Are we measuring the SDGs progress right? Evidence and insights from a review of India's SDG index

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Abstract

Purpose – This study aims to review the computational framework of SDGs in India, so that a mid-course correction can be contemplated.

Design/methodology/approach – This study deploys, inter alia, econometric analysis to probe the robustness of indicators of SDG India Index 3.0. Methodologically, the study intensively probes the robustness of SDG India index and extensively refers to the global SDG indexes for cross-checking.

Findings – Though the three editions of SDGI index mark significant efforts taken towards measuring the progress of SDGs in India, the paradigm suffers from the problem of too many indicators chasing only few targets, quantitative and qualitative issues with indicators, vintage pollution, partial coverage of targets and robustness issues.

Research limitations/implications – This study has the limitation that it could not check the robustness of SDG scores with different weights assigned to indicators and future researchers can take up that interesting assignment.

Practical implications – Since measuring the SDG progress through SDG index is a global endeavour, the findings of this study are important for almost all countries of the world, as it is still not too late to do mid-course correction because it is not the measurement that matters at the end of the day, rather it is the outcome of sustainable development that every country cares about.

Social implications – The obfuscation of layers of SDG index in crafty, glossy and power-point-presentation-oriented SDG reports should get the reality check through such review of the computational framework of SDGs.

Originality/value – This is the first study that unpacks the layers of SDG index computation in general and comprehensively reviews the Indian SDG indexing method in particular.

Keywords SDGs, India, Indexing

Paper type Research paper

Introduction

The canonical belief that what gets measured gets done has led to the construction of numerous indices in pursuit of socio-economic development. However, the question of *how* it

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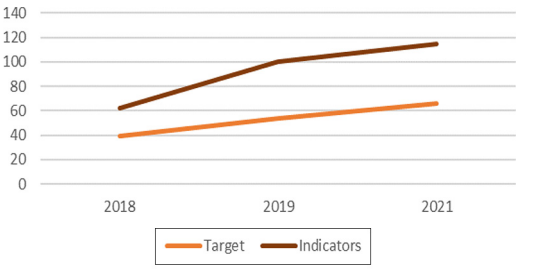
gets measured has been paid comparatively less attention, which could result in decoupling between scores of indices and the ground reality. After the adoption of the United Nations (UN) 2030 Agenda for Sustainable Development by 193 countries in September 2015, the resolution of 17 Sustainable Development Goals (SDGs) and 169 targets of these goals came into force in January 2016 (Nations, 2022). As the progress on SDG targets was to be monitored, a set of indicators was proposed as the Global Indicators Framework (GIFs) by the UN in March 2017 and the process is still evolving (UN, 2021). However, GIFs are only guiding in nature and countries committed to the 2030 agenda are free to choose their own set of SDG indicators (called National Indicator Framework [NIF]) and corresponding methodologies to calculate the index. So far, 87 countries of the world have come up with their own SDG index and India, which has released three rounds of SDG India (SDGI) scores, is one such country (UN, 2023). To answer the question of *how* the SDGs are being measured, examining India's SDGs index is an appropriate approach since India is the world's second-most populous country besides being the fifth-largest economy. This is high time to do such a study in the eighth year of SDGs, which is about midway to the 2030 agenda, as the review can not only reveal the efficacy of the SDG framework but can also throw insights for a mid-course correction for all the countries of the world interested in SDG monitoring.

SDG Index in India is prepared by the UN Development Programme (UNDP) as technical assistance to the government's think tank organization NITI Aayog, which finally released the index (UNDP, 2022). The first edition of the SDGI Index was launched in December 2018, using 62 indicators for 39 targets across 13 SDGs. The second edition released in December 2019 was broader and covered 100 indicators for 54 targets from all 17 SDGs. The second edition had 68 indicators aligned with the NIF, 20 were refined and 12 were from other government sources. The third and latest report on SDGs in India was released in June 2021 and has 115 Indicators covering 66 targets from 16 Goals, as SDG 17 is qualitative in nature.

The growth rate of targets and indicators is shown in Figure 1. It can be observed that about 15 targets get added to the SDGI Index every year. Going by this rate, it will take more than 6.5 years to develop and add all the indicators for covering 169 targets of SDGs. Hence, mere identification of the rest of the targets and indicators in India will take us to 2030, let alone achieving them.

This study deploys a multi-criteria analysis for checking the robustness of the SDGI Index edition 3.0. An extensive and intensive analysis of the SDGI Index is done in this study. The rest of the paper is organized as follows. The next section presents the review of literature on critical analysis of SDG indexing followed by third section which presents the methodology adopted in this study. The fourth section presents the findings followed by fifth section on coverage of India's uncovered targets in other countries. Finally, the study is concluded in the sixth section.



Source: Compiled and visualized by authors

Figure 1.
Actual growth of targets and indicators as per SDG India Index

Literature review

As the world enters into its eighth year of adoption of SDGs, few studies have contributed to the literature on the efficacy and underlying weaknesses of SDG frameworks. Jerven (2017) highlighted the problem of a large number of indicators and the associated cost of SDG monitoring the same. Political capture of SDG indicators' selection process has also been brought out in the literature (Fukuda-Parr and McNeill, 2019). Some studies in the literature have made a case for democratizing the selection of indicators. For example "cherry-picking" certain SDG goals by countries was underscored by Forestier and Kim (2020) and Eden and Wagstaff (2021) argued that in the context of SDG 5, as indicators based on official statistics are unable to capture the intended target, indicators that can plug in unofficial data should be allowed.

While most of the studies indicate the issue of an overwhelming number of indicators to measure SDGs, one study (MacFeely, 2020) advocated for 600 indicators reasoning that most of the targets are multidimensional and only a large number of indicators can capture the phenomena. However, if we assume that the attainment of SDGs should lead to life satisfaction, then Kubiszewski *et al.* (2022) found that just eight indicators sufficiently measure life satisfaction. On the number of SDG indicators in vogue, most of the studies opine that the indicator numbers are more than justified. While van Vuuren (2022) found that 232 indicators are not only too much to be an optimum number of indicators, but they are also vague. The problem of preference for existing data diverting resources away from collecting new data needed for change was highlighted by Kim (2023). To the best of the author's knowledge, there are no studies critically examining SDG indicators of India, and the authors attempt to bridge this vital gap in this study.

Data and methodology

In the SDG India Index 3.0, though it is mentioned on Page 55 that 70 targets for the 16 goals are covered, in metadata on page 288, there are only 66 targets covered (UNDP, 2022). Hence, an analysis of 66 targets of SDGI Index 3.0 is done in this study. Data for the analysis is taken from the SDGI report and the SDGI dashboard, besides reports of the Ministry of Statistics and Programme Implementation (MoSPI). It must be noted that the purpose of this study is not to probe the construction of the index, wherein weights and formula of composite scores are analyzed, rather the focus is on the analysis of the efficacy of indicator selection and underlying data. The methodology is devised to address the following fundamental questions regarding the robustness of the SDGI Index: Are there too few or too many indicators covering the targets? How old is the data that goes into indicators? Are all the targets covered as we are in the mid-way to the 2030 agenda? How effective is the underlying indicators selection mechanism? Is each of the targets completely covered? Considering the spectrum of examination, a multicriteria method (Konidari and Mavrakis, 2006; Roy and Vincke, 1981) is suitable for examining the SDGI Index. The SDGI Index is analyzed based upon the following six criteria in this study: indicator-to-target ratio, vintage pollution, missing indicators paradox, quantity vs quality of underlying indicators framework, partial coverage and robustness check regression analysis. While the first five criteria are graphical and tabular analysis, the last one is an econometric analysis. In addition, the case of one sub-national (i.e. state) level SDG Index of India is also analyzed.

Findings

Results along with the discussion on each of the six criteria are presented in this section. These findings are drawn from global comparisons on the SDGI Index, wherever applicable.

Indicator-to-target ratio

Normatively, the indicators included in the NIF of MoSPI should only be included in the SDGI Index. However, there are some indicators in the SDGI index that are not part of NIF and vice versa. Although MoSPI's NIF has identified indicators for 135 targets, the SDGI index covers only 66 targets. The first NIF (MoSPI, 2018) had indicators for 129 targets. The second edition of NIF (MoSPI, 2020b) had indicators for 133 targets. An update to the second edition of NIF (MoSPI, 2020a) published in the same year as NIF 2.0 had indicators for 135 targets, and this number has been stagnant for the third edition of NIF (MoSPI, 2021). From this, we can observe that MoSPI has been able to add six targets in the last three editions. Going by this rate MoSPI will be able to add 162 targets by 2030, and still be short of theoretically reaching the target of 169, as required for all SDG goals.

The main problem is the fact that India has very high Indicators for very few targets, i.e. a high indicator-to-target ratio. If we look at the actual targets and indicators being chased by the SDGI index, then we find that the indicator-to-target ratio is 1.742, which is way more than those of countries performing best in global SDG scores (Table A1 of Appendix). The indicator-to-target ratio for various countries is shown in Figure 2.

This issue of too many indicators to chase very few targets (theoretically 135, practically 66) is apparent in Figure 3 also, which shows that India has one of the highest indicator-to-target ratio among all the G-20 countries whose data can be found in the public domain.

The other two countries having an indicator-to-target (I-T) ratio higher than India, namely, Italy and Mexico, are both chasing a higher number of targets and indicators. All the developed countries have a low indicator-to-target ratio, indicating a rational approach to the measurement of the progress of SDGs. Considering the current I-T ratio of India (i.e. 1.742), MoSPI would be required to identify 146 more indicators to cover the remaining 84 targets, assuming all identified indicators are deployed in the SDGI index.

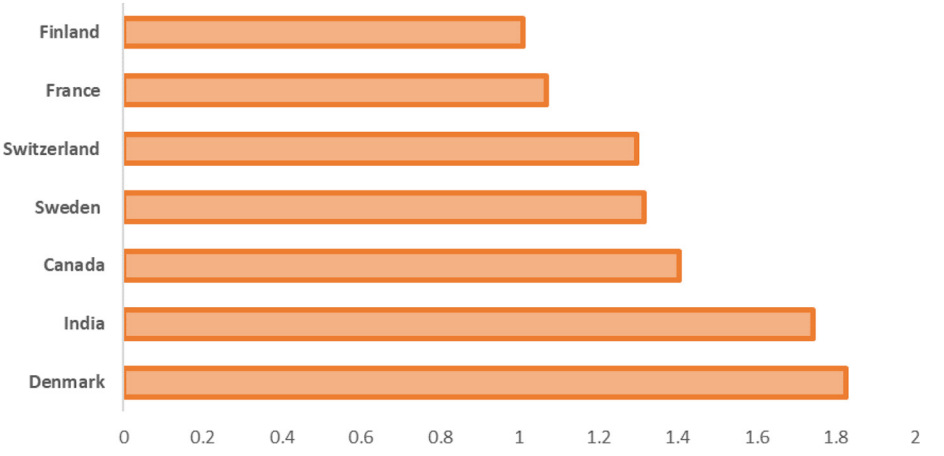


Figure 2.
Indicator-to-target ratio for top-performing countries

Source: Compiled and visualized by authors

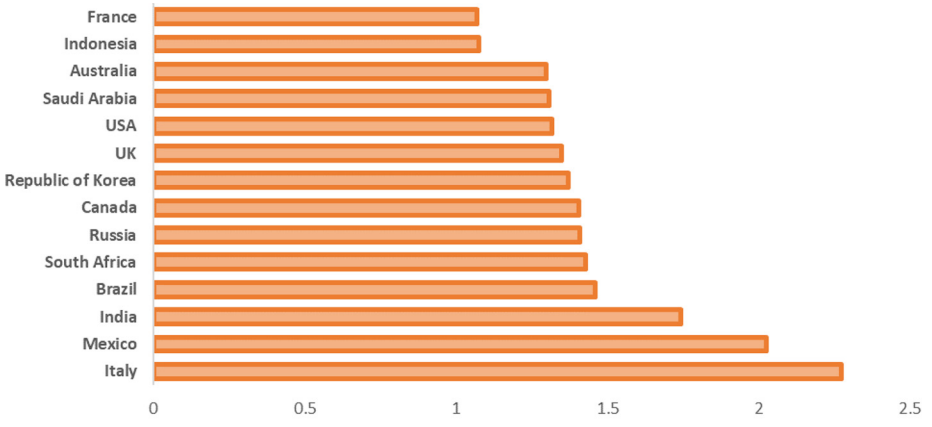


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Figure 3.
Indicator-to-target ratio for G20 countries

Vintage pollution

Several indicators in the SDGI index have their data sourced from surveys conducted many years ago, which we consider as statistical pollution. Using an outdated sample space creates further issues in SDG scoring and ranking. It is highly possible that several districts or states have improved or deteriorated on some sustainable development goals but the surveys were not conducted post the intervention, leading to an incorrect scoring and monitoring of SDGs in India.

