REVIEW ARTICLE

THE UN- SUSTAINABLE DEVELOPMENT GOALS: FEW LEARNINGS ON SYNERGIES AND TRADE-OFFS

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ARTICLE INFO	ABSTRACT
	With the world going through the third year of the COVID-19 pandemic, the catastrophic effects of the Pandemic on the lives and livelihoods of people are not only disturbing but also devastating. Due to COVID-19, the development and progress of several years and decades have been stalled or have been put in the backseat. In 2021, as the global economy started to rebound, the global output expanded by 5.5%. The United Nations Agenda 2030 with its 17 Sustainable Development Goals (SDGs) provides the blueprint that all United Nations (UN) member states have pledged to fulfil. The achievement of this agenda crucially depends on whether humankind will be able to maximize synergies and resolve existing trade-offs between the SDGs. The analysis of future interactions for projected SDG trends until 2030 within and between goals have been analysed by numerous scholars which show how trade-offs and synergies have evolved in the recent past globally. The best practices of turning trade-offs into synergies would require an actionable learning process in the requisite SDGs areas so as to expand the lessons onto other goals with persistent trade-offs. Several researches have shown that for various SDGs interactions, the synergies are diminishing and trade-offs as well as non-associations are increasing. The analysis of the SDGs as a social imaginary have highlighted on the conflict between global and local, between rhetoric and practice, between pragmatism and aspirations, between targets and meaning, between top-down policy discourses and bottom-up initiatives. This paper highlights few significant implications for managers and policymakers alike. The sustainability reporting by leading firms show that they may be making some progress toward the achievement of some of the SDGs. Several researches have shown that many firms are not only narrowly resorting to "cherry-picking" in their reporting, but also they are not engaging with all the SDGs in a systematic manner. There may be some organizational limits that make rigorously designing, implementing, and reporting change across all 17 SDGs difficult to achieve. The necessity for sparking, supporting, and scaling creative collaboration between various entities would go a long way to achieve the 17 SDGs of the UN. To recover from the adverse effects of the pandemic and achieve the Agenda 2030 targets of the UN, there is a need not only for a multi-faceted approach but also for adoption of multi-pronged strategies by various countries. More specifically, concrete and coordinated action is the need of the hour. There is an urgent requirement for mapping of critical pathways to success based on sound research so as to have a whole new set of policies and interventions which are aimed at rendering the achievement of Agenda 2030 of the UN in letter and spirit.

INTRODUCTION

The United Nations Member States in 2015 adopted the 2030 Agenda for Sustainable Development, which articulated 17 specific goals to be reached by 2030 so as to eliminate extreme poverty and hunger, minimize inequality on a large scale and establish zero-based targets to tackle climate change. In consonance with the UN General Assembly resolution 70/1, the global indicator framework developed by the Inter-Agency and Expert Group on SDG indicators were adopted by the UN on 6 July, 2017 (Resolution 71/313).

With the world going through the third year of the COVID-19 pandemic, the catastrophic effects of the Pandemic on the lives and livelihoods of people are not only disturbing but also devastating. Due to COVID-19, the development and progress of several years and decades have been stalled or have been put in the backseat. In 2021, as the global economy started to rebound, the global output expanded by 5.5%. The challenges due to the new COVID-19 variants as well as vaccine inequity, together with rising inflation, major supply-chain disruptions, policy uncertainties, and unsustainable debt in developing

countries, caused the global economy to slow down again at the end of 2021.The multiple and interlinked global crises and challenges such as tackling climate change, conflict in Ukraine as well as various other uncertainties have questioned the very viability of achieving the SDGs by 2030.In order to recover from the adverse effects of the pandemic and achieve the Agenda 2030 targets of the UN, there is a need not only for a multi-faceted approach but also for the adoption of multi-pronged strategies by various countries. More specifically, concrete and coordinated action is the need of the hour so as to have a new set of policies and interventions that are aimed to achieve the 17 SDGs of the UN in letter and spirit.

