

[8] In both WHR: 2015 (using GWP from December 2014, covering the years from 2005 to 2014) and 2016 (using GWP from January 2016, covering the years from 2005 to 2015), the mean value for social support is 0.81.

however, this has turned into numerous and ambiguous definitions. For that reason, in 2002, an expert group meeting convened by UN-Habitat, the UNSTAT, and the Cities Alliance agreed on an operational definition, seeking to quantify the proportion of the population that lives in slums.

> *"A contiguous settlement where the inhabitants are characterized as having inadequate housing and basic services … often not recognized and addressed by the public authorities as an integral or equal part of the city.*
> *It is an area which combines to various extent the following characteristics: insecure residential status; inadequate access to safe water; inadequate access to sanitation and other infrastructure; poor structural quality of housing; overcrowding.*" (UN-HABITAT, 2002, p. 22)

Although widely accepted, this definition is limited since the data is restricted to urban populations and developing countries; thus, it excludes 44% of the global population that lives in rural areas, according to World Bank. Besides, not all people who live in inadequate housing live in slums and vice versa; however, in both cases, they suffer from precarious living conditions in the contexts in which they are located. Also, it falls extremely short in capturing urban slums' characteristics for the reason that *"slums are not only a manifestation of poor housing standards, lack of basic services and denial of human rights, they are also a symptom of dysfunctional urban societies where inequalities are not only tolerated but allowed to fester"* (UN Human Settlements Programme., 2006, p. v).

Furthermore, living in a slum goes beyond lacking one or more of the five components that define a "slum household"; it is having to deal with inherent and accentuated inequalities, deficiencies, and problems; combined with a lack of opportunities, scarce access to education, health, and social security; put on top of deplorable living conditions and agglomeration patterns. All of these characteristics –individually and together– compromise the integrity of slum inhabitants.

Still, up-to-date, no indicator accounts for this reality, and the possibility of the appearance of such an indicator seems distant. In this regard, efforts should focus on developing complementary indicators to measure housing deprivations for urban, rural, and developed countries. In the beginning (whereas rural and developed countries' slums terms are defined), the aforementioned can be done by expanding the scope of the current indicator. In other words, by using the same criteria to identify the proportion of rural and developed countries' slum households that currently exist.

2.3.9 Social Equity

This dimension assesses the shortfall in social equity using the *proportion of the world's population living in countries with a Palma ratio equal to or greater than 2*[9]. First, it is necessary to highlight that

[9] Equivalent to a Gini coefficient of 0.40 occurs when the wealthiest 10% in a country have double the annual income of the poorest 40%.

"equity" is a vague concept, but since (Raworth, 2017) placed this dimension in the context of SDG 10 *Reduce inequality within and among countries*, it is fair to assume that the dimension aims to assess social inequality, which is defined as:

> "*The differences between the social statuses of different population groups such as classes, castes, or age groups. It refers to systemic imbalances rooted in the functioning of social institutions, such as education, health, justice, and social protection. These disparities in roles, functions, decisions, rights and their determinants affect the level and quality of access to services and protection for different groups, as well as life chances and the capacity to aspire to and attain certain outcomes"* (UNESCO, 2016, p. 22)

Second, it is essential to point out that "social inequality" is just one of the many interacting dimensions (e.g., economic, cultural, political, environmental, spatial, knowledge) of a broader problem called "inequality" that can appear in different forms, shapes, and groups –ethnicity, gender, religion, language, and other cultural or social identities. Moreover, behind social inequality are hidden complex dynamics that wound societies, disrupt social unity, and tear apart people's trust in government, institutions, and each other (UNDP, 2019).

Having explained the above, it is evident that the Palma ratio alone is not enough to assess the shortfall in such a vast social problem. The Palma ratio is one of the existing "inter-decile ratios" measurements of income share inequalities (accumulation of wealth), built on the distributional geometry similarity[10] observed by Chilean economist José Gabriel Palma, which suggests that income distributional problems should be focused on the extreme's tails –the ratio of national income shares of the top 10% of households to the bottom 40% (Cobham & Sumner, 2013; Palma, 2011). Besides, it fails to comply with clusters 4 and 5 of the selection criteria (being an SDG target, having an officially recognized threshold).

On the upside-down, even if arbitrary, having set a threshold for this dimension was the right choice since an inter-decile ratios measurement like the Palma constitutes a more robust analysis of income inequality than one conducted at the individual level (i.e., size distribution, which simply shows the share of total income received by individuals or households).

According to many experts, the Palma ratio constitutes the best measurement available for income inequality. It represents an alternative to the widely used Gini coefficient, which has been strongly criticized due to its incapability to show where the inequalities exist. Perhaps this motivated Raworth to include the Palma ratio as an indicator for this dimension. If that is the case, then the dimension should have been called "income inequality" since this is what it accounts for, and the analysis could have been strengthened by including, as well, the Gini coefficient. Although rarely used

[10] Share of the 50% of the world population being about half of the national income.

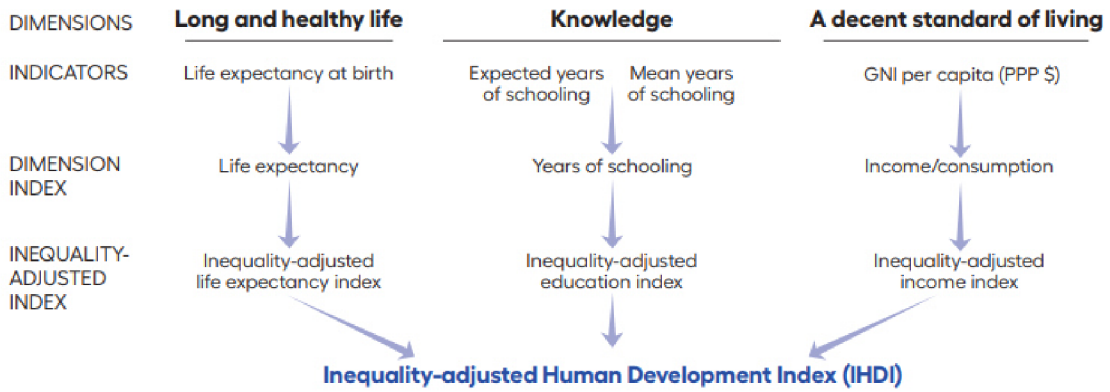
together, some studies (i.e., Sachs et al., 2021) have used both indicators for income inequalities analysis.