To quantify this effect, we developed a criterion to measure the vintage pollution in every target undertaken of the SDG India index. Each indicator is given a score out of 10, based on how old is the data with respect to the year 2022 (Table A2 of the Appendix). The median age of all the data used to calculate the score was calculated, and the data set less than the median was termed "Vintage Pollution".

Vintage pollution is calculated for all the 115 indicators being used in the SDGI Index. Only 24 indicators had a value below 8.

As can be seen in Figure 4, out of the 16 SDGs, 12 SDGs scored above the threshold of pollution. SDGs 1, 2, 5 and 15 are the most vintage polluted indicators.

Missing indicators paradox

On one hand, the SDGI index has a high I-T ratio, on the other hand, many indicators that are globally considered easy from the point of view of both conceptual clarity and data collection, are missing from SDGI Index. Such indicators are classified as Tier-1 as per the Inter-agency and Expert Group (IAEG [1]) of the UN. The targets that get missed in the SDGI index and the corresponding IAEG classification are analyzed in Table 1.

Corresponding to the uncovered targets (Figure 5) in the SDGI Index, there are 70 indicators which fall under Tier-1 as per IAEG classification. This means that India has the potential of adding 70 more indicators (along with corresponding targets) to the monitoring framework. In fact, an action plan to cover all targets which need measurement of Tier-I classified indicators should be the top priority agenda in the Voluntary National Reviews presented by countries in the High-Level Political Forums for SDGs organized every year by

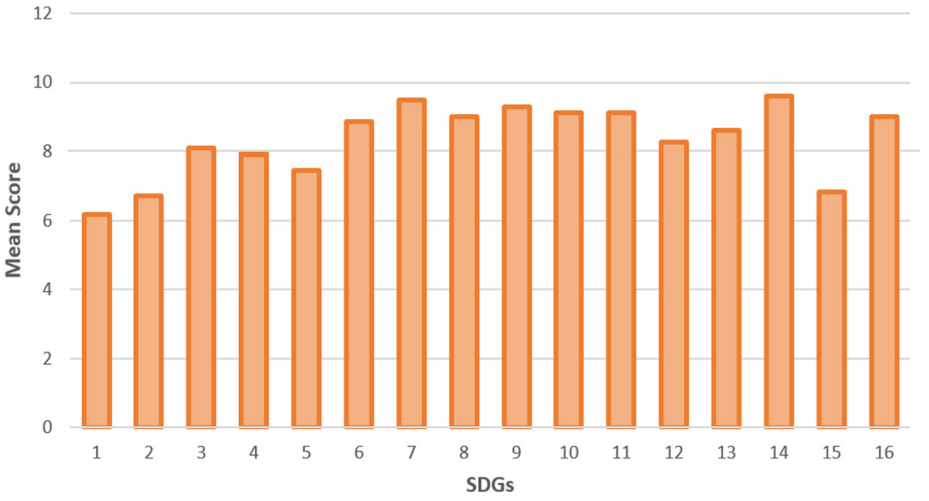


Figure 4.
Mean value of indicator scoring (as per ranking shown in Appendix) for each SDG

Source: Compiled and visualized by authors

the UN. After eight years of SDG adoption, no country should have a statistical system or the SDG computation procedures so weak as not being able to measure even Tier-I indicators.

Quality vs quantity of underlying indicator framework

Every year, the number of indicators in NIFs of countries keeps increasing, but is the quantitative improvement concomitant with qualitative improvement too? To check this, the simple test is applied: How many of the NIF indicators are actually excluded from the reported SDG index, and how many non-NIF indicators are deployed to calculate the SDG index? We call these two probes a "non-NIF" test. Ideally, the reported SDG index should not include any non-NIF indicator, as NIFs are normally formulated after rigorous scrutiny at the appropriate high-level involvement of senior-level statisticians.

To check the quality–quantity status, we apply the "non-NIF" test to the SDGI index. Among the outside-NIF indicators in the SDGI index, 31 indicators are modified from NIF and 8 are the own construction of the authors of the SDGI index. The latest NIF prepared by MoSPI, consists of 295 indicators, and it remains to be seen how many will be used in SDGI index 4.0. Increasing the quantity of SDG indicators does not translate into their applicability because of quality issues. This scenario is depicted better using a funnel chart in Figure 6.

Partial coverage of targets

The next criterion to check the robustness of SDG indicators frameworks of countries is partial coverage – a practice that can be called just short of jugglery if not manipulation. While SDG reports often claim increasing coverage of targets, hardly any attention is paid to the fact that SDG targets are not singular. Each target has certain sub-targets and claiming the coverage of the target even when just one of the sub-targets is covered is misleading. To make the entire SDG assessment exercise prospectively weak, sub-targets ignored once are ignored in subsequent assessments as a *tradition*.

Table 1.
Targets missing from SDG India Index

Goals	Targets not yet captured in SDG India Index	Indicators	IEAG tier (as per authors' understanding)
End poverty	By 2030, reduce the exposure of poor to extreme climatic conditions and other economic, social and environmental disasters	1.5.1 Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population	1
		1.5.2 Direct economic loss attributed to disasters in relation to global gross domestic product (GDP)	1
		1.5.3 Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030	1
		1.5.4 Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies	2
	Significant mobilization of resources to provide adequate and predictable means for developing countries	1.a.1 Total official development assistance grants from all donors that focus on poverty reduction as a share of the recipient country's gross national income	1
		1.a.2 Proportion of total government spending on essential services (education, health and social protection)	1/2
	Create sound policy frameworks at all levels based on pro-poor and gender-based strategies	1.b.1 Pro-poor public social spending	2
End hunger, achieve food security and improved nutrition	By 2030 ensure sustainable food production systems and strengthen capacity for adaptation to climate change, drought and flooding	2.4.1 Proportion of agricultural area under productive and sustainable agriculture	2
	By 2020, maintain the genetic diversity of seeds, cultivated plants and provide access to fair and equitable sharing of benefits	2.5.1 Number of (a) plant and (b) animal genetic resources for food and agriculture secured in either medium- or long-term conservation facilities	1
		2.5.2 Proportion of local breeds classified as being at risk of extinction	2
	Increase investment including in rural infrastructure, agricultural research and technology development	2.a.1 The agriculture orientation index for government expenditures	1
		2.a.2 Total official flows (official development assistance plus other official flows) to the agriculture sector	1
	Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agri-export subsidies and all export measures with equivalent effect	2.b.1 Agricultural export subsidies	1
	To ensure proper functioning of food commodity markets and facilitate timely access to market information	2.c.1 Indicator of food price anomalies	1

(*continued*)

Table 1.

Goals	Targets not yet captured in SDG India Index	Indicators	IEAG tier (as per authors' understanding)
Ensure healthy lives and promote well-being at all ages	Prevention and treatment of substance abuse, including narcotic drug abuse and alcohol	3.5.1 Coverage of treatment interventions (pharmacological, psychosocial and rehabilitation and aftercare services) for substance use disorders	2
		3.5.2 Alcohol per capita consumption (aged 15 years and older) within a calendar year in liters of pure alcohol	1
	By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	3.9.1 Mortality rate attributed to household and ambient air pollution	1
		3.9.2 Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe water, sanitation and hygiene for all [WASH] services)	1
		3.9.3 Mortality rate attributed to unintentional poisoning	1
	Strengthen the implementation of the WHO Framework Convention on Tobacco Control in all countries	3.a.1 Age-standardized prevalence of current tobacco use among persons 15 years of age and older	1
	Support research and development of vaccines and medicines that primarily affect developing nations	3.b.1 Proportion of the target population covered by all vaccines included in their national program	1
		3.b.2 Total net official development assistance to medical research and basic health sectors	1
		3.b.3 Proportion of health facilities that have a core set of relevant essential medicines available and affordable on a sustainable basis	2
	Strengthen early warning, risk reduction and management of national and global health risks	3.d.1 International Health Regulations (IHR) capacity and health emergency preparedness	1
		3.d.2 Percentage of bloodstream infections due to selected antimicrobial-resistant organisms	2
Quality education and lifelong learning opportunities for all	By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education	4.2.1 Proportion of children aged 24–59 months who are developmentally on track in health, learning and psychosocial well-being, by sex	2
		4.2.2 Participation rate in organized learning (one year before the official primary entry age), by sex	1
	By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment	4.4.1 Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill	2
	By 2030, ensure that all learners acquire knowledge and skills needed to promote sustainable development	4.7.1 Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment	2

(*continued*)

Table 1.

Goals	Targets not yet captured in SDG India Index	Indicators	IEAG tier (as per authors' understanding)
	By 2020, substantially expand globally the number of scholarships available to developing countries, for enrolment in higher education, including vocational training and ICT, technical, engineering and scientific programmes	4.b.1 Volume of official development assistance flows for scholarships by sector and type of study	1
Achieve gender equality and empower all women and girls	Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation	5.3.1 Proportion of women aged 20–24 years who were married or in a union before age 15 and before age 18	1
		5.3.2 Proportion of girls and women aged 15–49 years who have undergone female genital mutilation, by age	1
	Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies	5.4.1 Proportion of time spent on unpaid domestic and care work, by sex, age and location	2
	Enhance the use of enabling technology, in particular ICT, to promote the empowerment of women	5.b.1 Proportion of individuals who own a mobile telephone, by sex	2
	Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels	5.c.1 Proportion of countries with systems to track and make public allocations for gender equality and women's empowerment	2
Ensure availability and sustainable management of water and sanitation for all	By 2030, implement integrated water resources management at all levels	6.5.1 Degree of integrated water resources management	1
		6.5.2 Proportion of transboundary basin area with an operational arrangement for water cooperation	1
	By 2030, expand international cooperation and capacity-building support to developing countries in water and sanitation-related activities and programs, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies	6.a.1 Amount of water- and sanitation-related official development assistance that is part of a government-coordinated spending plan	1
	Support and strengthen the participation of local communities in improving water and sanitation management	6.b.1 Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management	1
Ensure access to affordable, reliable, sustainable and modern energy for all	By 2030, increase the share of renewable energy	7.2.1 Renewable energy share in the total final energy consumption	1
	By 2030, double the global rate of improvement in energy efficiency	7.3.1 Energy intensity measured in terms of primary energy and GDP	1
	By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and	7.a.1 International financial flows to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems	1

(*continued*)

Table 1.