The 17 Sustainable Development Goals of the United Nations

1. End poverty in all its forms everywhere.
2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture.
3. Ensure healthy lives and promote well-being for all at all ages.
4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
5. Achieve gender equality and empower all women and girls.
6. Ensure availability and sustainable management of water and sanitation for all.
7. Ensure access to affordable, reliable, sustainable and modern energy for all.
8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
10. Reduce inequality within and among countries.
11. Make cities and human settlement inclusive, safe, resilient and sustainable.
12. Ensure sustainable consumption and production patterns.
13. Take urgent action to combat climate change and its impacts.
14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.
16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.
17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development.

End poverty in all its forms everywhere: Due to the pandemic, the progress of the last 25 years or so seem to have been reversed. This unprecedented reversal is further compounded by rising inflation and the impacts of the various other global crises. It has been estimated that, these combined crises will lead to an additional 75 million to 95 million people living in extreme poverty in 2022, compared to pre-pandemic projections. In response to the COVID-19 crisis almost all countries have rolled out various short-term as well as long-term social protection measures so as to protect people's health, jobs and income.

End hunger, achieve food security and improved nutrition and promote sustainable agriculture: Various global crises have disrupted the global food supply chains and created the biggest global food crisis since World War II. The COVID-19 crisis has also compounded various forms of malnutrition, particularly in children.

Ensure healthy lives and promote well-being for all at all ages: The pandemic has led to severe disruptions in essential health services, has shortened life expectancy, and exacerbated inequities between countries and people for accessing basic health services and has also threatened to undo years of progress in some health areas.

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all: The pandemic has caused a global education crisis. School closures due to pandemic and lockdowns have led to devastating consequences for children's learning and well-being. It is estimated that 147 million children missed more than half of their in-class instruction over the past two years which led to various adverse effects in terms of their knowledge and skill as well as growth, development, mental health and emotional well-being. School closures especially affected girls, children from disadvantaged backgrounds, those living in rural areas, children with disabilities and children from ethnic minorities more than their peers.

Achieve gender equality and empower all women and girls: The world is falling short of the goal to achieve gender equality by 2030 which has been pushed further off-track by the various socio-economic fallouts of the pandemic. Women and girls were disproportionately affected, struggling with lost jobs and livelihoods, derailment in their education, enhanced burdens of unpaid care work as well as various forms of domestic violence. It has been estimated that over 100 million women globally aged 25-54, with young children at home, were out of the workforce globally in 2020, including more than 2 million women who left the labour force due to the increased pressures of unpaid care work. There is a need to strengthen efforts so as to ensure that the laws, policies, budgets and institutions are put in place and operationalized so as to advance gender equality in the true sense of the term.

Ensure availability and sustainable management of water and sanitation for all: Having access to water that is safe for use as well as sanitation and hygiene is one of the basic human needs for health and well-being. Due to fast growth in population, increase in urbanization and further increment in water needs especially in the fields of agriculture, industry and energy sectors, the demand for clean and safe water is rising. Decades of misuse, poor management, over-extraction of groundwater and contamination of freshwater supplies have intensified and aggravated the water stress.

Ensure access to affordable, reliable, sustainable and modern energy for all: There are still over 700 million people globally living in the dark and a quarter of global population cooking with harmful and polluting fuels despite progress in usage of energy. Although the use of renewable energy and energy efficiency has improved, progress is not fast enough to achieve SDG 7. The war in Ukraine has aggravated the global energy prices and has increased energy insecurity. To respond to this energy crisis, some countries have planned to speed up production of renewable energy which is affordable, reliable and sustainable. At the same time, some other countries have

planned to speed up usage of coal, putting the green transition at risk.

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all*:* The pandemic led to the worst economic crisis in decades in 2020 by severely damaging and disrupting working time and income. Various other challenges being rising inflation, major supply-chain disruptions, policy uncertainties, and unsustainable debt in developing countries further caused the global economy to slow down which adversely affected sustained economic growth.

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation*:* Though the manufacturing industry showed recovery from the pandemic in 2021, the rebound has been uneven across various countries, with stagnations seen in Least Development Countries (LDCs). It has been estimated that almost one is three jobs in the manufacturing industry had been negatively impacted during the pandemic. However, higher technology industries had a better performance and recovered faster which provides insights to the importance of technological innovations so as to achieve SDG 9.

