The Tyranny of Numbers: The Quantification of Global Goals through a Lens of Critical Realism

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Abstract

There has been much discussion on the international community's increasing focus on data, the drive towards quantification in the development space, and the notion of 'governance by numbers.' What is missing, however, is an ontological framing that provides a perspective and terminology which enables a deeper analysis into the ways numbers exist and function within that space. This paper adopts Critical Realism (CR) as a lens to examine the relationship between the global goals and the world's increasing focus and reliance on data, exploring the impact of having recontextualized a human rights discourse into numbers. It builds on the work of others who have explored these topics to recast a historical narrative, using critical realist concepts to underscore the power of numbers and their influence on the international development agenda from its inception. This article begins by introducing the relevant CR concepts and then presents a literature review from a CR lens, a retelling of the development of the global goals in the context of an increased reliance on numbers. Finally, it explores how numbers, exercising and actualizing their causal power, have played and continue to play a fundamental though tacit role in shaping the global development agenda. This narrative demonstrates the impact of the development of the global goals as tools of governance and administration, while revealing how the power of numbers and the generative mechanisms of quantification have engendered mechanisms and unexpected patterns of events. It also reveals the consequences of the process of quantification of development priorities and human rights principles into a set of numerical goals – a process which began with the MGDs and continued on in the SDGs. Ultimately, this work is an invitation to (re)consider our engagement with measuring the global goals and to contemplate a different kind of power with (and through) numbers.

Keywords: critical realism, global goals, development, MDGs, SDGs, numbers, data, quantification

Introduction

Many will be familiar with John Donne's reflection that:

> *No man is an island entire of itself; every man is a piece of the continent, a part of the main; … any man's death diminishes me, because I am involved in mankind. And therefore, never send to know for whom the bell tolls; it tolls for thee*.
>
> - Meditation XVII, Devotions upon Emergent Occasions, John Donne (1624)

The Millennium Declaration (United Nations (UN) General Assembly, 2000) signed by 189 countries, including 147 Heads of States, was a seminal moment in the course of international development. It was the moment in which the international community not only identified areas of development that held significance to humanity as a whole, but ostensibly also acknowledged their collective responsibility to support the pursuit of these goals as fundamental values in this metaphorical "continent" that binds us all. The momentum generated by the Declaration resulted in the formulation of Millennium Development Goals (MDGs), which were adopted by a UN General Assembly resolution in September 2000. Then when the MDGs expired in 2015, the world adopted an ambitious 2030 sustainable development agenda, centred around the Sustainable Development Goals (SDGs).

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Both the MDGs and the SDGs attempt to capture the international community's perspective of the multidimensional aspects of the development agenda, integrating themes such as poverty, inequality, education, health, sustainability, and climate change into the formulation of their goals, targets, and indicators. This broad spectrum of ambitions, aspirations, and concerns - notoriously difficult to achieve and equally challenging to measure - are often accompanied by complex, (some would even say ill-fitting), modes of implementation. This complexity has led to the creation of detailed and elaborate monitoring frameworks and methodologies – ones that mainly rely on numbers - to ensure accountability for these goals, albeit in ways that many scholars have argued are fundamentally flawed (Amin, 2006; Harcourt, 2005).

But what are the origins of this intersection between the global goals and the world's increasing focus and reliance on numbers? And what is the impact of having recontextualized a human rights discourse, one that seeks to draw attention to important (but often neglected) global challenges, into numbers and the systems that gather them? This article, as part of a larger work on the rise of education data in the international community's pursuit of the global goal of education for all, attempts to set the scene by exploring the mechanisms by (and through) which numbers have influence on development agendas, global goals, as well as the policy and practice of the international community.

There has been much discussion on the international community's increasing focus on data and the drive towards quantification in the development space (Barsh, 1993; Fisher & Fukuda-Parr, 2019; Langford & Fukuda-Parr, 2012; Unterhalter, 2014). There has also been a great deal of research on the notion of 'governance by numbers' (Grek & Ozga, 2009; Ozga, 2009; Grek & Rinne, 2011). What is missing, however, is an ontological framing that provides a perspective and a terminology which enables a deeper analysis into the ways numbers exist and function within that space. Critical Realism (CR), a theoretical approach that acts as a general orientation to research practice (Bhaskar, 1975), provides language and conceptual frameworks that can help create a clearer interpretation or conception of (social) phenomena, seeking out and clarifying "the generative social mechanisms at work in any given situation" (O'Mahoney & Vincent, 2014, p.13).

This paper adopts CR as a lens to examine the relationship between the global goals and the world's increasing focus and reliance on data, exploring the impact of having recontextualized a human rights discourse into numbers. It builds on the work of Fukuda- Parr (2013, 2014, 2016), Unterhalter (2013, 2014, 2019) and others (Fisher & Fukuda-Parr, 2019; Langford & Fukuda-Parr, 2012) who have explored these topics. The aim is to recast a historical narrative, using critical realist concepts to underscore the power of numbers and their influence on the international development agenda from its inception. Integral to this approach is the notion that our social world is comprised of various entities as well as "layers of structures and generative mechanisms" many of which are invisible but still have causal power under particular conditions (Robertson & Dale, 2015, p.166). Such a notion allows for the argument that numbers are such an entity, exercising their causal power within the open system of the international development community.

This article begins by introducing and developing the key concepts of CR relevant to the argument in the first section of the paper, focusing on developing the concept of numbers as 'emergent entities' that both possess and exercise power in the social world. It then presents a literature review through the lens of CR, a retelling of the development of the global goals in the context of an increased reliance on numbers. It does so by adopting a CR methodology that involves (1) drawing on a historical analysis of the phenomena under study, (2) identifying the underlying entities, powers and mechanisms at play and the contexts in which these might be best studied, and (3) then seeking to identify gaps concerning the interplay of mechanisms and contexts which warrant further study. Finally, it explores how numbers,

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exercising and actualizing their causal power through the mechanism of quantification, have played and continue to play a fundamental though tacit role in shaping the global development agenda.

A Lens of Critical Realism

Critical Realism (CR), initially developed by the English philosopher of science Roy Bhaskar (Bhaskar, 2008), is a paradigm that views reality as strata or "depth ontology" with overlapping empirical, actual, and real layers of reality. The empirical domain comprises of the observable experiences of objects or entities1; the domain of the actual pertains to the events or what happens in space and time when powers in entities are activated; and the real refers to the underlying structures, powers, generative mechanisms that lie beneath those events and within those objects or 'entities' (de Souza, 2014).

This depth ontology also considers reality an "open system of emergent entities" (O'Mahoney & Vincent, 2014). Open systems are ones in which "multiple mechanisms operate simultaneously, and the everyday events humans observe may be activated under certain conditions but not others" (de Souza, 2014, p.142). Consequently, open systems, such as societies or organizations, "contain complex and unpredictable feedback loops that prevent history being conceived as determined or predictable" (Thompson, 1968, p.4). The international development community, as a system of global governance, is an example of such an open system; one that encompasses

> a plethora of public and private authorities affecting transnational processes, from the promulgation of private regulations and standards, transnational networks and civil society organizations, transnational policy planning forums, and international law, through to international 'regimes' and the high tables of the United Nations organs. (Stephen, 2014, p. 4)

Such systems, from a CR perspective, are also entities themselves, not simply assemblages of the things that constitute them (O'Mahoney & Vincent, 2014). The constituent elements and internal relations of these entities, mechanisms and structures have causal powers which are emergent from, though not reducible to, their constituent parts (O'Mahoney & Vincent, 2014). However, the properties of these emergent entities are dependent upon their 'lower level' components; these can be conceived of as: essences, "what makes something that thing and not something else'" (O'Mahoney, 2011, p.726); and causal powers, the ability of an entity to enact change when the powers of one entity interact with another (O'Mahoney & Vincent, 2014).