Goals	Targets not yet captured in SDG India Index	Indicators	IEAG tier (as per authors' understanding)
	promote investment in energy infrastructure and clean energy technology		
	By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries	7.b.1 Installed renewable energy-generating capacity in developing countries (in watts per capita)	1
Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labor-intensive sector	8.2.1 Annual growth rate of real GDP per employed person	1
	Improve progressively, global resource efficiency in consumption and production and Endeavour to	8.4.1 Material footprint, material footprint per capita and material footprint per GDP	2
	decouple economic growth from environmental degradation, in accordance with the 10 Year Framework of programs on Sustainable Consumption and production, with developed countries taking the lead	8.4.2 Domestic material consumption, domestic material consumption per capita and domestic material consumption per GDP	1
	By 2020, substantially reduce the proportion of youth not in employment, education or training	8.6.1 Proportion of youth (15–24 years of age) not in education, employment or training	1
	Take immediate and effective measures to eradicate forced labor, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labor	8.7.1 Proportion and number of children 5–17 years of age engaged in child labor, by sex and age	2
	By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products	8.9.1 Tourism direct GDP as a proportion of total GDP and in growth rate	2
	Increase aid for trade support for developing countries including through the Enhanced Integrated Framework for trade-related technical assistance to least developed countries	8.a.1 Aid for Trade commitments and disbursements	1
	By 2020, develop and operationalize a global strategy for youth employment	8.b.1 Existence of a developed and operationalized national strategy for youth employment, as a distinct strategy or as part of a national employment strategy	1
Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	Increase the access of small-scale industrial and other enterprises, to financial services, including affordable credit, and their integration into value chains and markets	9.3.1 Proportion of small-scale industries in total industry value added	2
		9.3.2 Proportion of small-scale industries with a loan or line of credit	1
	By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use	9.4.1 CO_2 emission per unit of value added	1

(*continued*)

Table 1.

Goals	Targets not yet captured in SDG India Index	Indicators	IEAG tier (as per authors' understanding)
	efficiency and greater adoption of clean and environmentally sound technologies and industrial processes		
	Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, least developed countries, landlocked developing countries and small island developing states	9.a.1 Total official international support (official development assistance plus other official flows) to infrastructure	1
	Support domestic technology development, research and innovation	9.b.1 Proportion of medium and high-tech industry value added in total value added	1
Reduce inequality within and among countries	Adopt policies, especially fiscal, wage and social protection policies and progressively achieve greater equality	10.4.1 Labor share of GDP	1
		10.4.2 Redistributive impact of fiscal policy	2
	Improve the regulation and monitoring of global financial markets and institutions and strengthen the implementation of such regulations	10.5.1 Financial Soundness Indicators	1
	Ensure enhanced representation and voice for developing countries in decision-making in global international economic and financial institutions to deliver more effective, credible, accountable and legitimate institutions	10.6.1 Proportion of members and voting rights of developing countries in international organizations	1
	Facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies	10.7.1 Recruitment cost borne by employee as a proportion of monthly income earned in country of destination	2
		10.7.2 Proportion of countries with migration policies that facilitate orderly, safe, regular and responsible migration and mobility of people	1
		10.7.3 Number of people who died or disappeared in the process of migration towards an international destination	1
		10.7.4 Proportion of the population who are refugees, by country of origin	1
	Implement the principle of special and differential treatment for developing countries	10.a.1 Proportion of tariff lines applied to imports from least developed countries and developing countries with zero-tariff	1
	Encourage official development assistance and financial flows, including foreign direct investment, to states where the need is greatest	10.b.1 Total resource flows for development, by recipient and donor countries and type of flow (e.g. official development assistance, foreign direct investment and other flows)	1
		10.c.1 Remittance costs as a proportion of the amount remitted	1

(*continued*)

Table 1.

Goals	Targets not yet captured in SDG India Index	Indicators	IEAG tier (as per authors' understanding)
	By 2030, reduce to less than 3% the transaction costs of migrant remittances and eliminate remittance corridors with costs higher than 5%		
Make cities and human settlements inclusive, safe, resilient and sustainable	By 2030, enhance inclusive and sustainable urbanization	11.3.1 Ratio of land consumption rate to population growth rate	2
		11.3.2 Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically	2
	Strengthen efforts to protect and safeguard the world's cultural and natural heritage	11.4.1 Total per capita expenditure on the preservation, protection and conservation of all cultural and natural heritage, by source of funding (public, private), type of heritage (cultural, natural) and level of government (national, regional and local/municipal)	2
	By 2030, reduce no. of deaths and no. of people affected and decrease economic losses caused by disasters	11.5.1 Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population	1
		11.5.2 Direct economic loss attributed to disasters in relation to global GDP	1
		11.5.3 (a) Damage to critical infrastructure and (b) number of disruptions to basic services, attributed to disasters	1
	By 2030, provide universal access to safe, inclusive and accessible, green and public spaces	11.7.1 Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities	2
		11.7.2 Proportion of persons victim of physical or sexual harassment, by sex, age, disability status and place of occurrence, in the previous 12 months	2
	Support positive economic, social and environmental links between urban, peri-urban and rural areas	11.a.1 Number of countries that have national urban policies or regional development plans that (a) respond to population dynamics; (b) ensure balanced territorial development; and (c) increase local fiscal space	1
	By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies	11.b.1 Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030	1
		11.b.2 Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies	2

(*continued*)

Table 1.

Goals	Targets not yet captured in SDG India Index	Indicators	IEAG tier (as per authors' understanding)
	Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings using local materials	No indicator available in SDG India Index	
Ensure sustainable consumption and production patterns	Implement the 10-year framework of programmes on sustainable consumption and production patterns	12.1.1 Number of countries developing, adopting or implementing policy instruments aimed at supporting the shift to sustainable consumption and production	2
	By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses	12.3.1 (a) Food loss index and (b) food waste index	2
	Encourage companies, especially large and transnational companies, to adopt sustainable practices and integrate sustainability information into their reporting cycle	12.6.1 Number of companies publishing sustainability reports	2
	Promote public procurement practices that are sustainable, in accordance with national policies and priorities	12.7.1 Number of countries implementing sustainable public procurement policies and action plans	2
	By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature	12.8.1 Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment	2
	Develop and implement tools to monitor sustainable development impacts	12.b.1 Implementation of standard accounting tools to monitor the economic and environmental aspects of tourism sustainability	1
	Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions	12.c.1 Amount of fossil-fuel subsidies (production and consumption) per unit of GDP	1
Take urgent action to combat climate change and its impacts	Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	13.3.1 Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment	2
	Implement the commitment undertaken by developed country parties to the UNFCCC to a goal of mobilizing jointly $100bn annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green	13.a.1 Amounts provided and mobilized in United States dollars per year in relation to the continued existing collective mobilization goal of the $100bn commitment through to 2025	2

(*continued*)

Table 1.

Goals	Targets not yet captured in SDG India Index	Indicators	IEAG tier (as per authors' understanding)
	Climate Fund through its capitalization as soon as possible		
	Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities	13.b.1 Number of least developed countries and small island developing States with nationally determined contributions, long-term strategies, national adaptation plans and adaptation communications, as reported to the secretariat of the UNFCCC	2
Conserve and sustainably use the oceans, seas and marine resources for sustainable development	By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans	14.4.1 Proportion of fish stocks within biologically sustainable levels	1
	By 2020, conserve at least 10% of coastal and marine areas	14.5.1 Coverage of protected areas in relation to marine areas	1
	By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the WTO fisheries subsidies negotiation	14.6.1 Degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing	1
	Increase scientific knowledge, develop research capacity and transfer marine technology	14.a.1 Proportion of total research budget allocated to research in the field of marine technology	2
	Provide access for small-scale artisanal fishers to marine resources and markets	14.b.1 Degree of application of a legal/regulatory/policy/ institutional framework that recognizes and protects access rights for small-scale fisheries	1
	Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the UN Conven. on Law of the Sea, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of "The future we want"	14.c.1 Number of countries making progress in ratifying, accepting and implementing through legal, policy and institutional frameworks, ocean-related instruments that implement international law, as reflected in the United Nations Convention on the Law of the Sea, for the conservation and sustainable use of the oceans and their resources	2
Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification	By 2030, ensure the conservation of mountain ecosystems, including their biodiversity	15.4.1 Coverage by protected areas of important sites for mountain biodiversity	1
		15.4.2 (a) Mountain Green Cover Index and (b) proportion of degraded mountain land	1

(*continued*)

Table 1.

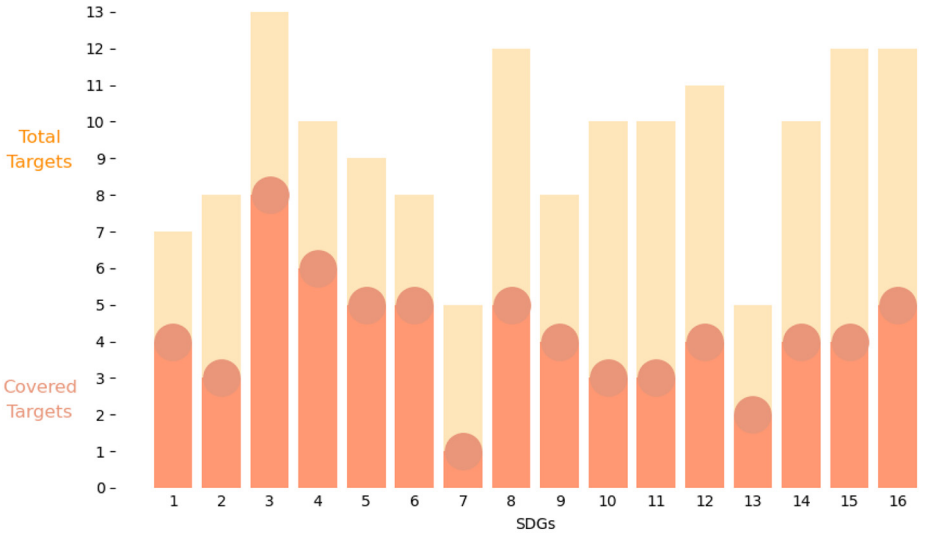
Goals	Targets not yet captured in SDG India Index	Indicators	IEAG tier (as per authors' understanding)
and halt and reverse land degradation and halt biodiversity loss	Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species	15.5.1 Red List Index	1
	promote fair and equitable sharing of the benefits arising from the utilization of genetic resources	15.6.1 Number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits	1
	By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species	15.8.1 Proportion of countries adopting relevant national legislation and adequately resourcing the prevention or control of invasive alien species	1
	By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts	15.9.1 (a) Number of countries that have established national targets in accordance with or similar to Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011–20 in their national biodiversity strategy and action plans and the progress; and (b) integration of biodiversity into national accounting and reporting systems, defined as implementation of the System of Environmental-Economic Accounting	a) 1 b)2
	Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems	15.a.1 (a) Official development assistance on conservation and sustainable use of biodiversity; and (b) revenue generated and finance mobilized from biodiversity-relevant economic instruments	1
	Mobilize significant resources from all sources and at all levels to finance sustainable forest management	15.b.1 (a) Official development assistance on conservation and sustainable use of biodiversity; and (b) revenue generated and finance mobilized from biodiversity-relevant economic instruments	1
	Enhance global support for efforts to combat poaching and trafficking of protected species	15.c.1 Proportion of traded wildlife that was poached or illicitly trafficked	2
Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime	16.4.1 Total value of inward and outward illicit financial flows (in current United States dollars)	2
		16.4.2 Proportion of seized, found or surrendered arms whose illicit origin or context has been traced or established by a competent authority in line with international instruments	2
	Develop effective, accountable and transparent institutions at all levels	16.6.1 Primary government expenditures as a proportion of original approved budget, by sector (or by budget codes or similar)	1

(*continued*)

Table 1.