Reduce inequality within and among countries: The pandemic has induced and aggravated global income inequality which has reversed the decline of the previous two decades. Further, weak recoveries in emerging markets and developing economies have increased inequality between and among countries. Globally, refugees were at the highest absolute number on record in 2021 which has led to largest refugees crisis along with its associated ills.

Make cities and human settlement inclusive, safe, resilient and sustainable: Many cities as epicenters of the pandemic have suffered the brunt of the lockdowns in terms of public health system, affordable housing, basic services and connectivity. This has resulted in further increase in the number of slum dwellers. To mitigate this situation, there is an urgent need to focus on policies so as to improve health, affordable housing, basic services and connectivity.

Ensure sustainable consumption and production patterns: Despite bearing the adverse impacts of resource intensive production processes, in alarge measure with reference to climate, biodiversity and pollution, developing countries have not been able to reap the benefits as was expected. This situation has been further aggravated by the disrupting consequences of the pandemic.
The implementation of Sustainable Consumption and Production (SCP) to maximize the socio-economic benefits of resource use while minimizing their impacts is needed as part of sustainable global pandemic recovery strategies.

Take urgent action to combat climate change and its impacts: The problems induced by the rapidly changing climate has increased heat waves, droughts and floods and resulted into a gradual and steady damage to the planet and have affected billion of lives worldwide. The global energy-related CO_2 emissions are growing at 4.0% as demand for fossils based fuels have increased. This is in contrast with the reduction of CO_2 emissions during the pandemic in 2020. Unless governments, the private sector and civil society work together to take immediate action, the global emissions are bound to increase by 14% over the current decade.

Conserve and sustainably use the oceans, seas and marine resources for sustainable development*:* Due to increasing eutrophication, plastic pollution and acidification, the oceans and the seas globally are endangered putting the future of the planet's largest ecosystems and livelihoods of billions of people in jeopardy. The lockdowns due to the pandemic also led to fall in tourism, causing a loss of major chunk of income for coastal and island communities. The plastic wastes entering into the water bodies have also increased in the pandemic owing to the usage of single-use plastic primarily from medical waste.

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss: The survival of humans and his sustainable development is increasingly threatened by the loss of forests globally, degradation of land and ecosystems and biodiversity. Efforts are being made in sustainable forest and natural resource management so as to protect, restore and sustainably use forests and biodiversity. The reis a need to have a synergy between the top-down policy approaches and bottom-up initiatives so as to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels: The need for global peace cannot be underestimated. The world is witnessing the highest number of violent conflicts since 1945, with more than 2 billion people living in conflict-ridden countries. Amid various crises and despiteCOVID-19 pandemic movement restrictions, forced displacement has continued to occur and even grow. These numbers would increase further due to the war in Ukraine. The costs due to the war and conflicts are high, which adversely affects the lives and livelihoods of the people particularly the poorest and the most vulnerable sections of the society who are affected the most. This calls for an escalation in promoting peaceful and inclusive societies for sustainable development.

Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development: With a multitude of crises faced by the global system in various areas such as health, social, economic, environmental as well as peace and security spectrum, there is an urgent requirement for scaling up international cooperation and finding lasting solutions in the following areas:

- Finance.
- Information and communications technology.
- Trade.
- Data, monitoring and accountability.

The UN SDGs represents an unique approach to sustainability-oriented change by providing specific targets instead of binding mandates or general encouragement (UN Global Compact, 2014). The pioneering endeavour of the UN in the SDGs have rendered various firms across the globe to shift their approach to sustainability, ranging from green washing

(Delmas & Burbano, 2011) to transformation (Hoffman *et al.*, 2014, O' Rourkee & Strand, 2017). An impressive body of SDG research highlights the studies ranging from market-level analyses of process for making progress on specific SDG's. (Hertel *et al.*, 2019). The emerging areas of research suggest an interesting and important gap, specifically, the survey-based efforts (Price Waterhouse Coopers {PWD}, 2015, Salvia *et al.*, 2019, Van Zanlea& Van Tulder, 2018) which highlights the patterns, including an uneven prioritization across SDGs and "cherry- picking" of those that may be easiest to make progress on (Heras-Saizarbitorial *et al.*, 2021).