Although the aforementioned could have been a better approach, the dimension would still have a major limitation since none of the aforementioned indicators can capture changes in distribution other than in relative terms –as long as the income of the poor increases at a higher rate than the income of the rich, it will be considered a decrease in income inequality– when inequality should be thought of in absolute terms (see Hickel, 2019).

If assessing social inequality is what this dimension intends, considering that inequality can be grouped in several ways but also that *"there is no single 'correct' group classification, but a number of relevant ones, each important in relation to particular issues"* (Stewart, 2016), the indicator certainly needs to be changed or at least accompanied by another indicator that preferably assesses several dimensions of human well-being while accounting for inequalities.

In this regard, the composite indicator IHDI would be an ideal complement for this dimension, with a threshold of 0.6 –an outcome typically achieved by countries classified as High Human Development (UNDP, 2020)– since the IHDI measures the level of human development while accounting for inequality by discounting from each dimensions' average value according to its level of inequality (see *figure 6*).

Figure 6 IHDI dimensions and indicators.



Source: (UNDP, 2020), retrieved from the technical notes for calculating the human development indices—graphical presentation.

It can be argued that by including the Palma ratio and IHDI in the same dimension, some overlapping will occur with the assessment of income inequality. However, the GNI per capita (PPP $) and the Palma ratio do not have the same focus nor are contradictory; thus, the analysis would be strengthened.

Finally, although composite indicators are far from perfect and have been strongly criticized for their vague methodology and lack of clarity on what they are accounting for (Ravallion, 2012), it is

also true that inequality matters to development and well-being. Thus, *"the acknowledgment of the importance of inequality opens the door for its proper measurement and the use of those measures, both on their own and as a part of aggregate development indicators"* (Syrovátka & Schlossarek, 2019).

2.3.10 Gender Equality

According to (Raworth, 2017, p. 7), *"it would be ideal to assess the extent of gender inequality in each of the social foundation's dimensions"*. The aforementioned suggests that gender inequality cannot be assessed along the other dimensions of the social foundation, and perhaps, that is why she decided to include it as a single dimension that seeks to evaluate women's and men's standing in two realms (economic and political) with two proxy indicators *representation gap between women and men in national parliaments*[11] and *worldwide earnings gap*[12] *between women and men*, respectively) –in the context of SDG 5, *Achieve gender equality and empower all women and girls.*

First of all, it is necessary to point out that, mistakenly, gender inequality is considered by many people as the most important form of the existing inequalities. However, in reality, "gender" constitutes just one of the many types of horizontal inequalities –among groups with a shared identity– and all of them are critical for social well-being (Stewart, 2016). Similarly, as mentioned before, inequality has many interconnected dimensions and appears in different shapes, forms, and groups (including gender). Moreover, as (Kabeer, 2016, p. 55) identified, *"gender inequalities cut across all other forms of inequality"*.

The preceding suggests that, contrary to Raworth's opinion, it is possible to account for gender inequality with other dimensions of the social foundation. In such a way that having composed a deprivation based on gender seems superfluous; furthermore, it does not seem to be the most coherent or ethical approach. First, because *"unlike many socially subordinate groups, women and girls are distributed fairly evenly across different economic classes, so gender on its own does not constitute a marker of deprivation"* (Kabeer, 2016, p. 55). Second, because gender inequality intersects with and can be exacerbated by other dimensions of inequality; thus, focusing on a single group might be, to a certain extent, biased.

The observations made above, built on (Cole et al., 2014), claim that inequality is a cross-cutting issue that must be contained in the other dimension. At any moment, seek to downplay the gender inequality problem, which is crucial to be eradicated to achieve human well-being given the

[11] Indicator value calculated such that if women held no parliamentary seats globally, the deprivation would be 100%, whereas if women held exactly half of all parliamentary seats, the deprivation would be 0%ng
[12] Based on international estimates of women's earnings as a proportion of men (gender pay gap).

discrimination, violence, and limitations to their capacities and freedom of expression that women and girls suffer from every day in all parts of the world (UNESCO, 2016).

2.3.11 Political Voice

This dimension aims to assess political voice deprivation in the context of SDG Target 16.7 *Ensure responsive, inclusive, participatory, and representative decision-making at all levels* through a composite index that reflects the views on governance of different actors (individuals, public and private sector experts, and NGOs), the so call *Voice and Accountability Index* (VAI)[13].

To begin is necessary to point out that the term "governance" is inherently neutral. Although generally understood as a framework for institutions, procedures, and practices to implement authority and management of resources, but not its outcome (IMF, 2017), it is still widely discussed, and no consensus has been reached on its exact meaning or definition.

For this reason, based on existing notions, the World Governance Indicators project (WGI) came up with a new definition to be used to assess governance outcomes across countries "*The traditions and institutions by which authority in a country is exercised"* (Kaufmann et al., 2010, p. 4). The WGI depiction of governance includes three areas and two measures for each area, resulting in 6 dimensions to assess governance (Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption).

Turning the attention to the indicator, as mentioned above, the VAI is just one of the six dimensions of governance developed by WGI. It is not an SDG target nor has an officially recognized threshold (failing to comply with clusters 4 and 5).