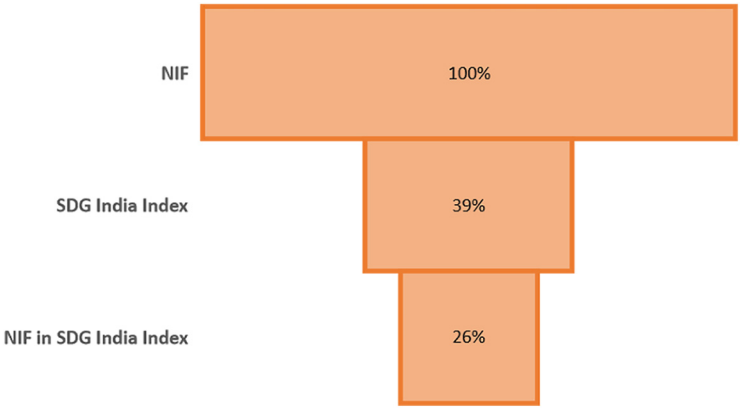
Goals	Targets not yet captured in SDG India Index	Indicators	IEAG tier (as per authors' understanding)
		16.6.2 Proportion of population satisfied with their last experience of public services	2
	Ensure responsive, inclusive, participatory and representative decision-making at all levels	16.7.1 Proportions of positions in national and local institutions, incl. (a) the legislatures; (b) the public service; and (c) the judiciary, compared to national distributions, by sex, age, persons with disabilities and population groups	a) 1 b, c)2
		16.7.2 Proportion of the population who believe decision-making is inclusive and responsive, by sex, age, disability and population group	2
	Broaden and strengthen the participation of developing countries in the institutions of global governance	16.8.1 Proportion of members and voting rights of developing countries in international organizations	1
	Ensure public access to information and protect fundamental freedoms	16.10.1 Number of verified cases of killing, kidnapping, enforced disappearance, arbitrary detention and torture of journalists, associated media personnel, trade unionists and human rights advocates in the previous 12 months	2
		16.10.2 Number of countries that adopt and implement constitutional, statutory and/or policy guarantees for public access to information	1
	Strengthen relevant national institutions, including through international cooperation	16.a.1 Existence of independent national human rights institutions in compliance with the Paris Principles	1
	Promote and enforce non-discriminatory laws and policies for sustainable development	16.b.1 Proportion of population reporting having personally felt discriminated against or harassed in the previous 12 months on the basis of a ground of discrimination prohibited under international human rights law	2

Note: WHO = World Health Organization; UNFCCC = United Nations Framework Convention on Climate Change
Source: Compiled by authors from IAEG 2023 classification



Source: Compiled and visualized by authors

Figure 5.
Coverage of targets in SDG India Index compared to total targets



Source: Compiled and visualized by authors

Figure 6.
Funnel chart showing the effectiveness of NIF Indicators in SDG India Index

First, we scrutinized targets and indicators included in the SDGI index to find the number of targets (out of a total 169 targets) that have sub-targets mentioned (for example, Target 2.1 mentions three sub-targets for the provision of food: safe, nutritious and sufficient) and then we calculated how many such sub-targets are captured (or missed) in the reported SDGI index. In other words, suppose any particular target T requires coverage of three tasks: T_a, T_b and T_c. It is important to examine the corresponding indicator of T to figure out how many sub-targets are covered out of T_a, T_b and T_c. If only Ta is covered in T, we say the coverage is 1/3, i.e. 33.33% and if any two from T_a, T_b and T_c are covered to report T, we say the coverage is 66.66%.

We found that out of 66 targets being covered in the SDGI index, 21 targets were such which had some missing (or partially covered) sub-targets as shown in Table 2. In many composite scores of targets, more than two sub-targets were missed out. The practical implication of partial coverage is that while assessment of progress is reported on full target, actually only one or two sub-targets are measures. Only about 30% of the targets included in the SDGI Index are only partial in coverage. This is a serious shortcoming because all interventions to improve SDG score would be focused on the partially covered target and the area pertaining to the non-covered target(s) never improves, as *fait accompli*.

Robustness analysis through regression method

First, we categorized indicators into three buckets based upon three canonical dimensions: indicators belonging to the economic dimension, their score represented as ECSCORE, indicators belonging to the social dimension, their score represented as SOSCORE and similarly indicators belonging to the environmental dimension, their score represented as ENSCORE. The 17 SDGs were divided into 3 classes, i.e. economic, social and environment. Economic SDGs consist of SDGs 1, 2, 8, 9 and 10. Social SDGs consist of SDGs 3, 4, 5, 6, 7, 11 and 16, whereas the environmental SDGs comprise SDGs 12, 13, 14 and 15. A comprehensive summary is provided in Table A8 of the Appendix to depict goals in respective groups (economic, social and environmental). We use the real per capita income of states gross domestic product per capita (GDPC) as a confounding variable. While data for variables ECSCORE, SCSCORE and ENSCORE are sourced from SDGI index 2.0 and SDI index 3.0, data for GDPC is sourced from the Reserve Bank of India database. Descriptive statistics are presented in Table 3.

Checking with two unit root tests (Table A4 and Table A5 of the Appendix) reveals that variables are stationary at level. As per Hausman test results (Table A7 of the Appendix), we found that the random effects (RE) model is more suitable than the fixed effects (FE) model (Table A6 of the Appendix) and results of RE regression are presented in Table (all variables log-transformed for the sake of interpretation).

We run three models to see the impact on ECSCORE as follows:

$$LNECSCORE = \alpha + \beta_1\ LNGDPC + \varepsilon \quad \text{(Model 1)}$$

$$LNECSCORE = \alpha + \beta_1\ LNGDPC + \beta_2\ LNSOCSCORE + \varepsilon \quad \text{(Model 2)}$$

$$LNECSCORE = \alpha + \beta_1\ LNGDPC + \beta_2\ LNSOCSCORE + \beta_3\ LNENSCORE + \varepsilon \quad \text{(Model 3)}$$

Ideally, all three coefficients, β_2 and β_3 should be positive and significant at a 5% level for the indicators to be robust. This is because different SDG goals are expected to have synergies rather than tradeoffs between them unless there is contradictory empirical evidence.

Next, we analyze the results for three dimensions one by one to probe the same.

From the coefficients and significance values of Model 3 in the results shown in Table 4, we can observe that a 1% increase in per capita income increases the economic dimensions' SDGs score by 0.117%. Also, a 1% increase in the score of environment dimensions' SDGs increases economic dimensions' SDGs by 0.10%. Finally, the coefficient of the Social SDGs score is significant at a 10% level only.

From the coefficients and significance values of Model 3 in the results shown in Table 5, we can observe that a 1% increase in per capita income increases the social dimensions' SDGs score by 0.16%. However, a 1% increase in the score of environment dimensions' SDGs score decreases social dimensions' SDGs score by 0.32%. Finally, the coefficient of economic SDGs score is significant at a 10% level only.

Table 2. Partial coverage of indicators

Goal	Target	(%) coverage	Partial targets covered in existing indicators	No. of sub-targets left out	Name of partial targets left out
	Targets included in SDG India Index having unfulfilled/missing indicators				
End hunger, achieve food security and improve nutrition	By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round	33.33%	Sufficient food (proportion of beneficiaries covered under National Food Security Act 2013)	2	Safe and nutritious food
	By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons	66.66%	Percentage of children aged under 5 years who are underweight Percentage of children under age 5 years who are stunted Percentage of pregnant women age 15–49 years who are anemic (<11.0 g/dl) Percentage of adolescents aged 10–19 years who are anemic	2	Malnutrition and nutritional needs of older persons
	By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment	50%	Gross value added in agriculture per worker	1	incomes of small-scale food producers
Good health and well-being	By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-five mortality to at least as low as 25 per 1,000 live births	50%	Under-five mortality rate; Percentage of children aged 12–23 months fully immunized	1	Neonatal mortality
	By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable disease	16.66%	Tuberculosis incidence; Number of new HIV infections	5	Malaria, Tropical Diseases, Hepatitis, Water-borne diseases, other communicable diseases
	By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education and the integration of reproductive health into national strategies and programmes	20%	Percentage of institutional births	4	Sexual health care services, family planning, information and education and integration of reproductive health services into national strategies

(*continued*)

Table 2.

Goal	Target	(%) coverage	Partial targets covered in existing indicators	No. of sub-targets left out	Name of partial targets left out
	Targets included in SDG India Index having unfulfilled/missing indicators				
	Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all	25%	Proportion of population with large household expenditures on health as a share of total household expenditure or income	3	Financial risk protection, access to quality health care services and access to medicines and vaccines for all
Gender equality	Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life	10%	Seats held by women in Parliament, Female to Men workforce ratio, Managerial Positions held by women in corporates	9	Seats held in Legislative assemblies, Secretaries in GoI, Chief Secretaries (States), Vice Chancellors, SC and HC Judges, MD/CMD of Large Unlisted Companies, PSUs and Banks
Clean water and Sanitation	By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse Globally	50%	Percentage of industries (17 categories of highly polluting industries/grossly polluting industry/red category of industries) complying with waste water treatment as per CPCB norms	1	Halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse Globally
	By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity	33.3%	Percentage ground water withdrawal against availability	3	Substantially increase water-use efficiency across all sectors, supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity
Decent work and economic growth	Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services	25%	Ease of Doing Business Score	3	Promote development-oriented policies that support productive activities, decent job creation, creativity and innovation
	Protect labor rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants and those in precarious employment	50%	Percentage of regular wage/ salaried employees in non-agriculture sector without any social security benefit	1	Promote safe and secure working environments for all workers

(*continued*)

Table 2.

Goal	Target	(%) coverage	Partial targets covered in existing indicators	No. of sub-targets left out	Name of partial targets left out
	Targets included in SDG India Index having unfulfilled/missing indicators				
Industry, innovation and infrastructure	Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending	20%	Innovation score as per the India Innovation Index	4	Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, substantially increasing the number of research and development workers per 1 million people and public and private research and development spending
Reduced inequalities	By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other stat	50%	Percentage of elected women over total seats in the State/UT (Lok Sabha elections), percentage of seats held by women in Panchayati Raj Institutions, percentage of SC/ST seats in State Legislative Assemblies	1	Economic inclusion
Sustainable cities and communities	By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons	50%	People killed/injured in road accidents	1	Provide access to safe, affordable, accessible and sustainable transport systems
	By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	50%	Percentage of wards with 100% door to door waste collection, Percentage of waste processed, Percentage of wards with 100% source segregation, Installed sewage treatment capacity as a percentage of sewage generated in urban areas	1	Air quality

(*continued*)

Table 2.

Goal	Target	(%) coverage	Partial targets covered in existing indicators	No. of sub-targets left out	Name of partial targets left out
	Targets included in SDG India Index having unfulfilled/missing indicators				
Life on Land	By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements	33.33%	Forest area as a proportion of total land area	2	Ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular wetlands, mountains and drylands
	By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods and strive to achieve a land degradation-neutral world	33.33%	Percentage of degraded land over total land area, percentage increase in the area of desertification	2	Drought and floods and strive to achieve a land degradation–neutral world

Note: HIV = human immunodeficiency virus; PSUs = public sector units; GoI = Government of India and MD/CMD = managing director/chief managing director
Source: Compiled by authors using SDG India Index 3.0

From the coefficients and significance values of Model 3 in the results shown in Table 6, we can observe that a 1% increase in per capita income increases the environmental dimensions' SDGs score by 0.21%. However, a 1% increase in the score of social dimensions' SDGs increases environmental dimensions' SDGs score by 1.24%. Finally, the coefficient of the social SDGs score is significant at a 10% level only.