A bird's eye view of the United Nations SDGs is reiterated as under

Table 1. Sustainable Development Goals (Source: United Nations 2015)

Goal 1.	End poverty in all its forms everywhere.
Goal 2.	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture.
Goal 3.	Ensure healthy lives and promote well-being for all at all ages.
Goal 4.	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
Goal 5.	Achieve gender equality and empower all women and girls.
Goal 6.	Ensure availability and sustainable management of water and sanitation for all.
Goal 7.	Ensure access to affordable, reliable, sustainable and modern energy for all.
Goal 8.	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
Goal 9.	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
Goal 10.	Reduce inequality within and among countries.
Goal 11.	Make cities and human settlements inclusive, safe, resilient and sustainable.
Goal 12.	Ensure sustainable consumption and production patterns.
Goal 13.	Take urgent action to combat climate change and its impacts.
Goal 14.	Conserve and sustainably use the oceans, seas, and marine resources for sustainable development.
Goal 15.	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss.
Goal 16.	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.
Goal 17.	Strengthen the means of implementation and revitalize the global partnership for sustainable development.

SDGs: Turning trade-offs into synergies: The Agenda 2030 with its 17 Sustainable Development Goals (SDGs) provides the framework that all United Nations (UN) member states have pledged to fulfil. The achievement of this agenda crucially depends on whether humankind will be able to maximize synergies and resolve existing trade-offs between the SDGs.

The analysis of future interactions for projected SDG trends until 2030 within and between goals have been analysed by numerous researchers showing the evolution of trade-offs and synergies in the recent past globally. For certain goals, positive developments with notable synergies in the projections are seen, especially for SDGs 1 (*End poverty in all its forms every where*), SDG 3 (*Ensure healthy lives and promote well-being for all at all ages)*, SDG 7 (*Ensure access to affordable, reliable, sustainable and modern energy for all*), SDG 8 (*Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all*) and SDG 9 (*Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation*): Alleviation of poverty and strengthening the

economy which is rooted in innovation and modern infrastructure, therefore continue to be the basis upon which many of the other SDGs can be achieved. However, especially SDGs 11 (*Make cities and human settlements inclusive, safe, resilient and sustainable*), SDG 13 (*Take urgent action to combat climate change and its impacts*), SDG 14 (*Conserve and sustainably use the oceans, seas, and marine resources for sustainable development*), SDG 16 (*Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels*) and SDG 17 (*Strengthen the means of implementation and revitalize the global partnership for sustainable development*) will continue to have notable trade-offs emphasizing the need to foster innovations and policies that can make the cities and communities across the globe more sustainable, as well as strengthen institutions and act as a catalyst for tackling climate change. However, the inability to overcome certain persistent trade-offs is worrisome as well as a cause for concern which can seriously threaten the achievement of the Agenda 2030 of the United Nations.

Numerous researches have analysed the correlations within and between the 17 SDGs across countries over time. These studies have mostly focused on the study of the inter-linkages for projected SDG achievement trends until 2030, particularly, the movement from trade-offs to synergies. Severalstudies have pointed out positive developments for some goals with declining and diminishing trade-offs and increasing synergies with other SDGs viz., interactions between SDG 13 {*Climate Action*} and SDG 9 {*Industry, innovation and infrastructure*} as well as SDG 13 and SDG 11 {*Sustainable cities and Communities*}. Such research findings provide support to the notion that climate-friendly infrastructure is beginning to spread globally which not only leads to improvement in the quality of life in cities and communities but also mitigates the dangers of global warming. Likewise, synergies have begun to emerge between SDG 5 {*Gender equality*} and SDG 16 {*Peace and justice, strong institution*} which indicates that as countries are getting better at providing strong institutions, this development may be beneficial to the equality between men and women or vice-versa. The best practices followed by few countries with respect to the SDGs needs to be documented which would highlight the turning of trade-offs into synergies. In order to achieve this objective, there is a requirement for an actionable learning process by various countries in the requisite SDGs areas so as to expand the lessons onto other goals with persistent trade-offs. Various studies have shown that for numerous SDGs interactions the synergies are diminishing and trade-offs as well as non-associations are increasing. These findings are indeed worrisome which is particularly strong for the interaction between SDG 7 {*Affordable and clean energies*} and SDG 1 {*No Poverty*} as well as SDG 7 and SDG 3 {*Good Health and Well-being*}. This implies that as countries manage to lift millions out of poverty and provide much needed healthcare, the demand for affordable and clean energies would rise at a rate which would jeopardize the progress of some SDGs goals with reference to the Agenda 2030. Comparing the cross-sectional analysis with longitudinal analysis Pradhan *et al* (2017), obtained the similarities and differences among the various SDGs. It was found by the researchers that overall there is a larger share of synergies than trade-offs within and across the goals. One of the major limitations of such a cross-sectional analysis vis-à-vis a longitudinal analysis is the fact that the cross-sectional analysis covers a large spectrum of data from the whole range