The causal power of entities is exercised or actualized through mechanisms, which "connect and (potentially) transform distinct groups and institutions [and open systems]; often, though not always, creating empirical tendencies [generating physical or social structures, for example] in certain contexts when there are no, or weak, countervailing mechanisms" (O'Mahoney & Vincent, 2014, p. 9). But given their stratified nature, neither reality nor all of what goes on in any open system is visible; the actual causes of events may not be evident in 'raw' observations. As a result, from a critical realist perspective, discussions on open systems need to consider those entities, mechanisms and processes that are not observable, but which have real effects (Robertson & Dale, 2015). Through this nuanced depth ontology, critical realism allows for a better understanding of how powers, which operate in different locations and/or at different hierarchical levels, relate. It also provides a space to work out "a better and causally accurate, correct, or reliable explanation for these patterns of events via the development of more adequate accounts of the powers, entities, and mechanisms which created them" (O'Mahoney & Vincent, 2014, p. 10).

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[1] *Entities* are things which 'make a difference' in their own right, beyond the sum of their parts (e.g. an organization or a team) and which are organized in hierarchies, existing at different levels by virtue of their constituent parts (Fleetwood, 2005, p.199).

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Numbers through the lens of CR

Through the lens of CR, numbers are entities, but they are also mechanisms with causal powers and the potential for emergence. Within the open system of the international development community, numbers in their essence are abstract representations of complex social situations that are "seemingly neutral, scalable and externally verifiable" (Langford & Fukuda-Parr, 2012, p.223). They are simultaneously a complex array of smaller, related entities in the form of goals, targets, and indicators as well as various types of data and statistics. Numbers in both of these capacities have the potential to create enduring patterns of institutional and organizational structures as well as events in the development of the international community's policy and practice.

An entity is 'real' if it has causal efficacy, which Fleetwood (2005) defines as having "an effect on behavior; [making] a difference" (p. 199). Consequently, like other entities, the power of numbers becomes emergent when they interact with other entities; it is through this interaction that the mechanisms for the exercise of that power become clear. As such, from a CR perspective, the role and power of numbers in the international development space can only be understood within the context of the international community's discourse on human rights and their formulation and implementation of global goals.

The interaction of numbers with the international community on a variety of levels reveals their causal power as tools of administration and governance with manifestations on reality that could be considered (un)desirable and/ or (un)intended, but ultimately 'multiply determined', with no specific mechanism determining the whole result. Additionally, such 'interactions' often transform entities. Such an interpretation can shed light on how exercising the power of numbers in the formulation of the MDGs allowed numbers to take on a life of their own and impact the formulation and implementation of the SDGs. Basically, it shows how the power of numbers reasserted itself despite efforts to reverse course because the countervailing mechanisms were not strong enough to prevent that power being actualized.

The Turn to Numbers - *A Mechanism of Quantification*

CR's conceptualization of numbers as entities and mechanisms with causal powers provides a space to interpret the international community's turn to numbers as a generative mechanism - one that has the power to manifest different kinds of changes in and on the international community's development policy and practice on all domains of reality. The adoption of the MDGs and SDGs, as well as their associated frameworks, is at first glance, a simple process of goal setting. However, a deeper look reveals that the adoption defined a global development agenda that has held sway over the world for the past two decades (affecting the actual). In addition, this adoption also changed the nature of the discourse on human rights (the real) through their translation of "qualitative norms into quantitative, time-bound targets," using the power of numbers in the form of specific goals and selected indicators (Fukuda – Parr, 2014, p. 119).

This turn to quantitative methods in the human rights sphere has been perceived as indicative of "a global shift towards quantitative measurement in all fields of human activity" (Langford & Fukuda Parr, 2012, p.222), and one that can be interpreted through the lens of CR as the creation of mechanisms and structures which continue to influence the social world on all levels of reality. The following sections use CR ontology and language to reframe this 'turn to numbers' and to examine the reciprocal ways numbers are (and continue to be) both a product of and a causal mechanism within the international development space.

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The Causal Power of Numbers

Evidence of the exercise of the causal power of numbers within the international community's discourse on development can be seen in the shifts within that discourse as well as the subsequent effects on policy and practice. Over time, these shifts have been mediated by various actors with a multitude of motivations.

The shift to quantitative measurement began at an international level with the UN's creation of the Human Freedom Index in 1992, which ranked countries across a representative range of rights - indicators - in the Universal Declaration of Human Rights (Barsh, 1993). This event spurred the international measurement of rights for the purposes of monitoring, though initially with less of a focus on ranking2 - instead using indicators as "tools that are capable of measuring results and progress over time" (Langford & Fukuda-Parr, 2012, p.224). The increasing demand for measurement was not only driven by international bodies, but also human right practitioners as a way to provide readily accessible, comparative data and evidence to users outside of the field such as national governments, courts, media, bureaucrats, and even donor programs among others (Fukuda-Parr, 2014; Langford & Fukuda-Parr, 2012).

These international entities sought to exercise the power of numbers in order to make the social situations they wanted to address more concrete and to give a material 'form' to the transformative changes they sought. Numbers, in their essence, have certain qualities that make this possible. They can 'make concrete the vague and intangible commitments of human rights declarations, ensuring a more memorable and powerful message to the general public and even in broad policy debates (Fukuda-Parr, 2014). Data in the form of 'numbers, graphs and formulas' also offer a clear, comprehensible snapshot of a complex situation and are more communicable beyond the boundaries of a locality or community (Fukuda-Parr, 2014; Langford & Fukuda-Parr, 2012; Porter, 1995). Finally, by their very nature, quantitative methods enable 'aggregation and replication' which would allow for a larger range of events and experiences to be noted and compared across time and space, providing more information on the scale and source of problems (Langford & Fukuda-Parr, 2012).

The seemingly 'neutral, scalable and externally verifiable' aspects of quantitative methods, in their interaction with human rights approaches, had the capacity to generate effects on both the empirical and actual strata of reality as their causal powers triggered certain observable, and unobservable but still manifest, events. The power of quantitative data helped overcome the perceived limitations of the qualitative methods in establishing "systematic patterns of violations;" numbers proved quite effective at identifying clear failures by duty-bearers to fulfil their obligations and in motivating systemic reform (Langford & Fukuda-Parr, 2012, p.223). Quantitative data also had the capacity to provide an explanation into the relationship between human rights and other social and political processes, such as the impact of human rights 'interventions' in the form of laws, policies, and development programs. This is because numbers are able to quantify the extent to which each of these 'interventions' has reached its goals for both promoters and critics on the international stage, how it could be improved and/or what alternatives could be available (Langford & Fukuda-Parr, 2012).

Numbers also provided human rights approaches with a much-needed aura of 'objectivity' and credibility, particularly valuable in the environment of the international community where accountability, distance

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[2] Interestingly, ranking countries based on Human Freedom Index initially met strong opposition from many states because of the way notions of freedom were formulated. The UN Development Program was advised that such indicators need to be 'universally accepted", and there were many objections: one was an objection to the inclusion of 'freedom for homosexual activity' as one of the 40 criteria (as expressed in the referenced work): another was using the index to indicate that human freedom is affected more by "political commitment, not …financial resources" (Barsh, 1993, p.87).