Though the indicator also fails to comply with cluster 3 of the criteria (tracking global deprivations rather than national averages) since its shortfall is determined by binary (above or below) country-by-country analysis against the arbitrary benchmarks of 0.5 established by Raworth, given that the data is rescaled in such a way that it runs from 0 to 1, having set a threshold represent the best approach available to assess the global deprivation of this dimension.

According to (Raworth, 2017, p. 7), the VAI *"includes measures of democracy, vested interests, accountability of public officials, human rights, and freedom of association"*. However, when reviewing the indictor in detail, evidence shows that the indicator only accounts for electoral democracy and human rights (see *table 3*).

[13] Scored on a scale of 0 (very poor performance) to 1 (very high performance) and includes measures of democracy, vested interests, accountability of public officials, human rights, and freedom of association.

Table 3 Analysis of the VAI scope, as stated for its inclusion in the SJS framework.

Worldwide Governance Indicators (WGI) project	**Political voice – social dimension**
Process by which governments are selected, monitored and replaced.	
Voice and Accountability	
Participate in selecting their government	Electoral Democracy
Freedom of expression	Human Rights Declaration, art.19
Freedom of association	Human Rights Declaration, art. 20
Free media	Human Rights Declaration, art. 19
Pol. stability and absence of violence/terrorism	
Capacity of the government to effectively formulate and implement sound policies	
Government effectiveness	Accountability of public officials
Regulatory quality	
Respect of citizens and the state for the institutions that govern economic and social interactions among them	
Control of corruption	Accountability of public officials
Rule of law	
	Vested interests

Source: Own elaboration with data retrieved from (Kaufmann et al., 2010; Raworth, 2017), the shaded elements are those claimed by Raworth to be part of the VAI (as an argument for its inclusion in the SJS framework) that, according to WGI, are not part of this index.

In the case of "accountability of public officials", it has been identified as part of other dimensions used by WGI. In contrast, "vested interest" could not have been placed within the WGI framework due to its ambiguity and lack of further explanation from Raworth.

Given the discrepancies mentioned above, it is valid to say that VAI alone is not the best option to assess shortfalls in political voice. Perhaps, a better approach would have been to name the dimension "good governance" and evaluate the shortfall with an aggregate average of the six indexes used by WGI, with a threshold of 0.7 (which can be considered "fair" as the scale goes from 0 to1).

2.3.12 Peace and Justice

This dimension seeks to account for the shortfall corresponding to peace and justice in the context of SDG 16, *promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable, and inclusive institutions at all levels* through two indicators: *population living in countries with a homicide rate of 10 or more per 10,000*, for peace and *Corruption Perception Index* (CPI), for justice.

Concerning peace, the concept is ambiguous, and there is no consensus about its definition. However, it certainly goes far beyond the absence of homicides. The idea of peace is usually associated with other terms, such as war, conflict, violence, and exploitation, basically, any concept that disrupts a state of tranquility for individuals and societies. In UNESCO's former Director-General Kōichirō

Matsuura's words, as quoted in (Crews, 2002), *"Peace is more than an absence of war. It means justice and equity for all as the basis for living together in harmony and free from violence"*.

Hence, even if the indicator complies with all clusters of the selection criteria, except having an official threshold (cluster 5); it is illogic to think that the shortfall in peace can be assessed only by the *population living in countries with a homicide rate of 10 or more per 10,000* since this indicator does not represent this major social problem unequivocally.

Having explained the above, a better approach to assess shortfalls in peace would have been to use the composite indicator *Global Peace Index* (GPI) with a threshold equal to the world average (for the given year of reference). Although it can be argued that this indicator does not comply with more clusters than the current one, for, additionally, failing to meet with cluster 4 (not being an SDG target). Its inclusion undoubtedly provides a better scope for the analysis of peace. Furthermore, as observed in other dimensions, the fact that an indicator does not comply with the 5 clusters has not prevented its inclusion in the social foundation.

Regarding justice, the indicator chosen is the *Corruption Perception Index* (CPI), the most widely-used global corruption ranking globally but, which is not an SDG target nor has an officially recognized threshold (failing to comply with clusters 4 and 5). Additionally, in comparison to the *Control of Corruption Index*[14] (CCI), included in the proposed "good governance" dimension, the CPI does not cover citizens' direct perceptions or experiences of corruption (Transparency International, 2021). Therefore, its removal seems adequate.

2.4 Findings

The in-depth review has evidenced numerous shortcomings at different levels of the social foundation (dimensions, indicators, and thresholds). The preceding is mainly given by the peculiar simplified approach with which the socially just space tries to address broad social problems, which is forced by the restriction maximum of two indicators per dimension and a wrong selection of dimensions and indicators.

At the dimension level, the rearrangements suggested thorough the assessment focus on those dimensions in which Raworth's foundation fell significantly short of grasping its intended deprivation. Either because of having incorporated two major social problems into a single dimension, limiting the analysis of these to one indicator each (i.e., Income and Work, which is recommended to be separated into Work and Poverty), or because the approach was not the most appropriate (i.e., Political Voice and Peace and Justice, which were proposed to be reordered as Peace and Good Governance, respectively). Although more dimensions could have been rearranged, opening space to include more elements in the

[14] This composite indicator captures perceptions of how public power is exercised for private gain, including petty and grand forms of corruption and the state by elites and personal interests (Kaufmann et al., 2010).

analysis, these were maintained since Raworth's approach currently represents the best way to assess those shortfalls (i.e., Networks).

Concerning the indicators, first of all, the limitation of two indicators per dimension is seriously downplaying the social foundation scope. Thus, it is imperative to allow more indicators into the analysis (i.e., 1-4 per dimension). Besides, although Raworth claimed to follow five clusters, the analysis shows that not all indicators fully comply with the criterion.