of indicators between the developed and developing countries. In contrast the longitudinal analysis has only a narrow range of countries for the investigated period. Despite strong synergies, the researchers found that, the projected SDG trends until 2030 still contain a significant portion of trade-offs. That, overall various countries will face similar challenges in terms of projected trade-offs and synergies across all stages of development. The future interactions between projected SDG trends until 2030 have been analysed by few researchers showing that SDG 1 {*No Poverty*} will have the most synergetic relationships with other SDGs. In clear terms, this means that eliminating extreme poverty in developing countries and reducing relative poverty in more advanced nations as a policy measure, given limited resources and the need for prioritization, will yield the most significant benefits beyond just this one policy goal of *No Poverty*. Focusing on SDG 1 (*No Poverty)* would therefore be the most promising strategy to ultimately start-off a virtuous cycle of SDG progress. For example, a family that no long suffers from extreme poverty (SDG1) will be able to lead healthier lives for themselves and others, halting the spread of infectious diseases (SDG3- *Good Health and Well-being*), contributing to a stronger economy (SDG 8- *Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all*), raising the means of implementation through tax payments (SDG 17- *Strengthen the means of implementation and revitalize the global partnership for sustainable development*) which will in turn enable public investments in infrastructure (SDG 9-*Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation*), which will provide education and other important services (SDG 4-*Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all*). The key challenge for policymakers will be to emulate such synergetic relationship with respect to other goals. Despite the strong synergies, the researches show that all SDG interactions between projected SDG trends until 2030 still contain a significant portion of trade-offs. This outlook into the future gives further reason for concern, and indeed casts a shadow on even most of the positive findings from the analysis of the past and present, for example regarding SDG 13 {*Climate Action*}. It was hypothesized that synergies will occupy a larger portion in the projections of the interlink ages than trade-offs, however, the results indicated a nuanced picture with notable synergies for SDG 1 (*End poverty in all its forms everywhere*), SDG 3 (*Good Health and Well-being)*, SDG 7 (*Affordable and clean energies)*, SDG 8 (*Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all*) and SDG 9 (*Industry, innovation and infrastructure).* Notable synergies were also evident amongst SDG 13 (*Take urgent action to combat climate change and its impacts*), SDG 11 (*Make cities and human settlements inclusive, safe, resilient and sustainable*), SDG 14 (*Conserve and sustainably use the oceans, seas, and marine resources for sustainable development)*, SDG 16 (*Peace and justice, strong institution)* and SDG 17 (*Strengthen the means of implementation and revitalize the global partnership for sustainable development*) which are likely to have notable trade-offs with the other goals going forward.

Scientific research in achieving sustainable development: Of prime importance is the enhancement of the scientific literacy of the public which can help prevent the rampant spread of false information and facilitate the application of scientific results. Scientific end eavours to achieve sustainable development can be more worthwhile and rewarding if stakeholders participation is present so that the trickle down effect is widened and deepened in order to harness the sound and beneficial aspects of these end eavours. Further, scientific knowledge and outcomes should be made accessible to policymakers who can make the most use of these scientific out-puts in policy formulations and implementation. In order to maximize the advantages brought about by scientific development and reduce problems caused by the ignorance or misunderstanding of the public, scientific knowledge should not be limited to the scientific community alone; rather, it should be made accessible and disseminated in a broader way so as to include the general public, policymakers, students and future scientists. Fang Chen *et al*. (2021)have discussed the contribution of science and technology to disaster risk reduction (DRR) in their article 'Building scientific capacity in disaster risk reduction for sustainable development'. DRR is crucial to the achievement of the SDGs in that the frequency and intensity of disasters increase as climate change intensifies and environmental degradation worsens. In the face of natural disasters, there is a need to focus on prediction and prevention, as well as on timely response and recovery. Many countries and regions currently do not have easy access to relevant data, and traditional data sources prove to be inadequate for crafting effective and efficient responses and recovery options. In order to narrow the data gap, traditional data sources must be integrated with alternative and emerging data sources. Digital technologies, such as cloud computing, and infrastructure, including research programmes such as CAS Earth, can provide valuable resources for multisource data integration, contributing to the development of information-driven policy and decision-support systems for DRR. Scientific researchers and policymakers need to apply emerging technologies and data science methodologies to develop innovative solutions to global challenges and devise strategies for sustainable development.