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between actors and mutual distrust existed (Fukuda-Parr, 2014; Langford & Fukuda-Parr, 2012). In such an environment, the quantitative indicators representing progress on the global goals were able to act as "audit-like tools" - a new distinctive entity - providing a mutually acceptable means for actors to assess compliance (Langford & Fukuda-Parr, 2012, p. 223). These indicators were also perceived as having the power to overcome one of the major weaknesses of a monitoring process that relied on self-reporting, providing "a consistent measurement tool that can be applied across countries and/or time and that relate to agreed standards" (Langford & Fukuda-Parr, 2012, p. 225). The data used to monitor compliance was therefore perceived as a 'reliable 'method of advocating for change in policy and practice, especially if the data is 'actionable' or provides an incentive for spurring reform.

Although these effects were the result of deliberately exercised powers, over time they became tacit mechanisms, no longer fully manifested nor empirically observable. However, they remain foundational, unspoken essences and causal powers inherent within the use of numbers as part of the international community's discourse.

(Un)intended, (Un)desirable Events

This interaction between human rights discourse and numbers also manifested unintended, and sometimes undesirable events or patterns of events on all domains of reality. Although simplification and abstraction, two causal powers of numbers, allow for the application of a single measurable definition across different contexts, if the criteria for creating this 'universal' indicator oversimplify the relevant human right standard, they can betray the original intent.

The first unintended manifestation of the generative mechanism of quantification is to the validity of indicators themselves as a construct – in other words, the choice and definition of indicators. Nor is the problem of ill-fitting constructs limited to the way they define and thus measure the goal or standard; these constructs can take on a normative life of their own and come to define the problem (Langford & Fukuda-Parr, 2012, Davis et al, 2012). The simplest manifestation of this in the empirical domain is the oversimplification of MDG 2 (though this oversimplification is itself the result of the intersection of multiple political, social and economic mechanisms) (Unterhalter, 2013). MDG2 was narrowed from the original goal of broadening opportunity to education as a human right and gateway to other sustainable development to 'achieving universal primary education.' Then it was reduced to indicators on enrollment and the proportion of students starting and ending a primary education cycle, distilling the goal to a simple binary: *in or out of school* (Fukuda-Parr, 2014; Fukuda-Parr et al, 2014; Kabay, 2021; Unterlhalter, 2013, 2014).

The power of this mechanism was then compounded and further entrenched when this severely limited goal was measured and reported in terms of Gross Enrollment and Net Enrollment Ratios, regardless of whether any learning was actually taking place, whether students continued to face problems with attendance, rates of dropouts, or any other salient factors or issues (Kabay, 2021). Access to school literally came to represent 'education'- an interpretation that underpinned the international community's policy and practice on education for nearly 15 years and continues to influence the international development agenda. In fact, this binary of *in or out of school* has been so deeply embedded into the conceptual framework of the international community's development agenda on education – into the domain of the 'real' as an underlying structure- that 'out-of-school youth and children' (OOSYC) continues to be most commonly used description of the absence or lack of literacy among children and youth, though schools are hardly the only measure (or source) of education.

A second unintended manifestation was the assumed reliability and validity of the data on which the indicators are predicated and by which progress is measured. This manifestation has the power to lead to the distortion of the international community's understanding of the challenge and is the result of the

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perceived essence or quality of numbers as objective, valid and reliable representations of social situations (Langford & Fukuda-Parr, 2012). Incomplete or missing data from a variety of governments and institutions due to technical issues and / or other practical challenges can cause the indicators to misidentify the nature and scope of the issue both globally and locally simply due to the lack of a reliable baseline (Langford & Fukuda-Parr, 2012). Equally, the process of data creation across contexts can invalidate the data as a result of issues of subjectivity and bias caused by the instruments and modes of data collection, cultural or linguistic peculiarities, and other methodological challenges such as weightings given to data or indicators.

A good example of the dangerous potency of this particular manifestation of the power of numbers is the international community's conception of Nigeria's OOSYC. Nigeria reportedly has the highest number of OOSCY in the world, with a 2018 estimate of nearly 20 million out-of-school youth and children3 (Egbujuo, 2022). The international community has consistently perceived this as a challenge in which girls were mainly affected, and one localized in the Northern part of the country as a result of the ongoing conflict with insurgents in that region. Consequently, they focused efforts, funds, and resources on initiatives in the Northern states and on supporting gender parity for girls. However, this perception of the ongoing challenges was based on 2008 National Demographic and Health Survey (NDHS) data reported by UNICEF Nigeria in 2012 (Egbujuo, 2022). A 2022 report on OOSYC revealed numbers that showed serious misconceptions of both the nature and the scope of the issue resulting from holding on to "old perceptions"4 and using "outdated data"5 (Egbujuo, 2022, p.18). But the power of belief in a certain set of numbers as objective, valid, and reliable representations of this particular social situation – a belief in evidence-based 'rationality' (Biesta, 2007) - had already generated an invisible but real mechanism that continues to lead to the reproduction of the same set of strategic priorities with the same set of interventions for that particular locale based on the perception of reliable empirical 'evidence.'

A third unintended manifestation is the result of the exercise of another causal power of numbers on a human rights discourse: aggregation. Aggregation involves presenting a broad swath of events and experiences across time and space (in this case countries and/ or contexts) by combining the particulars into a summary form such as "numbers, graphs or formulas," (Porter, 1995), essentially reducing the data into a more 'comprehensible' form. The ability of data and metrics to provide an overall snapshot of the scale of progress and regress, achievement and failure, trends and areas of concern is a significant effect and major advantage of the mechanism of quantification – until we lose all detail and differentiation in our pursuit of the 'big picture'. Highly diverse contexts can be grouped into a single category that erases important differences, magnifying or diminishing them, and thus interfering with our perception.

The empirical manifestation of this can be seen in the international community's comparison of the learning outcomes of well-sourced Western education systems to those of low-income countries without consideration of the impact of these resources. It can also be seen in the reporting of the number of

[3] 10.2 million primary – aged OOSYC and 9.9 million lower (junior) secondary-aged children (11–14 years) (Egbujuo, 2022).

[4] The interviewee stated that: "…donors and INGOs have failed to understand that a problem is a problem, whether it is about boys or girls. They are still using outdated data and holding unto old perception about the north and south. But some of those things have changed. Now in the south you have more out-of-school boys than girls and in the north you have more out-of-school girls than boys". ((N.17, AE regulator, national-level semiautonomous agency), Egbujuo, 2022, p.18)

[5] Estimates on the numbers of OOSYC within the Nigerian context vary widely, depending on the year in which data was collected, the source of the data, and the methods of data collection. This is partially due to difficulties collecting data locally from the different states, as well as the long-term involvement of various organizations (e.g. UNICEF) and national entities (Egbujuo, 2022).

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OOSYC without any differentiation of context or the nuances of different types of marginalized and at-risk populations. Certain contexts, for example, can be involved in states of crisis or conflict that can impact such numbers dramatically due to increases in the number of refugees or internally displaced populations as well as other challenges or demographics that need to be considered. The lack of adequate detail and differentiation then influences the interpretation and use of these measurements, which may lead to the misinterpretation of the indicators or their usage for alternative purposes such as deflecting criticism or encouraging complacency in social and political forums by claiming that the data and rankings are positive (Davis et al, 2012; Fukuda-Parr, 2014; Langford & Fukuda-Parr, 2012).