Case study: Odisha state indicator framework (SIF) vs NIF

Indicators in NIF may not be entirely relevant for sub-national SDG monitoring. Many states in India have come up with local indicators that deploy district-level data. To decentralize the NIF, an eastern state of India, Odisha came up with a sub-state level SDG

Variable	Obs	Mean	SD	Min	Max
ECSCORE	81	56.965	7.803	37	76
SOSCORE	81	62.142	10.376	37.857	79.857
ENSCORE	81	62.373	19.151	28.25	100
GDPC	81	110,639	62207.77	28,127	313,937

Source: Test was conducted by the authors

Table 3. Descriptive statistics

LNECSCORE	Model 1 Coeff (S.E)	Model 2 Coeff (S.E)	Model 3 Coeff (S.E)
LNGDPC	0.152*** (0.031)	0.146*** (0.032)	0.117*** (0.034)
LNSOSCORE		0.039 (0.074)	0.162* (0.092)
LNENSCORE			0.100** (0.047)
const.	2.284*** (0.356)	2.191*** (0.379)	1.161*** (0.455)
R^2 within	0.019	0.026	0.005
R^2 between	0.508	0.522	0.582
R^2 overall	0.368	0.376	0.425

Notes: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$
Source: Test conducted by the authors

Table 4. Results of RE model for indicators belonging to the economic dimension

LNSOSCORE	Model 1 Coeff (S.E)	Model 2 Coeff (S.E)	Model 3 Coeff (S.E)
LNGDPC	0.175*** (0.031)	0.146*** (0.039)	0.160*** (0.038)
LNECSCORE		0.186 (0.151)	0.256* (0.089)
LNENSCORE			−0.320*** (0.046)
const.	2.102*** (0.355)	1.682*** (0.491)	2.561*** (0.486)
R^2 within	0.085	0.025	0.490
R^2 between	0.618	0.665	0.551
R^2 overall	0.289	0.302	0.511

Notes: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$
Source: Test was conducted by the authors

Table 5. Results of RE model for indicators belonging to social dimension

Indicator Framework (SIF) to monitor SDG scoring in the state. The first edition of Odisha's SIF was released in 2019 and was prepared in sync with MoSPI's NIF. The second edition of Odisha's SIF was released in February 2023 and covers all 17 SDGs. Hence, Odisha's SIF is a fit case for analysis with respect to NIF. Odisha's SIF consists of 119 targets which have an indicator associated with it. We examine Odisha's SIF with respect to NIF and found that:

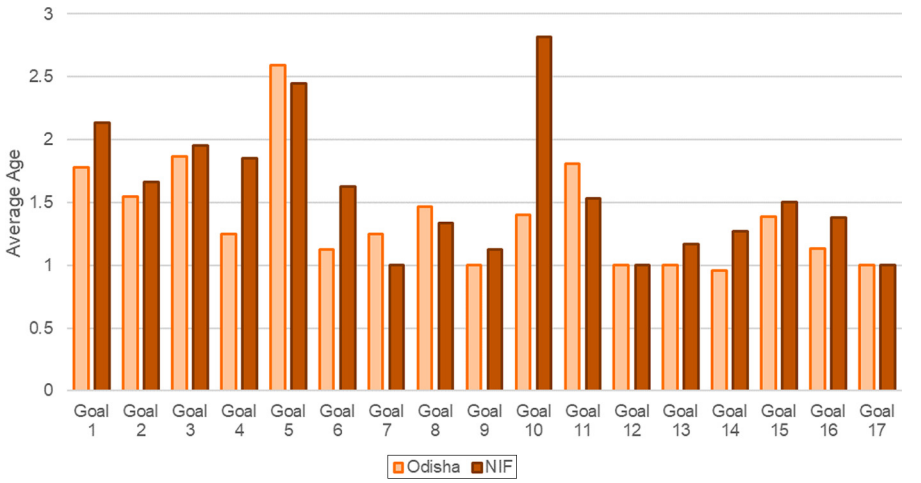
- The average vintage for Odisha SIF was 1.385 years and that of NIF was 1.576 years (inference drawn from Table A3 of Appendix). However, Odisha's SIF included nine indicators where data was non-periodic and NIF had none of such targets. Goal-wise age of data periodicity is shown in Figure 7.
- Total targets set by Odisha SIF and NIF were more or less the same, the major difference being in Goals 12 and 17, where NIF had five more targets each.

These findings help us contrast between sub-national and NIFs. Although Odisha's SIF is an exemplary attempt at localizing indicator framework to include state-specific indicators, there are several indicators based on non-periodic data, which goes against the robustness

LNENSCORE	Model 1 Coeff (S.E)	Model 2 Coeff (S.E)	Model 3 Coeff (S.E)
LNGDPC	0.091 (0.62)	0.022 (0.077)	0.212** (0.838)
LNECSCORE		0.439 (0.301)	0.537** (0.260)
LNSOSCORE			−1.241*** (0.168)
const.	3.049*** (0.062)	2.061** (0.977)	4.591*** (18.740)
R^2 within	0.004	0.012	0.521
R^2 between	0.081	0.129	0.069
R^2 overall	0.027	0.053	0.339

Notes: ***$p < 0.01$; **$p < 0.005$; *$p < 0.1$
Source: Test conducted by the authors

Table 6.
Results of RE model for indicators belonging to the environmental dimension



Source: Compiled and visualized by authors

Figure 7.
Goal-wise age of data periodicity of Odisha and NIF

requirement of indicators. Besides applying vintage pollution tests other litmus tests such as partial coverage and robustness can be made part of the standard operating procedure of SDG localization.

Coverage of India's uncovered targets in other countries

As found earlier, not even half of the targets are covered in the eighth year of SDG monitoring in the SDGI index. While many other countries face the same issue with their SDG monitoring mechanism, the problem is not insurmountable. There are some countries that are able to cover the targets that the SDGI index missed out. After an extensive examination to check how other countries are covering the targets that remained uncovered in the SDGI index, we are able to identify at least one such country from each continent. Findings are presented in Table 7 which indicates that countries such as the USA, Brazil, Italy, the UK, South Africa, Singapore and Australia are able to capture the targets that remain non-covered in the SDGI index. This could be either because of the inherent strength of the statistical system of these countries or because of targeted efforts for capturing such SDGS or both. Interestingly, even these countries miss out on one or more targets, which shows that coverage of targets is a matter of sharing knowledge among countries. The sparsity seen in Table A8 is ironic, since the SDGs, i.e. SDG 17 specifically calls for "partnerships" among countries toward achieving the 2030 agenda.

Conclusion

Doing an exhaustive analysis of *how* the progress of SDGs is being monitored is an arduous task, as it requires skimming each of the indicators and more painfully, the underlying data. This is the major reason why there are not many studies yet reviewing the SDG index even when eight years of SDG adoption have passed. The minor reason, in view of the authors, is the obfuscation of layers of SDG index in crafty, glossy and optics-oriented SDG reports. This study is an attempt to unpack the good bad and ugly of SDGI index, graphically, tabularly and econometrically. This study unpacks the sub-target level indicators of the SDGI index juxtaposes them with global indicators and suggests the probes which can be applied by institutions of any country involved in measuring the progress of SDGs.

Though the three editions of SDGI index mark significant efforts taken toward measuring the progress of SDGs in India, the paradigm suffers from the problem of too many indicators chasing only a few targets, quantitative and qualitative issues with indicators, vintage pollution and robustness issues. Although there is a need to cover more and more targets in the monitoring framework for SDGs, we should not overlook partially covered targets. We need to strive for a framework that includes fully covered targets, i.e. targets with all sub-targets covered by indicators. As can be seen from Table A2, there are many targets for which sub-targets have not been covered in SDGI Index.

Findings that indicators pertaining to social and environmental dimensions are much less robust than those belonging to the economic dimension should be a concern to policymakers. An underlying problem of lack of investment in improving underlying data and its frequency is also revealed in the study.

Following policy prioritization is recommended to overcome the limitation of the existing SDG index mechanism of India:

- Indicator–target ratio be rationalized to a maximum 1.25 for SDGI and other state-level SDG indices.
- At present, vintage pollution is about 21% and this must be reduced to make the scoring contemporary. We should freeze vintage pollution to two years till 2027,

Table 7.
Coverage of missing targets in SDG India index in other countries

Goal	Target	USA	Brazil	UK	Italy	South Africa	Singapore	Australia
End poverty	By 2030, reduce the exposure of the poor to extreme climatic conditions and other economic, social and environmental disasters	Has the USA established national and local disaster risk reduction strategies?	Number of deaths, missing people and people directly affected attributed to disasters per 100,000 inhabitants	Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population		Number of deaths, missing persons and directly affected persons attributed to disasters	Number of deaths, missing persons and directly affected persons attributed to disasters	
		Disaster losses as a percentage of GDP	Direct economic losses attributed to disasters in relation to the global GDP	Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030		No. of national and local disaster risk reduction strategies	Direct economic loss attributed to disasters in relation to global GDP	
			Number of countries that have adopted and implemented national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030	Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies			Number of countries that adopt and implement national disaster risk reduction strategies	
			Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies				Proportion of local governments that adopt and implement local disaster risk reduction strategies	
	Significant mobilization of resources in order to provide adequate and predictable means for developing countries			Total official development assistance grants from all donors that focus on poverty reduction as a share of the recipient country's gross national income		Proportion of total government spending on essential services	Total official development assistance grants from all donors that focus on poverty reduction as a share of the recipient country's gross national income	Proportion of domestically generated resources allocated by the government directly to poverty reduction programmes

(*continued*)

Goal	Target	USA	Brazil	UK	Italy	South Africa	Singapore	Australia
				Proportion of total government spending on essential services (education, health and social protection)				Proportion of total government spending on essential services
	Create sound policy frameworks at all levels based on pro-poor and gender based strategies			Pro-poor public social spending			Pro-poor public social spending	
End Hunger, achieve food security and improved nutrition	By 2030 ensure sustainable food production systems and strengthen capacity for adaptation to climate change, drought and flooding				Share of utilized agricultural land under organic farming (Ministry of Agricultural, Food and Forestry Policies, 2019, percentage values) Growth rate of organic crops (Ministry of Agricultural, Food and Forestry Policies, 2019, percentage values) Ammonia emissions from agriculture (ISPRA, 2019, thousand tonnes)		Proportion of agricultural area under productive and sustainable agriculture	
	By 2020, maintain the genetic diversity of seeds, cultivated plants and provide access to fair and equitable sharing of benefits		Number of plant and animal genetic resources for food and agriculture, protected in the medium or long term in conservation facilities	Number of plant and animal genetic resources for food and agriculture secured in either medium- or long-term conservation facilities Proportion of local breeds classified as being at risk of extinction		No. of plant and animal genetic resources for food and agriculture secured in either medium or long term facilities		
	Increase investment including in rural infrastructure, agricultural research and technology development		Agricultural orientation index for public expenditure Total official flows (official development	The agriculture orientation index for government expenditures Total official flows (official development	Agriculture orientation index for government expenditures (ISTAT, 2019, index)	Total official flows (official development assistance plus other official flows) to the agriculture sector	The agriculture orientation index for government expenditures Total official flows (official development	Total official flows (official development assistance plus other official flows) to the agriculture sector

(*continued*)

Table 7.

Table 7.

Goal	Target	USA	Brazil	UK	Italy	South Africa	Singapore	Australia
			aid and other official flows) to the agricultural sector	assistance plus other official flows) to the agriculture sector			assistance plus other official flows) to the agriculture sector	
	Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect		Subsidies to agricultural exports					
	To ensure proper functioning of food commodity markets and facilitate timely access to market information			Indicator of food price anomalies			Indicator of food price anomalies	
Ensure Healthy lives and promote well-being at all ages	Prevention and treatment of substance abuse, including narcotic drug abuse and alcohol	Percent of US persons 12 years of age and older reporting current heavy alcohol consumption	Alcohol consumption in liters of pure alcohol per capita (aged 15 and over) per year	Alcohol per capita consumption (aged 15 years and older) within a calendar year in liters of pure alcohol	Liters of pure alcohol per capita (WHO, 2018, liter per capita)	Alcohol per capita consumption (aged 15 years and older) within a calendar year in liters of pure alcohol	Coverage of treatment interventions (pharmacological, psychosocial and rehabilitation and aftercare services) for substance use disorders	Coverage of treatment interventions (pharmacological, psychosocial and rehabilitation and aftercare services) for substance use disorders
				Coverage of treatment interventions (pharmacological, psychosocial and rehabilitation and aftercare services) for substance use disorders			Alcohol per capita consumption (aged 15 years and older) within a calendar year in liters of pure alcohol	Harmful use of alcohol, defined according to the national context as alcohol per capita consumption (aged 15 years and older) within a calendar year in liters of pure alcohol
	By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination		Death rate attributed to unsafe water sources, unsafe sanitation and poor hygiene	Mortality rate attributed to household and ambient air pollution	Unintentional poisoning standardized mortality rate (ISTAT, 2018, per 100,000 inhabitants)	Mortality rate attributed to unintentional poisoning	Mortality rate attributed to household and ambient air pollution	Mortality rate attributed to unintentional poisoning
		US crude rate of death due to unintentional poisoning	Mortality rate attributed to unintentional intoxication	Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to			Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene	

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Table 7.