Consolidation of research on SDGs: Fig 1 demonstrates the regression model for the period 2015-20, as consolidated from the complete records in the **Web of Science**. The results showed an exponential growth in the number of studies on SDGs, with an R^2 adjustment greater than 96%. This exponential nature of the model highlights that a '**critical mass**' is consolidating around the research on this topic which is in consonance with the '**Law of Exponential Growth of Science over Time**' which imparts the much needed meaning adduced to the research in this area.

Fig. 1. Shows the regression model for the period 2015-2020, the last year with complete records consolidated in the web for science. The results obtained show significant growth in the
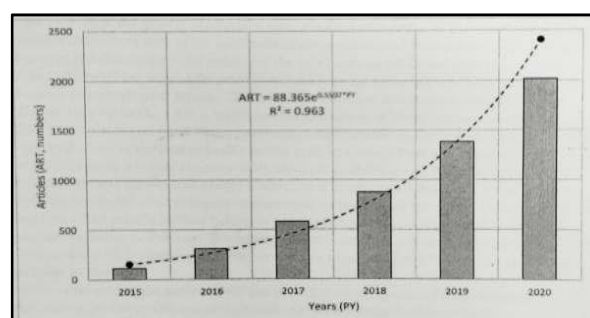

Fig. 1. Academic Production Annual Growth Data Source WoS , 2020

SDG imaginary- Opportunities and Challenges: Although the aim of the 2030 Agenda of the UN is an integrated, comprehensive and long term one, however, it is seen that many civic bodies across the globe are stuck in a pragmatic but in a narrow implementation perspective, by reframing existing programmes as SDG programmes, without embedding these SDGs deeper into the fabric of society and thus applying additional aspirations for their meaningful achievement. Often monitoring systems are set up to measure the performance of various civic bodies regarding the SDGs, but without SDG inspired targets they simply measure existing programmes. Hence, the desired outcome on different SDGs areas remains to be assessed and analysed in letter and spirit. The OECD in their global study on the implementation of the SDGs at local and regional level has concluded that in order to address various issues connected with the SDGs and to achieve the SDGs, the following concerns need to be addressed:

Awareness: In order to effectively 'implement' the SDGs in the society, it is very essential that the goals of the SDGs are translated to fit into the local aspirations and needs of the people at large. The SDGs are not simply a technical toolkit for experts in a technocratic sense as some amount of pragmatism in adopting a 'translation' approach is needed. By adopting a 'translation' approach, the extent to which the SDGs are widely known, supported and given meaning within the local community becomes critical for achieving the goals set by the SDGs. Knowledge and meaning-making are key to unlocking the transformative societal potential of the SDGs, not just in civic bodies, but also within civil society, NGO's, educational institutions and the private sector.

Spaces: The moot question is how do the SDGs translate between the global and the local scale. A critical analysis and reflection about the SDGs at the local level seems to be essential and imperative for the 'reciprocity between the local and the global'. Most often than not, in the hierarchies of the SDG fora, the SDG policy-making approach takes place mainly at (inter)national level, while the local is restricted to policy-implementation alone; in lieu of taking on a more active role as an agent of change. It is evident that the role of local bodies is crucial so as to bring the SDGs closer to the people via translating the inspiration of the SDGs into transformative local initiatives on the one hand and by showcasing on the other hand the local experiences on the international stage so as to have the **best-fit** between the local and the global.