The US ranking on the Freedom House Index6 is a good example of such. This Index ranks a large number of countries in terms of the political rights and civil liberties they grant their citizens, and at first glance the US ranks amongst the countries that are considered 'free,' but a closer look at the rankings shows that the US ranks at the bottom of the high-income country scores on both criteria (Freedom House, 2023). These scores represent the "the unjustified denial of rights and exclusion of significant but smaller groups, e.g. prisoners, ethnic minorities, homeless people" (Langford & Fukuda-Parr, 2012) within this broad picture and allows the US to continue to avoid being called to account for the exclusions of these disadvantaged groups and the inadequacy of the social protection measures it offers them. Although the generative mechanism of quantitative global indicators can provide a 'zoom out' effect, granting "an overview of global trends in human rights and an evaluation of performance on a common standard" (Langford & Fukuda-Parr, 2012, p.238), they blur 'reality' when it comes to contextualizing widely varying context. It is from this perspective that Langford and Fukuda Parr (2012) argue that "quantitative methods will usually not do more than create a prima facie argument – the rest is often left to qualitative methods" (p. 238) which have the power to "zoom in" to see the contextual applications of universal principles.

So, the question becomes what processes and structures did the usage of 'numbers' and the generative mechanism of quantification in the area of human rights and global development produce? Within that question lies another more critical concern of whether the international community was able avoid the dangers of "turning exercises in judgement to ones of measurement" (Langford & Fukuda-Parr, 2012) in the exercise and actualization of this power. These are the matters the article explores in the following sections.

The 'Power' of Numbers - A Mechanism of Governance

This turn to numbers – the generative mechanism of quantification – manifested changes not only in terms of the human rights discourse, but it also has significant effects on global policy and practice. In fact, many researchers (Fukuda-Parr, 2014; Kushnir & Nunes 2022; Merry, 2009; Porter, 1994) present the argument that 'numbers' – in the form of the goals, targets, and indicators as well as statistical data - became 'tools' of administration and governance in a number of ways. Several studies have also emphasized the increasing use of quantitative indicators in global governance, the necessity to understand the political and technical processes by which the indicators are produced and used (Davis et al. 2012; Merry 2009; Grek & Ozga, 2009; Ozga, 2009; Grek & Rinne, 2011), and the importance of examining the "effects they have on decision-making, defining concepts and framing narratives that become hegemonic" (Fukuda-Parr, 2014, p.119). This leads us to consider the ways in which social entities, such as numbers and all things related to policy and policymaking, are related to each other. It also invites us to explore how their interactions contribute to our understanding of the construction of the social world through the lens CR and its stratified ontology. Here, it is useful to refer to Jessop's (2010) description of policies, policy decisions, techniques, policy instruments and policy evaluation as important 'technologies' and as:

[6] For more information, refer to the following webpage: https://freedomhouse.org/countries/freedom-world/scores (Freedom House, 2023)

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> social practices that are *mediated* [emphasis added] through specific instruments of classification, registration, calculation, and so on that may discipline social action. Technologies have a key role in the selection and retention of *specific imaginaries* [emphasis added] in so far as they provide reference points not only in meaning-making but also in the coordination of actions within and across specific personal interactions, organizations and networks, and institutional orders. In this sense they are important meaning-making instruments deployed by agents to translate specific social construals into social construction and hence to structure social life. (p.339)

This description captures the interaction between two social entities: numbers and what Jessop (2010) refers to as 'technologies' and their impact on the social world, by suggesting that policies are mediated social practices that play a role in the 'selection and retention of specific imaginaries,' ones in which numbers play the dual role of mediator and active participant.

Symbolic to Material – The Ties That Bind

One of the ways numbers manifest as tools of governance and knowledge production is though their power to transform qualitative 'symbolic' goals into concrete, 'material' policies and then into practices through 'data generation' or the generative mechanism of quantification (Kushnir & Nunes, 2022). The original goals in the UN Declaration of Human Rights (1948) and the other declarations and initiatives thereafter - such as the MDGs or the SDGs - are originally symbolic policies: "broad, vague and ambiguous with little resource at disposal and with a lack of precise plan for the implementation" (Kushnir & Nunes, 2022, p.6). These 'symbolic' goals are then 'operationalized' into material policies using the causal power of numbers - specific targets, performance indicators, and standards which set national and international benchmarks to be met and against which nations can be measured, compared, and evaluated with (and sometimes without) their explicit agreement.

In fact, Kushnir and Nunes (2022) argue that data generation is "at the heart of the establishment of the list of MDGs and SDGs, their relevant targets and indicators, and their further specification through growing networks" (p.7). They refer to this operationalization of goals into policies as a method of 'fabricating' space and governing the world (Madsen, 2021); in other words, extending that generative mechanism into the realm of governance through 'soft power'. This mode of governance, unlike the traditional, centralized legislation or 'hard governance' model of national governments, relies on "voluntary participation, common objectives, best practices in identification, deliberation, and dissemination, as well as absence of punishment for the failure to fulfil commitments" (Kushnir & Nunes, 2022, p. 4).

Numbers make these policies 'real', give them manifestation on the level of the empirical as entities with causal power, a power they can exercise on the level of the actual for governance, and on the level of the real, the policies themselves become mechanisms and structures that generate the actual and the empirical in the form of actions and practices 'within and across' organizations, governing systems, networks, and institutions. Soft governance allows international organizations, like the UN, to lead on a variety of areas such as educational discourse through the 'symbolic' goals as well as policy and practice through the 'material' policies; not by prescribing actions for nations to take, but by pointing at directions for work. A system like the UN serves as a platform to promote and coordinate certain combinations of policies and to diffuse the MDGs and SDGs into global, national and local policies and practices (Kushnir & Nunes, 2022). The UN does not have actual jurisdiction over the sovereignty of individual nation states but wields a form of pseudo-governance in terms of power and accountability frameworks7. Its plural,

[7] These frameworks are mediated by donor governments who use the targets and indicators of the development goals as a way to frame aid priorities and policies, make funding decisions and influence national education policy. Conversely the indicators and targets are also used by national governments to legitimate their choices of actions

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decentralized nature also allows it to act in multiple settings, on multiple scales and through multiple agents. As such, the UN can be viewed as an organization that 'governs' not through hard legislative power as national governments and policy makers do, but as a continuum that transforms "international unbinding declarations into binding commitments" through the power of numbers (Kushnir & Nunes, 2022, p. 7).

Setting the 'Agenda': the Good, the Bad, and the Ugly?

Another way numbers have causal power in terms of policy, and by extension practice, is that they allow the international community to set the 'agenda' by (1) defining and declaring the challenges the world faces, (2) defining and setting the common objectives and obligations, (3) determining the 'best practices' to resolve those challenges, and (4) providing ways to incentivize and motivate national governments to deliver on those commitments (Fukuda-Parr, 2014; 2016; 2019; Unterhalter, 2014; 2019). This process of agenda setting, in conjunction with the power of numbers, mediates the creation of an 'imaginary' that has become a social entity itself, capable of shaping a particular view of 'reality.

The MDGs and later on the SDGs represent a "consensus global development agenda" set by the UN and other advocates – in which the international community selected and retained a specific imaginary - as a way to draw attention to global challenges. These global goals were also 'meaning making instruments' which set 'global norms' as a way to initiate policy and practice reforms to address these challenges on the part of the international and national communities. In terms of governance, global goals are prescriptive norms in that they define what should be done and are intended to lead to change through the setting of performance standards and their application in planning and performance monitoring (Fukuda-Parr, 2014). This prescriptive power is magnified when goals are quantified to create universal standards that can be used to evaluate performance in a wide range of countries and contexts. Adding targets into the mix creates a layer of accountability that provides a basis for social activists or other oversight bodies to pressure authorities to do more. Moreover, they can act as 'self-regulation' valves that enable a country to hold itself accountable and motivate it to align its priorities with those international standards, increasing its international reputation and fostering a 'healthy competition' among countries8 (Fukuda-Parr, 2014).