Goal	Target	USA	Brazil	UK	Italy	South Africa	Singapore	Australia
				unsafe WASH services) Mortality rate attributed to unintentional poisoning			Mortality rate attributed to unintentional poisoning	
	Strengthen the implementation of the WHO Framework Convention on Tobacco Control in all countries Support research and development of vaccines and medicines that primarily affect developing nations	Percentage of US population aged 18 and over who are daily smokers	Prevalence of current tobacco consumption in the population aged 15 years and over	Age-standardized prevalence of current tobacco use among persons aged 15 years and older Proportion of the target population covered by all vaccines included in their national program Total net official development assistance to medical research and basic health sectors	Smoking (standardized rates) (ISTAT, 2020, standardized rates per 100 persons) Influenza vaccination coverage age 65+ (Ministry of Health, 2020 / 2021, per 100 inhabitants)	Age-standardized prevalence of current tobacco use among persons aged 15 years and older Proportion of the target population covered by all vaccines included in their national program Proportion of health facilities that have a core set of relevant essential medicines available and affordable on a sustainable basis	Age-standardized prevalence of current tobacco use among persons aged 15 years and older Proportion of the target population covered by all vaccines included in their national program Total net official development assistance to medical research and basic health sectors	Age-standardized prevalence of current tobacco use among persons aged 15 years and older Proportion of the target population covered by all vaccines included in their national program Total net official development assistance to medical research and basic health sectors
	Strengthen early warning, risk reduction and management of national and global health risks					IHR capacity and health emergency preparedness	IHR capacity and health emergency preparedness Percentage of bloodstream infections due to selected antimicrobial-resistant organisms	IHR capacity and health emergency preparedness
Quality education and lifelong learning opportunities for all	By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education	Early math skills among US kindergarteners (typically age 5)		Proportion of children aged 24–59 months who are developmentally on track in health, learning and psychosocial well-being, by sex	Percentage of seats authorized in socio-educational services for early childhood (nurseries and supplementary services) for children 0–2 years of age (ISTAT, 2018 / 2019, percentage values)	Participation rate in organized learning (one year before the official primary entry age), by sex	Participation rate in organized learning (one year before the official primary entry age), by sex	Participation rate in organized learning (one year before the official primary entry age), by sex
		Percentage of 5 years olds enrolled in	Participation rate in organized education	Participation rate in organized learning (one	Participation rate in organized learning (one			

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Table 7.

Goal	Target	USA	Brazil	UK	Italy	South Africa	Singapore	Australia
		prekindergarten, kindergarten, or first or higher grade in the USA	(one year before the official age for entry into primary education), by sex	year before the official primary entry age), by sex	year before the official primary entry age) (Ministry of Education, Universities and Research, 2018 / 2019, percentage values)	Number of children accessing registered ECD Programmes		
	By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment	Percentage of US persons 16–65 years of age performing at Level 2 or higher of the PIAAC Problem Solving in Technology-Rich Environments		Proportion of youth and adults with ICT skills, by type of skill	Individuals who have basic or above basic overall digital skills (ISTAT, 2019, percentage values)	Number of graduates in public and private higher institutions	Proportion of youth and adults with ICT skills, by type of skill	
						Percentage of youth and adult university graduates by field of study		
	By 2030, ensure that all learners acquire knowledge and skills needed to promote sustainable development	Percentage of US 8th graders attending public or private schools that emphasize "world affairs" to a moderate or great extent		Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment				
	By 2020, substantially expand globally the number of scholarships available to developing countries, for enrolment in higher education, including vocational training and Information and communications technology, technical, engineering and scientific programmes	USAID assistance for education development assistance in US$		Volume of official development assistance flows for scholarships by sector and type of study				Volume of official development assistance flows for scholarships by sector and type of study
Achieve gender equality and empower all	Eliminate all harmful practices, such as child, early and forced marriage			Proportion of women 20–24 years of age who were married or in a		Proportion of women 20–24 years of age who were married or	Proportion of women 20–24 years of age who were married or	

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Table 7.

Goal	Target	USA	Brazil	UK	Italy	South Africa	Singapore	Australia
women and girls	and female genital mutilation			union before age 15 and before age 18		in a union before age 15 and before age 18 Percentage of early marriages experienced by girls before the age of 15 years	in a union before age 15 and before age 18	
	Recognize and value unpaid care and domestic work through provision of public services, infrastructure and social protection policies	Hours per day spent on household activities by US women ages 15 and older	Proportion of time spent on unpaid domestic work and care, by sex, age and location	Proportion of time spent on unpaid domestic and care work, by sex, age and location		Percentage of time spent on unpaid domestic and care work, by sex		Percentage of time spent on unpaid domestic and care work, by sex
	Enhance the use of enabling technology, in particular ICT, to promote the empowerment of women	Percent of US females ages 3 and older who use an Internet-connected mobile telephone	Proportion of people who own a mobile cell phone, by gender	Proportion of individuals who own a mobile telephone, by sex		Proportion of individuals who own a mobile telephone, by sex	Proportion of individuals who own a mobile telephone, by sex	
	Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels			Proportion of countries with systems to track and make public allocations for gender equality and women's empowerment				Proportion of countries with systems to track and make public allocations for gender equality and women's empowerment
Ensure availability and sustainable management of water and sanitation for all	By 2030, implement integrated water resources management at all levels	Estimated acres of US farm land irrigated	Degree of implementation of the integrated management of water resources (0–100)	Degree of integrated water resources management		Degree of integrated water resources management implementation	Degree of integrated water resources management	
			Proportion of cross-border river basin areas covered by an operational agreement for water cooperation	Proportion of transboundary basin area with an operational arrangement for water cooperation		Proportion of transboundary basin area with an operational arrangement for water cooperation	Proportion of transboundary basin area with an operational arrangement for water cooperation	
	By 2030, expand international cooperation and capacity-building support to developing countries in water and sanitation-		Amount of official development assistance in the area of water and sanitation, included	Amount of water- and sanitation-related official development assistance that is part of a government-		Amount of water- and sanitation-related official development assistance that is part of a		Amount of water- and sanitation-related official development assistance that is part of a government-

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Table 7.

Goal	Target	USA	Brazil	UK	Italy	South Africa	Singapore	Australia
	related activities and program, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies		in a government expenditure plan	coordinated spending plan		government-coordinated spending plan		coordinated spending plan
	Support and strengthen the participation of local communities in improving water and sanitation management		Participation of local communities in water and sanitation management	Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management		Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management		
Ensure access to affordable, reliable, sustainable and modern energy for all	By 2030, increase the share of renewable energy	US renewable energy consumption as a percentage of total final energy consumption	Participation of renewable energies in the Internal Energy Offer (OIE)	Renewable energy share in the total final energy consumption	Renewable energy share in the gross final energy consumption (GSE S.p. A. - Gestore dei Servizi Energetici, 2019, percentage values)	Renewable energy share in the total final energy consumption Amount of renewable energy at annual operating capacity Annual amount of electricity produced from renewable sources	Renewable energy share in the total final energy consumption	Renewable energy share in the total final energy consumption
	By 2030, double the global rate of improvement in energy efficiency	US Total Primary Energy Consumption per Real Dollar of GDP (Thousand Btu per Chained (2009) Dollar)	Energy intensity measured in terms of primary energy and GDP	Energy intensity measured in terms of primary energy and GDP	Energy intensity (ENEA processing on Eurostat and ISTAT data, 2019, tonnes of oil equivalent [toe] per million euro)	Energy intensity measured in terms of primary energy and GDP	Energy intensity measured in terms of primary energy and GDP	Energy intensity measured in terms of primary energy and GDP
	By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology and promote			International financial flows to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems			International financial flows to developing countries in support of clean energy research and development and renewable energy production,	International financial flows to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems

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Table 7.

Goal	Target	USA	Brazil	UK	Italy	South Africa	Singapore	Australia
	investment in energy infrastructure and clean energy technology						including in hybrid systems	
	By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries		Installed renewable energy generation capacity in developing countries (in watts per capita)	Installed renewable energy-generating capacity in developing countries (in watts per capita)	Net installed renewable energy generating capacity (ISTAT processing on International Renewable Energy Agency data, 2020, watt per capita)		Installed renewable energy-generating capacity in developing countries (in Watts per capita)	
Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labor-intensive sector	US annual growth rate of business sector output per job	Annual rate of change in real GDP per employed person	Annual growth rate of real GDP per employed person		Annual growth rate of real GDP per employed person	Annual growth rate of real GDP per employed person	Annual growth rate of real GDP per employed person
	Improve progressively, through 2030, global resource efficiency in consumption and production and Endeavour to decouple economic growth from environmental			Material footprint, material footprint per capita and material footprint per GDP	Domestic material consumption per capita (ISTAT, 2019, tonne per inhabitant)	Domestic material consumption, domestic material consumption per capita and domestic material consumption per GDP		Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP
	degradation, in accordance with the 10 Year Framework of programmes on Sustainable Consumption and production, with developed countries taking the lead	US personal consumption expenditure (goods) per capita		Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP	Domestic material consumption per GDP (ISTAT, 2019, tonne per €1,000)			Material footprint, material footprint per capita, and material footprint per GDP
	By 2020, substantially reduce the proportion of youth not in employment, education or training	Percent of US population 16–24 years who are not enrolled in school and are either unemployed or not in the labor force	Percentage of young people (15–24) who are not in the labor force (occupied and non-employed), are not students and are not in training for work	Proportion of youth (aged 15–24 years) not in education, employment or training	People not in education, employment, or training (NEET) (aged 15–24) (ISTAT, 2020, percentage values)	Percentage of youth (aged 15–24 years) NEET	Proportion of youth (aged 15–24 years) not in education, employment or training	Proportion of youth (aged 15–24 years) not in education, employment or training

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Table 7.

Goal	Target	USA	Brazil	UK	Italy	South Africa	Singapore	Australia
	Take immediate and effective measures to eradicate forced labor, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labor			Proportion and number of children 5–17 years of age engaged in child labor, by sex and age	People NEET (15–29 years of age) (ISTAT, 2020, percentage values)	Percentage of youth (15–34 years of age) not in education, employment or training Percentage of children 7–17 years of age engaged in child labor, by sex and age		
	By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products	Growth rate of Direct Tourism GDP as a Proportion of Total GDP Share of US Direct Tourism-related Employment		Tourism direct GDP as a proportion of total GDP and in growth rate		Tourism direct GDP as a proportion of total GDP and in growth rate	Tourism direct GDP as a proportion of total GDP and in growth rate	Tourism direct GDP as a proportion of total GDP and in growth rate
	Increase aid for trade support for developing countries including through the enhanced integrated framework for trade-related technical Assistance to least developed countries	Total ODA disbursements in support of Aid for Trade in millions of US dollars		Aid for Trade commitments and disbursements				Aid for Trade commitments and disbursements
	By 2020, develop and operationalize a global strategy for youth employment			Existence of a developed and operationalized national strategy for youth employment, as a distinct strategy or as part of a national employment strategy	Total government spending in employment programmes and social protection from unemployment as a proportion of the national budgets (ISTAT, 2019, percentage values) Total government spending in employment programmes and social protection from unemployment as a proportion of GDP (ISTAT, 2019, percentage values)		Existence of a developed and operationalized national strategy for youth employment, as a distinct strategy or as part of a national employment strategy	Existence of a developed and operationalized national strategy for youth employment, as a distinct strategy or as part of a national employment strategy

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Table 7.