On the other hand, although some of the indicators chosen by Raworth cannot adequately capture the deprivations that its dimension intends to assess, they cannot be improved (e.g., the selected indicators for water and sanitation, energy, and housing). Still, when following the assessment recommendations, it has been proved that the socially just space scope can be substantially boosted with the inclusion of five complementary and three substitute indicators into the analysis.

Table 4 Summary of analysis.

Dimension	Current indicator/s	Shortcomings	Substitute indicator	Complementary indicator	Identified or possible overlapping
Food	Percentage of population undernourished	• It does not allow identifying which individuals in the group are undernourished. • It does not account for gender, age, and physical activity levels variations in energy requirements. • Built on the assumption that everybody has access to food. • It is part of a broader problem, "food insecurity".		Prevalence of food insecurity in the population, based on the Food Insecurity Experience Scale (FIES) - SDG indicator 2.1.2	
Health	Under-five mortality, with a threshold of 25 % per 1,000 live births	• Lack of high-quality data sources, leading to underreporting of child deaths.		Coverage of essential health services - SDG indicator 3.8.1	Sanitation
	Life expectancy, with a threshold of 70 years	• It is not an SDG indicator nor has an official threshold. • Shortfalls are extremely sensitive to changes in the threshold. • Binary analysis (either above or below) should be continuous. • It should have been life expectancy adjusted for inequality, with a higher threshold. Still, coverage of essential health services is a better fit.			
Education	Proportion of adolescents (aged 12 to 15 years) not enrolled in lower secondary school				
	Rate of adult illiteracy				
Income & Work	Population living on less than $3.10 a day	• Accounts for income poverty, but poverty is multidimensional. • Poverty should be included as a single dimension to allow more indicators into the analysis. • Threshold too low should be at least $5.50 a day. • Does not capture variations in income distribution among the poor. • Assumes that people who live just above the poverty line are no longer poor or vulnerable.		Global Multidimensional Poverty Index (MPI)	Water and Sanitation Health – partially Education – partially Energy – partially Housing – partially

	Proportion of young people (from 15 to 24 years old) who seek but cannot find work	• Unemployment rate of the youth is not fully representative of the lack of job opportunities since the working-age population is 15+. • Work should be included as a single dimension to allow more indicators into the analysis.	Unemployment rate - SDG indicator 8.5.2	Labor force participation rate	
Housing	Proportion of the urban population living in slum conditions in developing countries	• Restricted to urban populations and developing countries. • Not all people who live in inadequate housing live in slums and vice versa. • Living in a slum goes beyond suffering from one or more of the five components that define a "slum household". But no indicator accounts for this reality.			Water and Sanitation (with current indicator)
Gender Equality	Representation gap between women and men in national parliaments Worldwide earnings gap between women and men	• Gender is one of the many types of horizontal inequalities; it cuts across all other forms of inequality and should not constitute a marker of deprivation. • It is assessed along other dimensions (especially with the recommended indicators, which can be breakdown by gender). Thus, it can be removed.			
Social Equity	Proportion population living in countries with a Palma ratio equal to or greater than 2	• Equity is a vague concept; if put in the context of SDGs, then it is "social inequality". • Is just one of the many interacting dimensions of inequality • The indicator only accounts for income share inequalities (accumulation of wealth) in relative terms.		Inequality-adjusted Human Development Index (IHDI)	Life expectancy Health – partially Income – partially
Political Voice	Voice and Accountability Index (VAI)	• No part of SDG indicators, not has an official threshold. • Benchmark was arbitrarily decided. • Binary analysis (either above or below) should be continuous. • One of the six broad dimensions of governance developed by WGI. • Only accounts for perceptions on electoral democracy and human rights. • The dimension should be re-named “good governance”.	Aggregate average of the six good governance indexes by WGI.		

Peace & Justice	Corruption Perception Index (CPI)	• Does not cover citizens' direct perceptions or experience of corruption • Binary analysis (either above or below) should be continuous. • Following the recommendations, it will be accounted for in the "good governance" dimension. Thus, this part of the dimension can be removed.	
	Population living in countries with a homicide rate of 10 or more per 10,000	• Peace is an ambiguous concept but certainly goes beyond homicides. • Indicator falls too short in assessing peace shortfalls since several matters can disrupt peace. • Does not have an officially recognized threshold; benchmark was arbitrarily established.	Global Peace Index (GPI)

Sources: Own elaboration, based on studies quoted in section 2.3 **Notes:** The shaded elements have been identified as overlapping, meaning that the same indicator is contained within another dimension or composite indicator proposed. The elements with the legend "partially" are also included in other dimensions but assessed with different indicators; thus, its consideration reinforces the analysis.

3 Comparison and discussion

This short chapter presents a comparison between social foundations to verify that the given recommendations can be applied to the socially just space, effectively contributing to broadening its scope and supporting the analysis that can be derived from it.

3.1 Up-to-date Raworth's socially just space

First, and for a fairer comparison, Raworth's newest social foundation was updated with the most recent values. Overall, the social foundation shows a decrease in the shortfall for most of its indicators, except for access to improved drinking water, VAI, and youth unemployment rate, which have increased by 1, 4, and 2 pp, respectively. Similarly, the shortfall of the urban population living in slums has not changed.

However, the progress in the reduction of human deprivation can be questioned since; when performing the update, several discrepancies were found between the shortfall value reported in the social foundation and the value reported by the source indicated by (Raworth, 2017), making uncertain the baseline against which they should have been compared. In *table 5*, the evolution of the shortfalls, including their trends and the identified discrepancies, are presented.

Table 5 Up-to-date social foundation.