These characteristics are key to the appeal of global goals and reveal that the power of numbers has extensive influence on international agendas beyond the directly observed effects. However, it is also important to note that not all influences are intentional or desirable. When a global norm is translated into a numeric goal, this can shape how the norm itself is "defined and used in narratives about their implementation" (Fukuda-Parr, 2014, p. 119). This is because quantification does not merely allow the description of our social and natural world via the medium of numbers – it also reconfigures them, imposing new meanings and erasing old ones (Porter 1994). Merry (2009) argues that "indicators produce readily understandable and convenient forms of knowledge about the world that shape the way policy makers and the general public understand the world. Those with long use have become naturalized, as well as hegemonic" (p. 592).

This reconfiguring relies on the very essence of numbers as an entity with causal power, that had certain desirable effects on the empirical, as well as the tacit causal powers inherent within the mechanism of

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in things like national education strategies and plans. These are discussed more fully in the sections on the MDGs and SDGs.

[8] This latter is a causal mechanism – a subtle form of power (soft power) in the form of peer pressure – used to influence countries' behavior, with the best example of this being country rankings on a variety of indices and standards. These rankings often succeed in encouraging countries to adopt policies to improve their rankings as a matter of national pride or political currency without overt outside pressure (Fukuda-Parr, 2014).

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quantification (1) the inherent trust in numbers as scientifically derived, combined with (2) the ability to manipulate these numbers in calculations as a means of assessing trends of progress or regress; (3) the abstract nature which allows a concept to become universally applicable; (4) the capacity to create a single standard applicable and comparable across contexts; (5) the expression of complex and intangible social objectives as measurable concrete outcomes; and finally (6) the simplification and reduction of "a complex multidimensional reality into a single number" (Fukuda-Parr, 2014, p. 119).

The Power of Numbers in Action – Multiply Determined Realties of the Global Goals

The above discussion is not meant to convey that the existence of numbers, the reasons the international community espoused the generative mechanism of quantification, and the policy imaginaries resulting from their interaction, provide a complete explanation of the causal mechanisms that produced the particular structures we know as the global goals. Nor do these entities, mechanisms and structures encompass the subsequent patterns of events observable in their implementation. We are seeking more than what Elder-Vass calls a "level-abstracted view of it—a view that considers the effect of the whole entity, in isolation" (2010, p. 49).

The depth ontology of CR demands a deeper examination of the formulation of the global goals – an examination that includes the interactions between numbers and the international community's (1) aims and ideation for the global goals, (2) the political and economic context surrounding the formulation of the goals, and finally (3) the national settings as sites of implementation. Such an examination allows the incorporation of other influences that may play a role in the observed effects/ events. It can also enable us to tease out multiple, detailed explanations for the empirical social situations/settings and interpret the generative mechanisms and structures that galvanize them. Moreover, it involves the consideration of how the global goals are both the result of a series of mechanisms and simultaneously the impetus for another series of 'events.'

The Millenium Development Goals (2000 – 2015)

The development of the MDGs is a good example of the dichotomy of form and function that developed from the numeric translation of qualitative goals. When these goals were introduced, they were meant to be shorthand for a variety of social objectives on development, poverty reduction, peace and security, human rights, education, democracy and environmental sustainability (see Figure 1). These objectives, and the consequent goals, were built on various UN Conferences held in the 1990s (Fukuda-Parr, 2014; Jacob, 2017), highlighting the human ends of development, promoting social and economic policy reform, and emphasizing the participatory nature of international development, in which civil societies would contribute in addition to governments and donors (United Nations, 2007).

The UN Development goals also arose in the context of the rapid advance of globalization (Fukuda-Parr, 2014) and in the wake of two decades of debates about structural adjustments prescribed for developing economies (and a very money-centric definition of poverty) - the 'neoliberal' counterpart to the Reaganism/ Thatcherism9 prescribed for developed economies ideology - as part of the Washington Consensus policies of the World Bank and the IMF (Fine et al, 2001). These complex social objectives were expressed in 8 goals, each with concrete targets and corresponding indicators (see Figure 1).

Figure 1

MDGs to SDGs: Goals, Targets, and Indicators

[9] This is an ideology of reliance on market forces and reduction of state intervention and expenditure (Fine et al, 2001).

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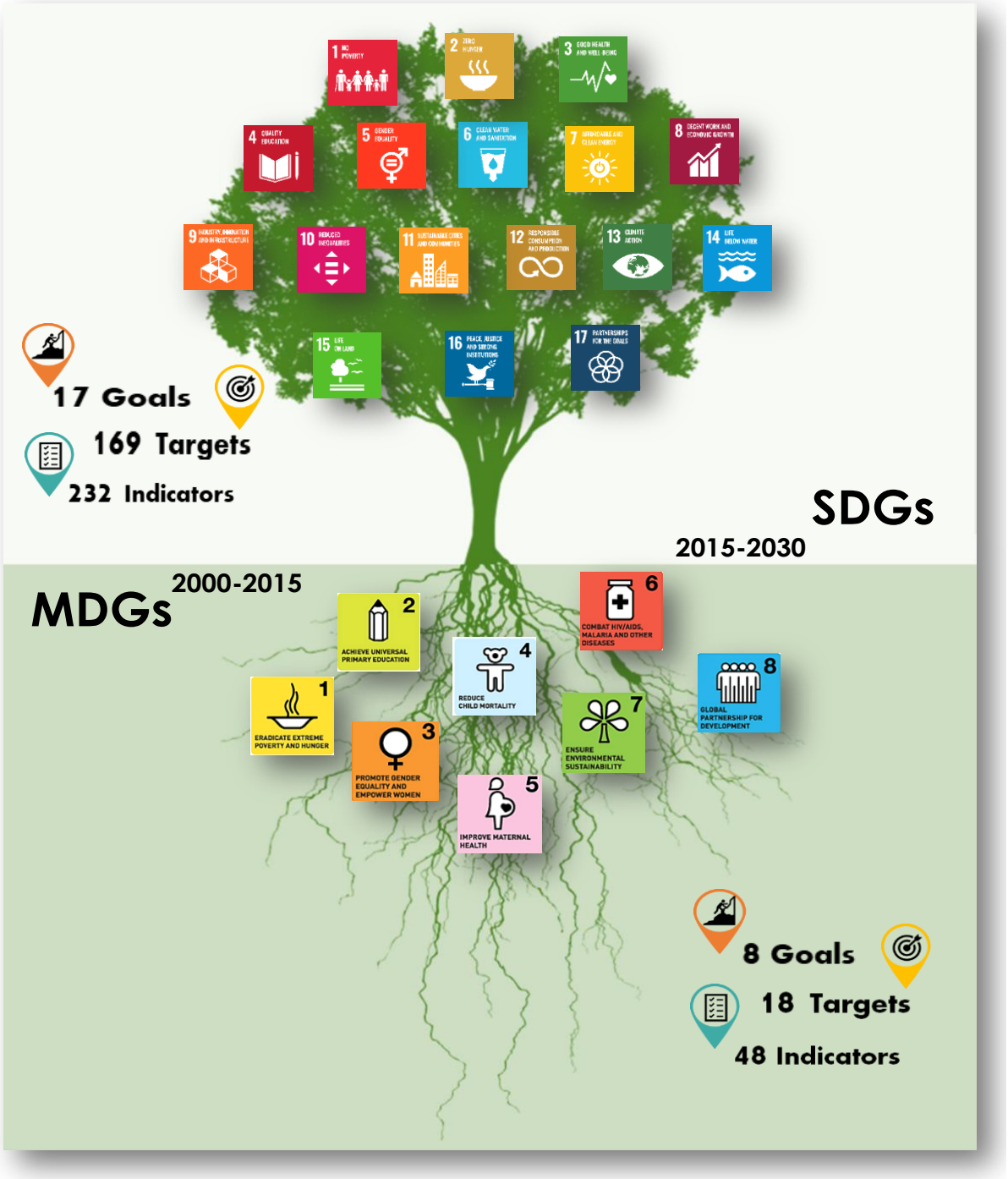

Source: This figure was adapted by author from SDGs DKI Jakarta—Capital City for All—No One Left Behind. (n.d.).[10]

[10] MDG icons sourced from https://www.un.org/millenniumgoals. SDG icons sourced from https://www.un.org/sustainabledevelopment. The content of this publication has not been approved by the United Nations and does not reflect the views of the United Nations or its officials or Member States.