Goal	Target	USA	Brazil	UK	Italy	South Africa	Singapore	Australia
Build resilient infrastructure, promote inclusive and sustainable	industrialization and foster innovation	Increase the access of small-scale industrial and other enterprises, to financial services, including affordable credit, and their integration into value chains and markets		Proportion of the added value of "small-scale" companies in the total added value of the industry	Proportion of small-scale industries in total industry value added	Share of manufacturing value added of small-scale manufacturing enterprises on the total manufacturing value added (ISTAT, 2018, percentage values)		Proportion of small-scale industries in total industry value added
	Proportion of small-scale industries with a loan or line of credit							
		Proportion of microenterprises with loans or lines of credit		Percentage of small scale enterprises with a least one line of credit (ISTAT, 2018, percentage values)			Proportion of small-scale industries in total industry value added	
	By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes	Carbon Dioxide Emissions in Metric Tons per million chained (2009) dollars	CO_2 emissions by GDP	CO_2 emission per unit of value added	CO_2 emission per unit of value added (ISTAT, 2019, tonne per million euro)			CO_2 emission per unit of value added
	Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, least developed countries, landlocked developing countries and small island developing states			Total official international support (official development assistance plus other official flows) to infrastructure				Total official international support (official development assistance plus other official flows) to infrastructure
Support domestic technology development, research and innovation		Proportion of value added in industries of medium and high technological intensity in the total value added	Proportion of medium and high-tech industry value added in total value added	Proportion of medium and high-tech industry value added in total value added	Proportion of medium and high-tech industry value added in total value added	Proportion of medium and high-tech industry value added in total value added	Proportion of medium and high-tech industry value added in total value added	

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Table 7.

Goal	Target	USA	Brazil	UK	Italy	South Africa	Singapore	Australia
Reduce inequality within and among countries	Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality	US share of labor compensation in GDP in current national prices	Proportion of wages in GDP, including wages and social protection transfers	Labor share of GDP Redistributive impact of fiscal policy		Labor share of GDP, comprising wages and social protection transfers	Labor share of GDP	
	Improve the regulation and monitoring of global financial markets and institutions and strengthen the implementation of such regulations		Financial strength indicators	Financial soundness indicators			Financial soundness indicators	
	Ensure enhanced representation and voice for developing countries in decision-making in global international economic and financial institutions in order to deliver more effective, credible, accountable and legitimate institutions			Proportion of members and voting rights of developing countries in international organizations		The number of international organizations in which South Africa has membership and voting rights	Proportion of members and voting rights of developing countries in international organizations	Proportion of members and voting rights of developing countries in international organizations
	Facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies			Number of people who died or disappeared in the process of migration towards an international destination Proportion of the population who are refugees, by country of origin				
	Implement the principle of special and differential treatment for developing countries			Proportion of tariff lines applied to imports from least developed countries and developing countries with zero-tariff			Proportion of tariff lines applied to imports from least developed countries and developing countries with zero-tariff	Proportion of tariff lines applied to imports from least developed countries and developing countries with zero-tariff
	Encourage official development assistance and financial flows, including foreign direct investment, to states where the need is greatest			Total resource flows for development, by recipient and donor countries and type of flow (e.g. official development assistance,				Total resource flows for development, by recipient and donor countries and type of flow (e.g. official development assistance,

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Goal	Target	USA	Brazil	UK	Italy	South Africa	Singapore	Australia
				foreign direct investment and other flows)				foreign direct investment and other flows)
	By 2030, reduce to less than 3% the transaction costs of migrant remittances and eliminate remittance corridors with costs higher than 5%			Remittance costs as a proportion of the amount remitted			Remittance costs as a proportion of the amount remitted	Remittance costs as a proportion of the amount remitted
Make cities and human settlements inclusive, safe, resilient and sustainable	By 2030, enhance inclusive and sustainable urbanization		Proportion of cities with a structure of direct participation of civil society in urban planning and management that operates in a regular and democratic manner	Ratio of land consumption rate to population growth rate	Soil sealing from artificial land cover per capita (ISPRA, 2019, m^2 per inhabitant)	Ratio of land consumption rate to population growth rate		
					Illegal building rate (Cresme, 2020, per 100 building permits issued)			
	Strengthen efforts to protect and safeguard the world's cultural and natural heritage		Total expenditure (public and private) per capita spent on the preservation, protection and conservation of all cultural and natural heritage, by type of heritage (cultural, natural, mixed and by designation of the World Heritage Centre), level of government (national, regional and local), type of expenditure (current/investment expenditure) and type of private funding (in-kind donations, non-profit private sector and sponsorships)	Total per capita expenditure on the preservation, protection and conservation of all cultural and natural heritage, by source of funding (public, private), type of heritage (cultural, natural) and level of government (national, regional, and local/ municipal)	Public expenditure per capita spent on the preservation of the cultural and natural heritage [ISTAT, 2019, Euro (current prices)]			

(*continued*)

Table 7.

Table 7.

Goal	Target	USA	Brazil	UK	Italy	South Africa	Singapore	Australia
	By 2030, reduce no. of deaths and no. of people affected and decrease economic losses caused by disasters	Has the USA established national and local disaster risk reduction strategies? Disaster losses as a percentage of GDP	Number of deaths, missing people and people directly affected attributed to disasters per 100 thousand inhabitants Direct economic losses in relation to GDP, including damage caused by disasters in critical infrastructure and interruption of basic services	Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population	Population at risk of landslides (ISPRA, 2017, percentage values) Population at risk of flood (ISPRA, 2017, percentage values)		Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population Direct economic loss attributed to disasters in relation to global GDP Damage to critical infrastructure and (b) number of disruptions to basic services, attributed to disasters	
	By 2030, provide universal access to safe, inclusive and accessible, green and public spaces			Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities Proportion of persons victim of physical or sexual harassment, by sex, age, disability status and place of occurrence, in the previous 12 months			Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities	
	Support positive economic, social and environmental links between urban, peri-urban and rural areas		Number of countries that have national urban policies or regional development plans that (a) respond to population dynamics; (b) ensure balanced territorial development; and (c)					

(*continued*)

Table 7.

Goal	Target	USA	Brazil	UK	Italy	South Africa	Singapore	Australia
			have fiscal responsibility					
	By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies	Has the USA established national and local disaster risk reduction strategies?	Number of countries adopting and implementing national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030	Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030		Number of national and local disaster risk reduction strategies adopted by South Africa	Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030	
		Has the USA established national and local disaster risk reduction strategies?	Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies	Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies			Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies	
	Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials							
Ensure sustainable consumption and production patterns	Implement the 10-year framework of programs on sustainable consumption and production patterns		Number of countries that incorporate sustainable consumption and production into national action plans or as a priority or goal in national policies	Number of countries developing, adopting or implementing policy instruments aimed at supporting the shift to sustainable consumption and production			Number of countries that incorporate sustainable consumption and production into national action plans or as a priority or goal in national policies	
	By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses			Food loss index and (b) food waste index	Domestic material consumption (ISTAT, 2019, million tonnes)		Food loss index and (b) food waste index	

(*continued*)

Table 7.

Goal	Target	USA	Brazil	UK	Italy	South Africa	Singapore	Australia
	Encourage companies, especially large and transnational companies, to adopt sustainable practices and integrate sustainability information into their reporting cycle		Number of companies that publish sustainability reports	Number of companies publishing sustainability reports	Percentage of enterprises with at least three persons employed drafting environmental and sustainability reports and/or accounts (ISTAT, 2016 / 2018, percentage values)		Number of companies that publish sustainability reports	
	Promote public procurement practices that are sustainable, in accordance with national policies and priorities			Degree of sustainable public procurement policies and action plan implementation	Public institutions that purchase goods and/or services by adopting minimum environmental criteria, in at least one purchase procedure (Green purchases or Green Public Procurement) (ISTAT, 2015, percentage values)		Number of countries implementing sustainable public procurement policies and action plans	
	By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature			Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment				
	Develop and implement tools to monitor sustainable development impacts			Implementation of standard accounting tools to monitor the economic and environmental aspects of tourism sustainability	Implementation of standard accounting tools to monitor the economic and environmental aspects of tourism sustainability (ISTAT, 2018, N.)			
	Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions				Fossil-fuel subsidies as a percentage of GDP (Ministry of the Economy and Finance, 2019, percentage values)			

(*continued*)

Goal	Target	USA	Brazil	UK	Italy	South Africa	Singapore	Australia
Take urgent action to combat climate change and its impacts	Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	Has the USA established any form of climate change mitigation, adaption and impact reduction into its primary, secondary, and tertiary educational curricula? Has the USA implemented programs to build capacity to implement adaptation, mitigation, technology transfer and development related to climate events?		Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment	Concern for climate change (ISTAT, 2020, percentage values)			
	Implement the commitment undertaken by developed country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly $100bn annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible			Amounts provided and mobilized in US$ per year in relation to the continued existing collective mobilization goal of the $100bn commitment through to 2025				
	Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local	Does this indicator (LDC or small island developing states receiving support) apply to the USA?		Number of least developed countries and small island developing states with nationally determined contributions, long-term strategies, national adaptation plans, strategies as			Number of least developed countries and small island developing States with nationally determined contributions, long-term strategies, national adaptation	

(*continued*)

Table 7.

Table 7.

Goal	Target	USA	Brazil	UK	Italy	South Africa	Singapore	Australia
	and marginalized communities			reported in adaptation communications and national communications			plans, strategies as reported in adaptation communications and national communications	
Conserve and sustainably use the oceans, seas and marine resources for sustainable development	By 2020, effectively regulate harvesting and end Overfishing, illegal, unreported and unregulated fishing and Destructive fishing practices and implement science-based management plans	Percentage of US fish stocks at a sustainable level		Proportion of fish stocks within biologically sustainable levels	Fish stock in over-exploitation (Western Mediterranean) (ISPRA, 2018, percentage values)			Proportion of fish stocks within biologically sustainable levels
	By 2020, conserve at least 10% of coastal and marine areas	Percent of US marine waters in a natural or cultural heritage marine protected area	Coverage of protected marine areas in relation to marine areas	Coverage of protected areas in relation to marine areas	Coastal bathing waters (ISTAT, processing on Ministry of Health data, 2019, percentage values) Marine areas included in the network Natura 2000 (Ministry of the Ecological Transition, 2020, km^2)	South African marine protected areas as a percentage of total Exclusive Economic Zone Proportion of marine and coastal ecosystem types that are well-represented in protected areas	Coverage of protected areas in relation to marine areas	Coverage of protected areas in relation to marine areas
	By 2020, prohibit certain forms of fisheries subsidies Which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and Unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an		Progress of countries, regarding the degree of implementation of international instruments aimed at combating illegal, unregistered (declared) and unregulated (IUU fishing) fishing	Degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing				Degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing

(*continued*)

Goal	Target	USA	Brazil	UK	Italy	South Africa	Singapore	Australia
	integral part of the world trade organization fisheries subsidies negotiation							
	Increase scientific knowledge, develop research capacity and transfer marine technology					Marine sciences funding as a proportion of total government funding and GERD	Proportion of total research budget allocated to research in the field of marine technology	
	provide access for small-scale artisanal fishers to marine resources and markets		Progress of countries regarding the degree of application of a legal/regulatory/ political and institutional structure (framework) that recognizes and protects the access rights of small-scale fishermen	Degree of application of a legal/regulatory/ policy/institutional framework which recognizes and protects access rights for small-scale fisheries			Degree of application of a legal/regulatory/ policy/institutional framework which recognizes and protects access rights for small-scale fisheries	Progress by countries in the degree of application of a legal/regulatory/ policy/institutional framework which recognizes and protects access rights for small-scale fisheries
	Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the United Nations Convention on the Law of the Sea, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of "The future we want"			Number of countries making progress in ratifying, accepting and implementing through legal, policy and institutional frameworks, ocean-related instruments that implement international law, as reflected in the United Nations Convention on the Law of the Sea, for the conservation and sustainable use of the oceans and their resources			Number of countries making progress in ratifying, accepting and implementing through legal, policy and institutional frameworks, ocean-related instruments that implement international law, as reflected in the United Nations Convention on the Law of the Sea, for the conservation and sustainable use of the oceans and their resources	
Protect, restore and promote sustainable use of terrestrial ecosystems,	By 2030, ensure the conservation of mountain ecosystems, including their biodiversity				Average Proportion of Mountain Key Biodiversity Areas covered by protected areas (BirdLife	Percentage of mountain ecosystem types that are well-represented in protected areas		Coverage by protected areas of important sites for mountain biodiversity

(*continued*)

Table 7.