Dimension	Indicator	Year	% of global deprivation	Year_2	% of global deprivation	Trend
Food	Population undernourished	2014-16	11 (8)	2018-20	9	↓
Health	Population living in countries with under-five mortality rate exceeding 25% per 1,000 live births	2015	46 (43)	2020	37	↓
	Population living in countries with life expectancy at birth of less than 70 years	2013	39 (41)	2020	38	↓
Education	Adult population (aged 15+) who are illiterate	2013	15	2020	13	↓
	Children aged 12-15 out of school	2013	17 (16)	2020	16	↓
Income and Work	Population living on less than the international poverty limit of $3.10 a day	2012	29 (30)	2018	22	↓
	Proportion of young people (aged 15-24) seeking but not able to find work	2014	13	2022	15	↑
Water and Sanitation	Population without access to improved drinking water	2015	9	2020	10	↑
	Population without access to improved sanitation	2015	32	2020	22	↓
Energy	Population lacking access to electricity	2013	17 (18)	2020	10	↓
	Population lacking access to clean cooking facilities	2013	38 (41)	2020	36	↓
Networks	Population stating that they are without someone to count on for help in times of trouble	2015	24 (19)	2021	19	↓
	Population without access to internet	2015	57	2021	37	↓
Housing	Global urban population living in slum housing in developing countries	2012	24 (33)	2018	24	→
Gender Equality	Representation gap between women and men in national parliaments	2014	56	2021	48	↓

	Worldwide earnings gap between women and men	2009	23	2008-16	21	↓
Social Equity	Population living in countries with a Palma ratio of 2 or more (the ratio of the income shares of the top 10% of people to that of the bottom 40%)	1995 - 2012	39	1998-2021	20	↓
Political Voice	Population living in countries scoring 0.5 or less out of 1.0 in the Voice and Accountability Index	2013	52 (55)	2020	56	↑
Peace and Justice	Population living in countries scoring 50 or less out of 100 in the Corruption Perception Index	2014	85	2021	84	↓
	Population living in countries with a homicide rate of 10 or more per 10,000	2008-13	13	2019	7	↓

Source: Own elaboration based on (Raworth, 2017) with data retrieved from FAO, IEA, ILO, Transparency International, ITU, SDSN, UN, UNESCO, UNICEF, UNODC, and WB. **Notes:** the shaded values are those in which discrepancies were found; the value in parentheses corresponds to the value reported by the source indicated by Raworth. The green arrows indicate improvement/decrease in shortfall, red arrows indicate deterioration/increase, and yellow arrows indicate no change.

3.2 A reinforced socially just space

Following the recommendations made through the assessment section of this thesis, the corresponding changes were applied to the social foundation to construct a "reinforced socially just space". It is important to highlight that the recommendations were made using the same criteria followed by Raworth to update her social foundation. Then, the shortfall for each dimension was calculated based on the most recent statistics available for each indicator (see *table 6*).

Table 6 Reinforced socially just space.

Dimension	Indicator	Year	% of global deprivation	Data source
Food	Population undernourished	2018-20	9	FAO
	Food Insecurity Experience Scale (FIES)	2020	30	FAO
Health	Population living in countries with under-five mortality rate exceeding 25 percent per 1,000 live births	2020	37	WB
	Coverage of essential health services	2019	33	WHO
Education	Adult population (aged 15+) who are illiterate	2020	13	UNESCO
	Children aged 12-15 out of school	2020	16	UNESCO
Poverty	Population living on less than the international poverty limit of $5.10 a day	2018	43	WB
	Population living in acute multidimensional poverty	2021	22	OPHI
Work	Unemployment rate	2022	6	ILO
	Labor force participation rate	2022	41	ILO
Water and Sanitation	Population without access to improved drinking water	2020	10	UNICEF
	Population without access to improved sanitation	2020	22	UNICEF
Energy	Population lacking access to electricity	2020	10	IEA
	Population lacking access to clean cooking facilities	2020	36	IEA
Networks	Population stating that they are without someone to count on for help in times of trouble	2005-21	19	SDSN
	Population without access to internet	2021	37	ITU

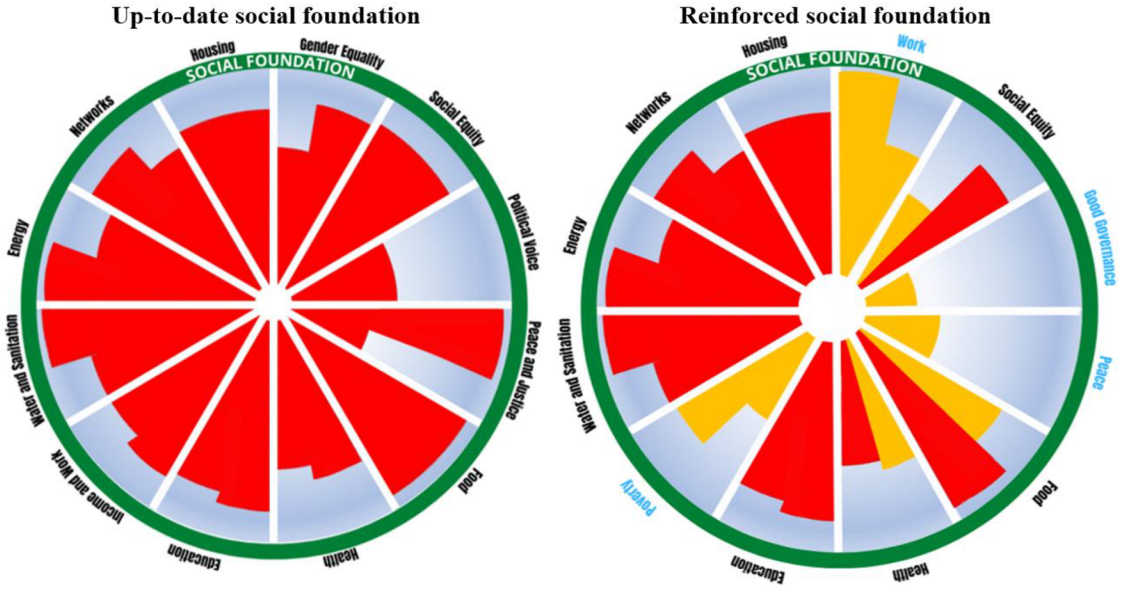
Housing	Global urban population living in slum housing in developing countries	2018	24	UN
Social Equity	Population living in countries with a Palma ratio of 2 or more (the ratio of the income shares of the top 10% of people to that of the bottom 40%)	1998-2021	20	WB
	Population living in countries scoring less than 0.6 in the Inequality-adjusted Human Development Index	2011-19	56	UNDP
Good governance	Population living in countries scoring 0.7 or less out of 1.0 in the aggregate average of the six Worldwide Governance Indicators project	2020	87	WB
Peace	Population living in countries scoring less than the world average (for the reference year) in the Global Peace Index	2021	73	Vision of Humanity