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These objectives were quantified as a manifestation of the international community's continuing focus on economic and political reform as well as their trust in the power of numbers, despite the fact that several of the goals were not considered amenable to such precise planning and commitment (poverty reduction, for example) and that many of the indicators and targets did not reflect the original intent. Additionally, the MDGs were set as global goals and not intended to be used as national planning targets by their creators (United Nations, 2001). Consequently, they were divorced from any strong understanding of potential country-level rates of progress based on historical experience and were not conceptualized to be national-level goals (Jacob, 2017). Their purpose was not to define important priorities nor propose national planning targets, but rather to harmonize reporting and to act as benchmarks for monitoring progress (United Nations, 2001).

However, the interaction between the aims and ideations of these goals and the development community's conception did not go as 'intended' – the generative mechanism of quantification along with the other influences had unexpected effects. The development community responded to the promise of this plan with its "aura of scientific precision" by adopting the goals as a "single - universal – standard of measurement and ambition" (Fukuda- Parr, 2014, p.122). This resulted in the MDGs acquiring significance beyond their original purpose, a significance that created a cascade of events clearly observable on the international stage as well as less manifest effects that had far-reaching implications for the way that development and its various components are defined, formulated and addressed globally.

During the course of their implementation, they were taken as national-level targets, and performance at country level for each indicator was expected to be recorded, reported, evaluated, and discussed (Jacob, 2017). They became the subject of reports by a variety of international and regional agencies reporting on progress, each with a specific focus and target audience, who used the MDGs as frameworks of accountability. Civil society groups, international NGOs and campaigners used their goals to apply pressure on governments to live up to their commitments and to hold donors to account as well in terms of living up to their promises (Fukuda-Parr, 2014). Other organizations such as the World Bank, with more human capitalist and economist leanings, assumed the MDGs are meant as planning targets and introduced them as objectives into its agendas and encouraged countries to include selected MDG targets to guide the allocation of domestic and donor resources (Fukuda-Parr, 2014).

In terms of self-regulation, since countries are keen to bolster their standing on the international stage, many prepared MDG progress reports specifically to present them as records in international forums rather than for national development planning and monitoring. The MDGs also allowed leaders – political and otherwise - to show global leadership and concern with social objectives, which is why politicians, business owners, non-governmental organizations and civil societies also took up many of the development goals, successfully employing them as a rallying cry and a way to mobilize aid and support for a variety of causes from education to health to poverty reduction (Fukuda-Parr, 2014).

However, the numeric translation of the goals also had less noticeable but potentially problematic effects. The first and arguably most concerning consequence was that the numeric goals resulted in a "gross oversimplification of development objectives on national and global levels"11 (Fukuda- Parr, 2014) and of development itself as a concept (Fukuda-Parr, 2016). They distorted and significantly narrowed the global priorities they represented. This can be observed in one of the main aims of the MDGs - ending extreme poverty, which was defined as meeting basic needs. This was a very narrow conception of development that deviated from the more comprehensive - and until then prevalent - understanding of development as a method of enlarging the productive capacities of economies to improve the living

[11] The MDGs and their targets– such as universal primary education – were mostly relevant for developing countries, and were sometimes labelled 'Minimum Development Goals' (Harcourt, 2005, p. 1)

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standards of people. It was also a conception that failed to truly address poverty in relation to inequality and other human right deprivations (Fukuda-Parr, 2016).

For example, MDG 1 aims to eradicate extreme poverty and hunger, and is defined by three targets that focus on reducing the proportion of people living below the poverty level and suffering from hunger as well as increasing employment.12 These targets are measured by 12 indicators including measures of income and consumption, employment levels, dietary consumption and body weight. From the human rights perspective, the reduction of the eradication of poverty and hunger to income and consumption measures "not only over-simplifies the concept but redefines it to a utilitarian perspective of material deprivation" (Fukuda-Parr, 2014, p.127). This shows that the simplicity of the MDGs could not adequately encompass the array of development challenges. The numeric goals based on purely tangible and quantifiable outcomes were inherently reductionist in their articulation of a vision of development (Fukuda-Parr, 2016).

In addition, when these goals were adopted as a 'development strategy', monitoring tools came to be considered priority objectives (Fukuda-Parr, 2014). This led to confusion as to whether the goals were 'intended' to be adopted by each country as is – a 'one size fits all' agenda - or to apply to the whole world, with each country contextualizing them. On the one hand, monitoring and reporting on target achievement needed to be based on specific common objectives and criteria – with the targets and indicators acting as comparable performance measures. On the other hand, there was a prevalent notion that a sense of 'national ownership' was essential to success, but this necessitated adaptation to allow these goals to fit into the institutional mechanisms involved in the planning and programming procedures of a nation. However, such recontextualization may not be logical or feasible in certain contexts (Fukuda-Parr, 2014).

For example, in terms of achieving universal primary enrolment, several countries in Latin American and Southeast Asia had already achieved that goal when MDG 2 came out, so how can it be a priority goal for them? Conversely, other countries had so many challenges that achieving the same goal was implausible.; many countries struggled with huge numbers of out of school youth and children for a variety of social, political, and economic factors. In fact, this is a goal that remains implausible even today for countries like Nigeria who still struggle with a large number of OOSYC. Moreover, the underlying implication of setting a single universal target as a performance measure, establishing it as a criterion and metric to judge a country's success or failure on achieving these goals was equally problematic – and unjust. This methodology does not consider each country's starting point, nor the progress made towards the achievement of that goal in contexts with fewer resources and capacities. These issues and inconsistencies diluted the impact of the MDGs as an effective development strategy.

There are clearly serious implications and effects to quantifying the MDGs, robbing the goals of their broader concerns with human agency and ethical demands on social institutions and reconfiguring many of their aims to a set of numerical and essentially 'material' needs – income, access to education, employment - in the utilitarian perspective. This is, Fukuda-Parr (2014) describes as "an inevitable result of the power that numbers have in simplifying complex concepts" (p.127). Was the post-2015 development agenda a chance at redemption? Or did the same underlying mechanisms, structures and processes continue to generate the same effects?