Aspirations: Another crucial aspect in achieving the SDGs outcomes is the inspiration as well as the aspiration for transformative collective action by various stakeholders. As long as civic bodies approach the SDGs mainly from a policy and implementation perspective and there is little citizen participation in these processes and few local partnerships for translating the SDGs goals into local long-term visions and targets (and vice versa: local innovations into global debates) till then, their potential as a driver of transformation will remain limited. The linear trajectories for the SDGs have been calculated by Sachs *et al* (2018) with respect to the level that will be required to achieve each goal by 2030. The linear annual growth rates (i.e. annual percentage improvements) needed to achieve each SDG by 2030 was compared to the actual average annual growth rate in each country and indicator over the period 2010-15 (with some exceptions). The overall goal trends was an arithmetic average of the rescaled values for all trend indicators under the respective goal. This projection resulted in a five-point scale with the following

classification: "decreasing" (country score is moving away from SDG achievement on this indicator), "stagnating" (country score remains stagnant or is improving at a rate below 50% of what is needed for SDG achievement by 2030), "moderately increasing" (country score is increasing at a rate above 50% but below the rate needed for SDG achievement by 2030, "on track" (score is improving at the rate needed for SDG achievement by 2030, "maintaining goal achievement" (country score is at the level and remains at or above SDG achievement).

Analysing the SDGs as a social imaginary allows to reflect on the tension between global and local, between rhetoric and practice, between pragmatism and aspirations, between targets and meaning, between top-down policy discourses and bottom-up initiatives. Shifting the debate from SDG policy to a social imaginary approach, and from an implementation approach towards a translation approach, leads to redefining 'localisation' as a reciprocal relationship. Seeing the reciprocity of the local and the global it is essential not just to clarify how social imaginaries shape (and are shaped by) local realities, but also to take locality more seriously in realising the SDGs promise for change. The OECD Development Communication Network provides a summary of the available surveys until 2017: According to Globescan and Eurobarometer, in 2016, one year into the SDG era, around 3 in 10 citizens say that they have heard of the SDGs. Further findings in this regard are as under: Awareness of the SDGs varies widely across the EU; Luxembourg is the only Member State where at least one in five have both heard of the SDGs and know what they are (23%), followed by Finland (17%) and Spain (14%). This compares to 4% of respondents in Bulgaria. Follow-up studies show an increasing awareness within the EU; where 10% to 12% of respondents between 2016 and 2017 claim to have substantial knowledge about the SDGs. However, the OECD has warned that these numbers are only estimates as the 'social desirability bias', in particular, will lead many people to over report their awareness or knowledge of the SDGs'.

Limitations and future research lines: Although this paper sheds some light on new learnings on synergies and trade-offs for the 17 SDGs and on the firms as "major actors of change" across the globe with their SDGs in their sustainability reporting, yet it is not free from limitations. The most relevant one is the sample selected by the researches on SDGs which are mostly confined to the leading firms across the globe. Numerous SMEs which are involved with several SDGs are not considered in these researches. Future work could focus on SMEs (Small and Medium Enterprises) so as to assess their sustainability efforts towards the achievement of the SDGs. Future lines of research may offer some insights into how the study of the SDGs system be represented not only by a series of pairwise interactions but as a network, where both direct and indirect interactions produce synergies and trade-offs. The analysis according to income groups provides promising avenues for future research, and should in fact be complemented in the future by analyses that distinguish not just by income group but also by region or political system. The results may have important implications for global institutions like the UN High-Level Political Forum on Sustainable Development (HLPF), where countries meet annually to review progress on the SDGs. While the country-led Voluntary National Reviews (VNRs) are now an established tool to show-case what each country is doing in

terms of progressing towards Agenda 2030 using a basket of indicators, a perspective on the interlink ages between the goals is still missing despite being crucial to the fulfilment of the SDGs. The review process of the HLPF should therefore require countries to report on the status of SDG interlink ages in their country (in terms of existing and projected synergies and trade-offs), as well as outlining of a policy strategy to deal with these interlink ages. Future lines of research may offer some insights into how the study of the SDGs may be failing to balance their economic, social and sustainability components, as it maintains an overall focus on environmental studies. This suggests the urgency of increasing studies on social SDGs which are key topics of the 2030 Agenda including equity (SDG 4 {*Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all*} , SDG 5 {*Achieve gender equality and empower all women and girls*} and SDG 10 {*Reduce inequality within and among the countries*}), social development (SDG 11 {*Make cities and human settlements inclusive, safe, resilient and sustainable*} and SDG 16 {*Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels*}) and governance SDG 17 {*Strengthen the means of implementation and revitalise the global partnership for sustainable development*}).