Source: Own elaboration based on studies quoted in section 2.3. **Notes:** the shaded dimensions and indicators result from the recommendations (new elements introduced to the social foundation). All percentages are rounded to the nearest decimal.

3.3 Comparing socially just spaces

As a final step, the data of both social foundations were plotted within the doughnut's framework, providing two considerably different snapshots regarding current progress toward human prosperity (see *figure 7*). The comparison shows that the social foundation changes considerably when applying the recommendations (the more elements included in the analysis, the more significant the shortfalls). Moreover, the achievement that Raworth's social foundation depicts drops drastically with the inclusion of the recommended dimensions –Peace, Good Governance, Poverty, Food, and Work[15].

Figure 7 Social foundations' comparison.



Sources: Own elaboration, based on studies quoted in section 2.3. **Notes:** The dimensions and indicators in different color within the "reinforced social foundation" are represent the changes suggested in the assessment section of this thesis.

[15] It is necessary to be careful since, when substituting the youth unemployment rate for the general unemployment rate, it might seem that the deprivation is about to be eradicated because the value is lower. However, as mentioned before, the youth population only accounts for 15% of the global labor force and 38% of the global unemployment rate.

Based on the findings presented in this chapter, it can be concluded that Raworth's socially just space only provides a simplified snapshot of social priorities for sustainable development, and it falls significantly short in capturing complex social challenges. Thus, it should not be considered the only means to achieve human prosperity since it does not represent an accurate global-scale compass to track the current state of human deprivations.

3.4 Further discussion

Although it is true that this thesis only focuses on the social aspect of the SJS framework and that the model goes beyond a socially just space; its importance is undeniable, given that for any model to be considered adequate, all of its elements must be correctly formulated and, as the results have shown, the socially just space contains multiple shortcomings that cast doubt on its sufficiency to measure progress toward human prosperity. In this sense, it would be worthwhile to downscale the analysis to identify to what extent is the socially just space adequate for developing countries.

Though the term "adequate" is subjective and difficult to define, if promoting sustainable development and achieving human well-being is intended, this exercise is crucial and, certainly, must go beyond the frameworks' ability to be applied at different levels.

First, because any model that seeks to measure progress in sustainable development and human well-being must be able to be downscaled at different levels so the lives of all can be effectively improved (no one should be left behind), especially when these are aligned to the internationally agreed framework for sustainable development (SDG); thus, being able to downscale a framework is not enough to validate its suitability for developing countries.

Second, various studies have already shown that downscaling the global SJS framework at the region and country-level is possible (see, e.g., Cole et al., 2014; Dearing et al., 2014; O'Neill et al., 2018). Third, when the rationality behind the framework is not challenged (or perhaps ignored), these are widely used but the outcomes are apparent: poor performance of developing countries in terms of sustainable development and human well-being (for a detailed assessment of countries' progress, historical dynamics, and forecast toward sustainable development and human well-being using the SJS framework see Fanning et al., 2022).

In this regard, perhaps, a more appropriate analysis of the adequacy of the socially just space for developing countries should consider, as a starting point, a systematic and critical comparison with respect to other existing alternatives that also track progress toward sustainable development and well-being (e.g., Human Development Index, Sustainable Society Index, Well-Being Index, Happiness Index).

At first glance, regardless of the shortcomings identified in this thesis and without considering the SDGs, the SJS framework seems to be the most appropriate option to measure progress in

sustainable development and human well-being for developing countries since the model includes more dimensions than the alternatives mentioned above. Likewise, it reflects in greater detail and in a more simplified way the outcomes of each element that it incorporates in its analysis.

However, the preceding would have to be confirmed with an in-depth analysis, which also considered other notions and practices since the mentioned above are considered widely accepted and used frameworks, for being, to a certain extent, aligned with the global political agenda on sustainable development (SDGs) and, in some developing country's communities these have been disregard, applying, instead, radical and systemic/transformative initiatives –Pluriversal Paths– (e.g., Buen Vivir or Living Well, Zapatistas, Comunalidad or Communality, Cooperative ecosystem).

Concerning these notions, their visions and practices are not about applying a set of policies, instruments, and indicators. Rather, they are about recognizing the diversity of people's views on planetary well-being and their skills in protecting it. Additionally, they seek to base human activities on the rhythms and frameworks of nature, respecting the interconnected materiality of everything that lives. Furthermore, many Pluriversal articulations synergize with each other, so they cannot be reduced to a global management policy (see Kothari et al., 2019)

The analysis of the SJS framework adequacy for developing countries will turn complicated if including the suggestion of comparing against other alternatives, especially when considering the Pluriversal Paths, given that these notions are not part of a global policy and do not use indicators (since they do not seek to track progress). Still, they seek to promote well-being; therefore, disregarding them from the analysis is not an option.