The Sustainable Development Goals (2015 - 2030)

[12] These targets are: to halve the proportion of people living on less than $1.25 a day; to achieve full and productive employment and decent work for all, including women and young people; and to halve, between 1990 and 2015, the proportion of people who suffer from hunger (United Nations, 2008)

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The launch of the SDGs in September 2015 at the UN General Assembly marked the end of the MDGs and the beginning of a new set of goals which are arguably more ambitious (Sayed et al., 2018), forming a new global agenda that would be "transformative" and would bring about structural change (Fukuda-Parr, 2016). The SDGs were perceived as a reversal of the MDG's simplistic, reductionist approach to goal setting − in other words a reversal of the underlying generative mechanism of quantification. Or perhaps at the very least, there were an attempt to leave the power of numbers 'unexercised.'

They were perceived as a departure from the principle that global goals should be "short and memorable," turning instead to complex concepts and quality development processes such as inclusivity and sustainability, while seeking to be less focused on "tangible and measurable outcomes" (Fukuda-Parr, 2016., p. 49). Their agenda is also perceived as wider in scope, reach and depth, with a stronger emphasis on human rights, reducing inequality and exclusion, and addressing the structural causes of poverty and injustice (Fukuda-Parr, 2016). Fukuda-Parr (2016) goes so far as to describe them as a departure from the MDGs not just in the number of goals and targets but "in their very purpose, conception and the political process that drove their elaboration" (p.44), seeking to reset the 'global norms' established by the MDGs. The SDGs still have ending poverty as a central objective, but the seventeen goals and 169 targets set out a broader agenda that include environmental, social, and economic sustainability13 (Fukuda-Parr, 2016).

Unlike the MDGs, which were a North-South aid agenda with many of the goals and targets mainly relevant to developing countries (such as universal primary education and poverty reduction), the SDGs are a global agenda for sustainable development. They have universal goals that set targets for all nations and rely on the engagement of different stakeholders, both in their creation and implementation, with room for national adaptation (Fukuda-Parr, 2016; Fisher & Fukuda-Parr, 2019). The SDG formulation was also a more participatory process that took place over three years , involving governments, civil society networks, and multilateral organizations to develop an "alternative SDG vision" on a variety of global concerns ranging from education to health and social protection (Fukuda-Parr, 2016; Unterhalter, 2014; 2019). This is in response to one of the most salient critiques levelled at the MDGs: that they were not the result of public discussion or a consultative process that drew on the expertise and knowledge of governments, civil societies, or experts but a 'top-down technocratic approach'14 (Fukuda-Parr, 2016; Unterhalter, 2014).

However, although the SDGs were perceived as a response to and an attempt at the reparation of the key shortcomings of the MDGs (Fisher & Fukuda-Parr, 2019; Fukuda-Parr, 2016; Unterhalter, 2014; 2019), they build on their predecessor Millennium Development Goals. Many of the mechanisms and influences that resulted in the particular formulation, and impacted the implementation, of the MDGs can be observed or inferred in the SDGs as well. One of the main critiques levelled at the MDGs is that their 'framing' of a narrow vision of development which "set boundaries of analysis for policy choices…, determined how problems [were] defined, causes explained, and policy responses and priorities justified," shaping development discourses and debates that favoured "target-driven strategies, and in most cases, undermined human rights" (Fukuda-Parr, 2016, pp. 49-50). Yet, the SDGs, by their very nature as goals, also frame a vision of development; more importantly, they continue the reliance on quantitative targets and indicators which may again lead to the neglect of the "human development and capability principles and concerns" that characterize them because these principles and concerns can be "intangible or difficult to measure" (Fisher & Fukuda-Parr, 2019, p.376). This means that yet again, the interaction between the

[13] The SDGs contain new goals on energy, infrastructure, inequality, sustainable cities, responsible consumption and production, and promotion of peaceful and inclusive societies, among others (See Figure 1).

[14] Amin (2005) described it as a "procedural innovation, called 'consensus'" which deviated from UN tradition of discussing texts of this sort at length in committees and viewed this as a reflection of "a change in the international balance of power" (p.1).

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aims and ideations of these goals and the development community's conception has had unintended effects, allowing numbers and the generative mechanism of quantification to influence the formulation and implementation of the SDGs despite efforts to reverse course.

The scope of the SDGS and their weak countervailing mechanisms15, as well as the architecture of numbers that had been established through the process of the formulation and implementation of the MDGs (Unterhalter, 2019), made it difficult to prevent the power of numbers from being exercised and actualized once again. The SDGs retained the "centrality of metrics, data and measurement", continuing to frame development problems as "technical, managerial, and measurable" (Fisher & Fukuda- Parr, 2019, p.383) instead of human, complex, and contextual. In fact, although both the MDGs and SDGs revolve around goals, targets and indicators, numbers command a much larger space in the design, implementation, and monitoring of the SDGs. For one, with the SDGs, the number of goals has more than doubled, while the number of targets has increased eight-fold, and the number of indicators nearly four-fold as can be seen in Figure 1.

The increase in the number of targets and indicators is due to the broader scope of many of the goals as well as the attempt to build consensus around them by including aspects that cater to entities involved in their formulation. This can be seen in the formulation of SD4, the education related goal, which aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (UNESCO, 2015, p.1). There was much discussion, and disagreement, on the broadening of the scope of this goal beyond the parameters of MDG 2 by UN mandated bodies and other committees (Unterhalter, 2019). The disagreement was the result of dueling visions that represented the continuing perception of development as a mainly economic (and therefore also political) enterprise versus a project aimed at promoting human rights and capabilities (Unterhalter, 2019).

Though the broader goal was ultimately adopted, the wider focus meant a greater number of targets, resulting from the enduring structures that required a way to not only track these commitments, but also to provide readily accessible, comparative data and evidence to national governments, courts, media, and bureaucrats among others so that all stakeholders involved could be held to account (Fukuda-Parr, 2014; Langford & Fukuda-Parr, 2012). The targets also needed to incorporate SDG 4's focus on less tangible – and consequently less quantifiable – aspects of education such as 'quality' education, inclusion, and "other contentious areas of value like sustainability, rights, and gender equality" (Unterhalter, 2019). Consequently, SDG 4 had both quantitative and qualitative targets-: seven 'outcome' targets and three means of implementation (or 'thematic') targets16. The introduction of new targets also meant the introduction of new indicators, which required that the international statistical community find measurement methods for priorities on which there are no agreed definitions, or which were difficult to quantify (McNeill, 2019).

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[15] This failure in countervailing mechanisms – outside the scope of our discussion on numbers – can be seen in Carant's (2017) proposition that the consultation process for the SDGs, ostensibly giving space and voice to the civil community's vision of development, was much like the MDGs only symbolically participatory, with the most marginalized, most in need still unheard and left behind by a lack of access and a digital divide that continues to "cater to the most educated, recreating a technocratic, top-down approach to goal development" (p.27)

[16] The seven outcome targets are: free primary and secondary education; equal access to quality pre-primary education; affordable technical, vocational and higher education; increased number of people with relevant skills for financial success; elimination of all discrimination in education; universal literacy and numeracy; and education for sustainable development and global citizenship. The three means of implementation targets are: build and upgrade inclusive and safe schools; expand higher education scholarships for developing countries; and increase the supply of qualified teachers in developing countries (UNESCO, 2016).

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Other influences that can be perceived in the formulation of the targets and indicators include what Unterhalter (2019) terms "the institutional architecture" around metrics and the absence of mechanisms to prevent slippage into the generative mechanism of quantification and all that entails. Over the course of fifteen years, methods, systems and data sources had been established, which resulted in tension between these well-established (and trusted) techniques of monitoring and the expanded vision of the SDGs. These tensions were reflected in the Sustainable Development Solutions Network (SDSN)17 report to the UN Secretary General, which outlined ten principles of global indicators (SDSN, 2015).