Table 7.

Goal	Target	USA	Brazil	UK	Italy	South Africa	Singapore	Australia
sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss			Vegetation cover index in mountain regions	Mountain green cover index	International, IUCN and UNEP-WCMC, 2019, percentage values) Mountain Green Cover Index (ISPRA, 2018, percentage values)			
	Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species			Red list index		Red list index		
	Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources		Number of countries that have adopted legislative, administrative and political frameworks to ensure fair and equitable benefit sharing	Number of countries that have adopted legislative, administrative and political frameworks to ensure fair and equitable benefit sharing		Number of countries that have adopted legislative, administrative and political frameworks to ensure fair and equitable benefit sharing		
	By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species			Proportion of countries adopting relevant national legislation and adequately resourcing the prevention or control of invasive alien species	Spreading of alien animal and vegetal species (ISPRA, 2019, N.)		Proportion of countries adopting relevant national legislation and adequately resourcing the prevention or control of invasive alien species	
	By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts			(a) Number of countries that have established national targets in accordance with or similar to Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011–2020 in their national biodiversity strategy and action plans and the progress reported towards these targets;			Number of countries that have established national targets in accordance with or similar to Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011–2020 in their National Biodiversity Strategy and Action	

(*continued*)

Table 7.

Goal	Target	USA	Brazil	UK	Italy	South Africa	Singapore	Australia
				and (b) integration of biodiversity into national accounting and reporting systems, defined as implementation of the system of environmental-economic accounting			Plans and the progress reported towards these targets; and (b) integration of biodiversity into national accounting and reporting systems, defined as implementation of the system of environmental-economic accounting	
	Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems			(a) Official development assistance on conservation and sustainable use of biodiversity; and (b) revenue generated and finance mobilized from biodiversity-relevant economic instruments				Official development assistance and public expenditure on conservation and sustainable use of biodiversity and ecosystems
	Mobilize significant resources from all sources and at all levels to finance sustainable forest management			(a) Official development assistance on conservation and sustainable use of biodiversity; and (b) revenue generated and finance mobilized from biodiversity-relevant economic instruments				Official development assistance and public expenditure on conservation and sustainable use of biodiversity and ecosystems
	Enhance global support for efforts to combat poaching and trafficking of protected species			Proportion of traded wildlife that was poached or illicitly trafficked			Proportion of traded wildlife that was poached or illicitly trafficked	
Promote peaceful and inclusive societies for sustainable development, provide access	By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime					Number of stolen/ lost and illegal firearms recovered and inventoried prior to return or destruction		

(*continued*)

Table 7.

Goal	Target	USA	Brazil	UK	Italy	South Africa	Singapore	Australia
to justice for all and build effective, accountable and inclusive institutions at all levels	Develop effective, accountable and transparent institutions at all levels		Primary public expenditure as a proportion of the original approved budget, by sector (or by budget codes or similar)		Trust in police and fire brigade (ISTAT, 2020, mean score) Trust in the judicial system (ISTAT, 2020, mean score)		Primary government expenditures as a proportion of original approved budget, by sector (or by budget codes or similar) Proportion of population satisfied with their last experience of public services	Primary government expenditures as a proportion of original approved budget, by sector (or by budget codes or similar)
					Composite index of service accessibility (ISTAT, 2018–2020, percentage values)			
	Ensure responsive, inclusive, participatory and representative decision-making at all levels			Proportion of population who believe decision-making is inclusive and responsive, by sex, age, disability and population group		Proportions of positions in national and local institutions, including (a) the legislatures; (b) the public service; and (c) the judiciary, compared to national distributions, by sex, age, persons with disabilities and population groups	Proportions of positions in national and local institutions, including (a) the legislatures; (b) the public service; and (c) the judiciary, compared to national distributions, by sex, age, persons with disabilities and population groups	
	Broaden and strengthen the participation of developing countries in the institutions of global governance			Proportion of members and voting rights of developing countries in international organizations		The number of international organizations in which South Africa has membership and voting rights	Proportion of members and voting rights of developing countries in international organizations	Proportion of members and voting rights of developing countries in international organizations
	Ensure public access to information and protect fundamental freedoms		Number of countries that adopt and implement constitutional, statutory and/or	Number of countries that adopt and implement constitutional, statutory and/or policy		Number of constitutional, statutory and/or policy guarantees for public access to	Number of verified cases of killing, kidnapping, enforced disappearance,	Number of countries that adopt and implement constitutional, statutory and/or policy

(*continued*)

Goal	Target	USA	Brazil	UK	Italy	South Africa	Singapore	Australia
			policy guarantees for public access to information	guarantees for public access to information		information that South Africa has adopted and implemented	arbitrary detention and torture of journalists, associated media personnel, trade unionists and human rights advocates in the previous 12 months	guarantees for public access to information
	Strengthen relevant national institutions, including through international cooperation			Existence of independent national human rights institutions in compliance with the Paris Principles		Existence of independent national human rights institutions in compliance with the Paris Principles		Existence of independent national human rights institutions in compliance with the Paris Principles
	Promote and enforce non-discriminatory laws and policies for sustainable development			Proportion of population reporting having personally felt discriminated against or harassed in the previous 12 months on the basis of a ground of discrimination prohibited under international human rights law		Proportion of population aged 16 and above reporting having personally felt discriminated against or harassed in the previous 12 months on the basis of a ground of discrimination prohibited under international human rights law		

Note: IUU = illegal, unreported, unregulated
Source: Compiled by authors from SDG dashboards and related websites of each country

Table 7.

after which it must be further reduced to one year. To reduce the age of data for every indicator to a maximum of two years, MoSPI needs to collect data for 89 indicators out of 115 indicators (approximately 77.40%).

- The budget for MoSPI for the Financial Year 2023–2024 was INR 5,443.40 crores out of the total expenditure budget of about INR 50,00,000 crores, which is about 0.2% of the total union budget for 2023–2024. The allocation for statistical systems needs to increase. The budget estimate for the Ministry was INR 5398.08 crores and against this, the revised estimate turned out to be INR 5177.09 crores, indicating a surrender of INR 220.99 crores in FY 2022–2023. MoSPI's budget and more importantly its utilization needs to be enhanced multifold to increase the coverage and frequency of the database. Frequency of all indicators to be made annually.
- In India, every state and Union Territory have their own Statistics Department, run by the state government. These state statistics departments marginally contribute to SDG reporting or MoSPI's statistical system. These state departments have a better and deeper understanding of their particular jurisdiction compared to MoSPI, as they are decentralized, and hence have great potential to contribute. The state-level statistical system also needs more investment and focus.
- Effective localization of SDGs is very important at this stage when India is just 6.5 years away from achieving the 17 SDGs. A nationwide workshop on resources required for localization may be convened where local bodies may be encouraged to compete for localization models and be subsequently rewarded.
- There should be an immediate dialogue between researchers involved in answering *how* the SDGs are being measured and those who *are* measuring SDGs.
- As can be inferred from the Odisha case study, the capacity of the state should be enhanced to improve monitoring SDGs in their state and to strengthen the state statistical system so as to minimize using non-periodic data.

Since measuring SDG progress through the SDG index is a global endeavor, the findings of this study are important for almost all countries of the world. It is still not too late to do mid-course correction because it is not the measurement that matters at the end of the day, rather it is the outcome of sustainable development that every country cares about. This study has the limitation that it could not check the robustness of SDG scores with different weights assigned to indicators and future researchers can take up that interesting assignment. More research in this domain is required, because if we do not worry about *how* are we measuring the progress, we might be surprised by the outcomes.

Note

1. IAEG classifies indictors in categories: Tier 1 Indicators consists of those indicators whose methodology is clear and Data is available. Tier 2 Indicators have a clear methodology but data is not available and Tier 3 has neither of the two.

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Appendix

Table A1. Comparing India's indicator-to-target ratio with those of top SDG-ranking countries

Country	Indicators	Targets	I-T ratio
Denmark	157	86	1.8255814
India	115	70	1.6428571
Canada	66	47	1.4042553
Sweden	50	38	1.3157895
Switzerland	70	54	1.2962963
France	63	59	1.0677966
Finland	96	95	1.0105263

Source: Compiled by authors using the SDG dashboard of every country

Table A2. Scoring of indicators to determine the vintage pollution

Age of the data (reference year: 2022)	Score allocated
Up to 2 years	10
3 years	9
4 years	8
5 years	7
6 years	6
7 years	5
8 years	4
9 years	3
10 years	2
11 years	1
12 years	0

Source: Compiled by authors

SDG	Odisha SIF	NIF
Goal 1	1.77	2.13
Goal 2	1.54	1.67
Goal 3	1.86	1.95
Goal 4	1.25	1.85
Goal 5	2.60	2.45
Goal 6	1.12	1.63
Goal 7	1.25	1
Goal 8	1.46	1.34
Goal 9	1	1.12
Goal 10	1.4	2.82
Goal 11	1.80	1.54
Goal 12	1	1
Goal 13	1	1.16
Goal 14	0.95	1.27
Goal 15	1.38	1.5
Goal 16	1.13	1.38
Goal 17	1	1

Source: Compiled by authors from Odisha SIF and Planning and Convergence department and NIF 3.0 from MoSPI

Table A3.
Average age (in years) of data periodicity between Odisha SIF and NIF
SDG Odisha SIF NIF

Variable	*z*-statistic	*p*-value
LNECSCORE	−0.148	0.559
LNSOSCORE	−3.684	0.999
LNENSCORE	0.443	0.329
LNGDPC	−0.069	0.528

Note: Ho: All panels are stationary
Source: Test conducted by authors

Table A4.
Result of Hadri panel unit root test

Variable	rho-statistic	*p*-value
LNECSCORE	−0.576	0.000
LNSOSCORE	0.055	0.079
LNENSCORE	−0.053	0.014
LNGDPC	−0.418	0.000

Note: Ho: Panels contain unit roots
Source: Test conducted by authors

Table A5.
Result of Harris–Tzavalis panel unit root test

Table A6.
Regressions results of FE model

LNECSCORE	Coef.	St. Err.	t-value	p-value	[95% Conf	Interval]	Sig
LNSOSCORE	−0.026	0.134	−0.19	0.849	−0.294	0.243	
LNENSCORE	0.021	0.066	0.31	0.756	−0.113	0.154	
LNGDPC	−0.313	0.348	−0.90	0.372	−1.01	0.385	
Constant	7.641	4.437	1.72	0.091	−1.268	16.549	*
Mean dependent var		4.033	SD dependent var			0.139	
R-squared		0.030	Number of obs			81.000	
F-test		0.531	Prob > F			0.965	
Akaike crit. (AIC)		−193.250	Bayesian crit. (BIC)			−183.672	

Notes: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$
Source: Test conducted by authors

Table A7.
Hausman (1978) specification test

	Coef.
chi-square test value	2.33
P-value	0.127

Source: Test conducted by authors

Economic SDGs	Social SDGs	Environmental SDGs
End poverty in all its forms everywhere	Ensure healthy lives and promote well-being for all at all ages	Ensure sustainable consumption and production patterns
End hunger, achieve food security and improved nutrition and promote sustainable agriculture	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	Take urgent action to combat climate change and its impacts
Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	Achieve gender equality and empower all women and girls	Conserve and sustainably use the oceans, seas and marine resources for sustainable development
Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	Ensure availability and sustainable management of water and sanitation for all	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
Reduce inequality within and among countries	Ensure access to affordable, reliable, sustainable and modern energy for all	
	Make cities and human settlements inclusive, safe, resilient and sustainable	
	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	

Source: Compiled by authors as per the globally accepted distribution of sustainability categories

Table A8. Categorization of SDGs

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