Conclusions

The analysis carried out in this thesis reveals multiple shortcomings in the social foundation of the SJS framework, that need to be corrected so that the socially just space can serve as an accurate global-scale compass for human well-being. The results show that Raworth's socially just space cannot grasp complex social challenges adequately, as it left aside several critical human deprivations –which eradication is crucial if human well-being is to be achieved.

The historical review showed that, although in the beginning, some shortcomings were to be expected, these were enhanced by an arbitrary criterion for the selection of dimensions that left out clearly stated people's critical needs considered human rights. Also, it revealed that the socially just space only considers a shortened version of every person's demand for life essentials. Moreover, it falls short in promoting individuals and societies prospering far beyond a social foundation of human rights as it presumes.

Regardless, because of its innovative proposal on sustainable development and its singular way of measuring progress toward human well-being, the SJS framework enjoyed great acceptance. For this reason, no one challenged Raworth's criteria for the selection of dimensions, everybody accepted the given foundation without bothering to review the process in detail, and its shortcomings went unnoticed. Furthermore, the same thing happened after the update introduced in 2017, in the context of the SDGs (from which Raworth claims to have retrieved the dimensions and indicators for the renewed social foundation) having come into effect to guide the decisions that countries must take to pursue sustainable development.

The in-depth examination of Raworth's renewed social foundation showed that the upgrade did not correct the initial shortcomings; on the contrary, these were enlarged. First, because of the breach in the areas of critical importance for humanity between frameworks (SDGs and SJS). Although the dimensions of the frameworks align at a high level, substantial differences can be found when downscaling the analysis to the indicators and threshold level. Second, because of the highly simplified approach with which the social foundation addresses complex social problems, caused mainly by a restrictive criterion that allows a maximum of two indicators per dimension and a wrong selection of dimensions and indicators.

Seeking to broaden and strengthen the social foundation scope and without the need to change the criteria used for its establishment and update, recommendations were given when appropriate to build a "reinforced socially just space" that substantially boosted its extent. Still, compared to the global indicator framework for sustainable development (SDGs), the socially just space continues picturing a shortened version of the social areas of critical importance for humanity. Finally, when comparing Raworth's renewed social foundation against the reinforced social foundation, the analysis showed notable contrasting snapshots in the current state of human deprivations.

Based on the results presented in this thesis, it can be concluded that the socially just space of the SJS framework is not an accurate global-scale compass to track the current state of human well-being because its scope is limited, and it has been proved that it can be substantially broadened; it only depicts a small portion of social priorities for sustainable development since it leaves out several critical human deprivations; it falls short in capturing complex social issues. Thus, it should not be considered the only means to achieve human prosperity.

References

Bali Swain, R. (2017). A critical analysis of the Sustainable Development Goals. In *Handbook of Sustainability Science and Research* (pp. 341–35).

Cobham, A., & Sumner, A. (2013). *Is It All About the Tails? The Palma Measure of Income Inequality* (Vol. 343). Center for Global Development.

Cole, M. J., Bailey, R. M., & New, M. G. (2014). Tracking sustainable development with a national barometer for South Africa using a downscaled "safe and just space" framework. *Proceedings of the National Academy of Sciences of the United States of America*, *111*(42), E4399–E4408.

Crews, J. (2002). *UNESCO Mainstreaming - The culture of peace*.

Dearing, J. A., Wang, R., Zhang, K., Dyke, J. G., Haberl, H., Hossain, M. S., Langdon, P. G., Lenton, T. M., Raworth, K., Brown, S., Carstensen, J., Cole, M. J., Cornell, S. E., Dawson, T. P., Doncaster, C. P., Eigenbrod, F., Flörke, M., Jeffers, E., Mackay, A. W., … Poppy, G. M. (2014). Safe and just operating spaces for regional social-ecological systems. *Global Environmental Change*, *28*(1), 227–238.

Fanning, A. L., O'Neill, D. W., Hickel, J., & Roux, N. (2022). The social shortfall and ecological overshoot of nations. *Nature Sustainability*, *5*(1), 26–36.

FAO. (2008). *An Introduction to the Basic Concepts of Food Security*. EC—FAO Food Security Programme.

Gil, J. D. B., Reidsma, P., Giller, K., Todman, L., Whitmore, A., & van Ittersum, M. (2019). Sustainable development goal 2: Improved targets and indicators for agriculture and food security. *Ambio*, *48*(7), 685–698.

Helliwell, J. F., Layard, R., & Sachs Jeffrey Sachs. (2015). *Statistical Appendix for Chapter 2 of The World Happiness Report 2015*. Sustainable Development Solutions Network.

Helliwell, J., Layard, R., & Sachs, J. (2015). *World Happiness Report 2015*.

Helliwell, J., Layard, R., & Sachs, J. (2016). *World Happiness Report 2016: Vol. Update (Vol. I)*. Sustainable Development Solutions Network.

Hickel, J. (2019, May 15). *How not to measure inequality*. Jason Hickel's Blog. https://www.jasonhickel.org/blog/2019/5/15/how-not-to-measure-inequality

ILO. (1999). *Decent Work: report of the Director-General: Vol. 87th Session*. ILO. https://www.ilo.org/public/english/standards/relm/ilc/ilc87/rep-i.htm

ILO. (2003). Decent work: Concept and indicators. *International Labour Review*, *142*(2).

ILO. (2017). *Decent Work and the 2030 Agenda for Sustainable Development*.

ILOSTAT. (2022, January 17). *Statistics on the working-age population and labour force*. Population and Labour Force. https://ilostat.ilo.org/topics/population-and-labour-force/

IMF. (2017). *The Role of the Fund in Governance Issues - Review of the Guidance Note - Preliminary Considerations -Background Notes* (Policy Papers, Issue 005). International Monetary Fund.