The report indicated that global level indicators should be: (1) "simple, single variable indicators, with straightforward policy implications"; (2) "mainly outcome-focused' with these 'outcomes' being used as a "proxy for broader issues or conditions" (p.7) – a rerun of the rationale for used for the quantification of the MDGs and an exercise of the causal power of numbers. The report supported its argument for these principles by citing ease of data collection and communication, the importance of measuring the ends rather than the means (i.e. outcomes not enablers), and the potential insight offered by proxy indicators (SDSN, 2015). The report did not provide an explanation of the exercise of that power - why or through what process a specific proxy was chosen over another. Nor did it consider "whether measurement of outcomes at global level might obscure significant and relevant inputs and processes nationally and locally, and how single variables could be used for complex processes, such as equality or quality education" (Unterhalter, 2019, p.44).

None of the relevant UN organizations endorsed it. However, because certain methodologies and organizational systems for measuring specific aspects of education were well-established before the global indicators were negotiated (and the political and economic influence the SDSN exerted by virtue of what/ whom they represent), this affected the selection of the indicators and enabled the underlying structures and mechanisms (or the absence thereof) to have effect. This can be seen in the indicators for SDG 4. Target 4.1 focuses on free primary and secondary education, but the indicator notes outcomes of schooling 18 with no measure identified of whether schooling is free. To track 4A, which is concerned with education provision that is safe, child friendly, gender sensitive and capable of meeting the needs of children with disabilities, the indicators suggested are buildings adapted for disabled students and spaces with electricity, sanitation, and access to the internet (Unterhalter, 2019). The means of implementation of this inclusive target were reduced to forms of physical infrastructure that have little in common with the stated intent except in the most basic, physical sense.

Nor is this the only reductionist and distorting effect. The indicators for 4A are portrayed as proxies, revealing areas for improvement. However, they do not give any indication of the necessary structural or human processes to support a more equitable provision of quality education (Unterhalter, 2019). Buildings and infrastructure cannot be a proxy for human relationships, yet the indicator refers only to what can be quantified as essential to inclusive environments. Moreover, metrics for equity, as understood through the SDG indicator framework, continue to be mainly distributional, focusing on how much participation certain groups have in various stages and forms of education. For example, at face value

[17] This was not an officially UN mandated body, but they issued several reports on various aspects of the SDG formulation and on the data revolution and monitoring the SDGs (Unterhalter, 2019). The Leadership Council of SDSN was chaired by Jeffrey Sachs, an adviser to the International Monetary Fund, the World Bank, and the Organization for Economic Co-operation and Development, among others. He served as special adviser to the United Nations (UN) Secretary-General Kofi Annan on the UN Millennium Project (*Jeffrey D. Sachs | American Economist, Global Development Expert | Britannica*, n.d.).

[18] The indicator is "Proportion of children and young people: (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex" (UN Statistical Commission, 2018).

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Target 4.5 seems to go beyond gender parity in its indicator and identify a number of other factors of inequity (e.g. disparities in provision between rural/urban, bottom/top wealth quintile) and exclusions associated with disability status, indigenous peoples and those in conflict-affected areas 'as data become available'19 . But a deeper look reveals that there are substantive omissions or misunderstandings of intersecting inequalities, how elements of the education system reproduce inequalities, and how practices for equality are experienced, failing to capture "social division, discrimination and causes of vulnerability which hamper access and quality" (Unterhalter, 2019, p.47).

It would seem that the formulation of the SDGs resulted in a dialectical contradiction when it came to their implementation. In their formulation, the international community sought to correct the quantitative elements that were perceived as weaknesses in the MDGs, namely that the MDGs were simple, consensual, and numerical, (Fukuda-Parr, 2013) - an actualization of the very essence and causal power of numbers. Yet, these so called 'weaknesses' ostensibly reversed in the SDGs were sought once again; their absence also perceived as a weakness. The social structures resulting from the interaction numbers and what Jessop (2010) refers to as 'technologies' and their impact on the social world had already created specific 'imaginaries,' ones in which numbers had become essential mediators and participants in the fabric of that imaginary. When combined with the wide scope and large number of goals and targets, the complex language that expressed the intangible qualitative objectives, and the power of pre-existing structures, the generative mechanisms of quantification and the causal powers of numbers were able to persevere in the formulation of the SDGs, and arguably reproduce the same dialectic the international community was trying to change.

Conclusion

The article's focus on exploring the impact of recontextualizing a human rights discourse into numbers offers an alternative narrative of the shaping of the global development agenda. Through the lens of CR, the article presents a recasting of the historical narrative of the creation of the structures we know as the global goals and the subsequent patterns of events observable in their implementation, while acknowledging that, in line with CR, this remains one provisional interpretation among others..

This narrative demonstrates the impact of the development of the global goals as tools of governance and administration, while revealing how the power of numbers and the generative mechanisms of quantification have engendered mechanisms and unexpected patterns of events. One of these unexpected mechanisms is the warping of the original purpose of the goals as monitoring tools intended to harmonize reporting. Instead, they became normative priorities and planning targets that defined a development agenda on both the national and international stage, introducing distortions in policy priorities and creating inequitable performance evaluations. Then, the goals were further manipulated to analyze performance and diminish complex social descriptions, while simultaneously generating an almost blind sense of trust in what is being reported; a direct consequence of people's faith' in numbers as something scientifically derived.

The analysis also revealed that the process of quantification of development priorities and human rights principles into a set of numerical goals began with the MDGs as a deliberate attempt to develop a global norm, one that would have the power and influence to be implemented, transforming 'symbolic policies' into concrete 'material' policy and practice and allowing the international community to set the 'agenda.' However, it not only mediated the creation of an imaginary that morphed into a social entity itself - one capable of shaping a particular view of 'reality' - it also created a new conceptualization of development

[19] By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations (UN Statistical Commission, 2018).

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that mainly focused on utilitarian perspectives, betraying the concept of development as the realization of human rights.

Nor did moving towards the SDGs allow us to escape the tyranny of numbers. Although aspirational claims of transformative impact were made as the world shifted to the SDGs, the power and the generative mechanisms of numbers reasserted themselves once the world sought to implement the SDGs, slipping back into pre-existing structures. This analysis highlights how the goals continue to prioritize metrics, data, and measurement, viewing development problems as technical challenges to be managed, measured and quantified. The SDGS are the fruit a poisoned tree, its roots originating in the same soil as the MDGs, still watered with the same concern with metrics, data and measurement under the influence of the same generative mechanisms.

The issues this article raises are particularly pertinent in the light of the looming 2030 deadline for achieving the SDGs. Certain aspects of the development agenda may indeed be 'unmeasurable' with current (possibly even future) indicators; nonetheless, if numbers and metrics are to be truly useful in enhancing human rights agendas and in developing strategies to tackle considerable injustices, then research and critical discussion are needed. Nor is the rationale a search for 'better' numbers but a pursuit of metrics that depict those injustices and help develop policies and practices that can realize the world's vision of development.

This work is an invitation to grapple with what has been gained by a focus on numbers, data and quantification versus what is lost in focusing on measurement, evaluation and monitoring; in limiting development frameworks to goals, targets and indicators; and in moving the locus of responsibility and accountability. It is also an invitation to (re)consider our engagement with measuring the global goals, moving from a notion of imposing frameworks of evaluation to one of consulting on how to establish these goals to express the fundamental values of equality, freedom, tolerance and shared responsibility – the original values espoused in the Millenium Declaration. To undertake such work, we need insights into the range of normative, epistemological, conceptual, empirical and numerical resources available - a different kind of power with (and through) numbers.

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