Although these topics are part of the public discourse and currently a source of social pressure in many latitudes, but there remains many untapped research areas that are necessary to be explored so as to deepen the understanding and application of the SDGs. Economic sustainability studies are more present, but highly concentrated, in health economics. Academic research on the SDGs against poverty (SDG 1 {*End poverty in all its forms everywhere*}) and hunger (SDG 2 {*End hunger, achieve food security and improved nutrition and promote sustainable agriculture*}) has not achieved such a prominent place as health. Even less so, the economics of technological development (SDG 8 {*Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all*} and SDG 9 {*Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation*}) are recognized as crucial for economic development. Academic research has prioritized action for climate (SDG 13 {*Take urgent action to combat climate change and its impacts*}) and industrial and human consumption, mainly water (SDG 6 {*Ensure availability and sustainable management of water and sanitation for all*}) and energy (SDG 7 {*Ensure access to affordable, reliable, sustainable and modern energy for all*}). New research should be developed in the area of land (SDG 15 {*Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss*}), life under the sea (SDG 14{*Conserve and sustainably use the ocean, seas and marine resources for sustainable development*}) and sustainable production (SDG 12 {*Ensure sustainable consumption and production patterns*}).As Saric *et al* (2019) claimed, a shift in academic research is needed to contribute to the achievement of the 2030 Agenda. There is anurgentrequirement for identification of critical pathways to success based on sound research so as to inform a whole new set of policies and interventions aimed at rendering the achievement of the SDGs both possible and feasible.

CONCLUSION

The analysis of the SDGs as a social imaginary have highlighted on the conflict between global and local, between rhetoric and practice, between pragmatism and aspirations, between targets and meaning, between top-down policy discourses and bottom-up initiatives. This paper highlights few significant implications for managers and policymakers alike. The sustainability reporting by leading firms show that they may be making some progress toward the achievement of some of the SDGs. Several researches have shown that many firms are not only narrowly resorting to "cherry-picking" in their reporting, but also they are not engaging with all the SDGs in a systematic manner. There may be some organizational limits that make rigorously designing, implementing, and reporting change across all 17 SDGs difficult to achieve. The necessity for sparking, supporting, and scaling creative collaboration between various entities would go a long way to achieve the 17 SDGs of the UN. To recover from the adverse effects of the pandemic and achieve the Agenda 2030 targets of the UN, there is a need not only for a multi-faceted approach but also for adoption of multi-pronged strategies by various countries. More specifically, concrete and coordinated action is the need of the hour. The results of various researches have suggested that efforts reliant on normative pressure alone may not be enough to truly achieve the kind of ambitious, transformative sustainability-oriented change aspired to by the SDGs and that strategic partnerships, collaboration / joint ventures amongst various stakeholders in a holistic sense would go a long way for the realization of the SDGs. It is a fact that the SDGs have given rise to meaningful but uneven change in the sustainability efforts reported by leading firms and governments, NGOs (Non-Governmental Organisations), and SMEs (Small and Medium Enterprises). However, there is a need to foster and leverage this momentum to collectively make rapid progress in meeting the grandest challenges, in order to make a significant difference in terms of justice and sustainability on a global scale.

The realization of the SDGs requires joint efforts among scientists, educators, policymakers and the public. Science and technology, as a global public good, can directly or indirectly contribute to sustainable development. In an era of continuously emerging digital technologies, everything, including the solutions to global challenges, seems to be information driven. The cultivation of the next generation of scientists who shoulder the responsibility of sustainable development requires science-based and information –driven pedagogy. Disaster response and control, which are closely related to the SDGs, need information- based decision-making. In a nut-shell, in order to address various issues connected with the SDGs, the stakeholders should be equipped with a global vision which is scientific and equipped with information-driven pattern of thinking. The achievement of the SDGs requires international cooperation in science and technology, as well as collaboration among various stakeholders in all walks of life coupled with joint efforts within and beyond the scientific community.

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