ITU. (2015). *ICT Facts and figures: the world in 2015*.

Kabeer, N. (2016). 'Leaving no one behind': the challenge of intersecting inequalities. In *World social science report 2016: Challenging inequalities: Pathways to a just world*. UNESCO publishing.

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2010). The Worldwide Governance Indicators: Methodology and Analytical Issues. In *Policy Research Working Paper* (Vol. 5430). The World Bank Development Research Group Macroeconomics and Growth Team.

Kothari, A., Salleh, A., Escobar, A., Demaria, F., & Acosta, A. (2019). *Pluriverse: A Post-Development Dictionary* (AUF, 2019). Tulika Book.

McGuire, J. W. (2006). Basic health care provision and under-5 mortality: A cross-national study of developing countries. *World Development*, *34*(3), 405–425.

Ministry of Environment and Forests, Peoples' Republic of Bangladesh, & Bangladesh Secretariat. (2012). *Bangladesh Rio + 20: National Report on Sustainable Development*.

O'Neill, D. W., Fanning, A. L., Lamb, W. F., & Steinberger, J. K. (2018). A good life for all within planetary boundaries. *Nature Sustainability*, *1*(2), 88–95.

Ortiz-Ospina, E. (2017, August 28). *"Life Expectancy" – What does this actually mean?* Our World in Data. https://ourworldindata.org/life-expectancy-how-is-it-calculated-and-how-should-it-be-interpreted

Palma, J. G. (2011). *Homogeneous middles vs. heterogeneous tails, and the end of the 'Inverted-U': the share of the rich is what it's all about.* (Vol. 1111). Cambridge Working Papers in Economics (CPWE).

Perkins, D. H., Radelet, S., Lindauer, D. L., & Block, S. A. (2013). *Economics of Development* (7th ed.). W.W. Norton & Company.

Pritchett, L. (2003). *Who is not Poor? Proposing A Higher International Standard for Poverty* (No. 33).

Ravallion, M. (2012). Mashup indices of development. *World Bank Research Observer*, *27*(1), 1–32.

Raworth, K. (2012). A Safe and Just Space for Humanity: Can we live within the doughnut? *Oxfam Discussion Papers*.

Raworth, K. (2017). A Doughnut for the Anthropocene: humanity's compass in the 21st century. *The Lancet Planetary Health*, *1*(2), e48–e49.

Sachs, J., Schmidt-Traub, G., Kroll, C., Lafortune, G., & Fuller, G. (2021). Sustainable Development Report 2021. In *Sustainable Development Report 2020*. Cambridge University Press.

Scheerens, J. (2004). Perspectives on Education Quality, Education Indicators and Benchmarking. *European Educational Research Journal*, *3*(1), 115–138.

Stewart, F. (2016). Horizontal inequalities. In *World social science report 2016: Challenging inequalities: Pathways to a just world*. UNESCO publishing.

Syrovátka, M., & Schlossarek, M. (2019). Measuring development with inequality: How (should) aggregate indicators of development account for inequality? *Ecological Economics*, *164*.

Todaro, M. P., & Smith, S. C. (2015). *Economic Development* (12th ed.).

Tortajada, C., & Biswas, A. K. (2018). Achieving universal access to clean water and sanitation in an era of water scarcity: strengthening contributions from academia. *Current Opinion in Environmental Sustainability*, *34*, 21–25.

Transparency International. (2021, December 20). *The ABCs of the CPI: How the Corruption Perceptions Index is calculated*. https://www.transparency.org/en/news/how-cpi-scores-are-calculated

UN DESA & UNDP. (2011). *Concept Note Supporting National Preparations for The United Nations Conference for Sustainable Development, UNCSD Rio+20, 2012*. United Nations Economic Commission for Europe.

UN DESA & UNDP. (2012). *Synthesis of national reports for RIO+20*. United Nations.

UN Human Settlements Programme. (2006). *The state of the world's cities 2006/2007: the Millennium Development Goals and urban sustainability: 30 years of shaping the Habitat Agenda*. Earthscan.

UNDP. (2015). *Human Development Report 2015: work for human development*.

UNDP. (2019). *Human Development Report 2019: beyond income, beyond averages, beyond today: inequalities in human development in the 21st century*.

UNDP. (2020). *Human Development Report 2020: the next frontier: human development and the Anthropocene.*

UNESCO. (2016). *World social science report 2016: Challenging inequalities: Pathways to a just world*.

UN-HABITAT. (2002). *Expert Group Meeting on Urban Indicators Secure Tenure, Slums and Global Sample of Cities*.

United Nations. (1948). Universal Declaration of Human Rights. In *Resolution 217 A (III) adopted by the General Assembly on 10 December 1948*. General Assembly.

United Nations. (2011). *Synthesis report on best practices and lessons learned on the objective and themes of the United Nations Conference on Sustainable Development*. General Assembly.

United Nations. (2015). Transforming our world: the 2030 Agenda for Sustainable Development. In *Resolution 70/1 adopted by the General Assembly on 21 October 2015* (A/RES/70/1). General Assembly.

UNSTATS. (n.d.). *Sustainable Development Goals Indicators website*. SDG Indicators Metadata Repository; Statistics Division. https://unstats.un.org/sdgs/

WB. (2020). *Poverty and Shared Prosperity 2020: Reversals of Fortune*. The World Bank.

WHO. (2021). *UN report: Pandemic year marked by spike in world hunger*. World Health Organization. https://www.who.int/news/item/12-07-2021-un-report-pandemic-year-marked-by-spike-in-world-hunger#:~:text=Overall%2C%20more%20than%202.3%20billion,as%20the%20preceding%20five%20combined.