

SUSTAINABLE DEVELOPMENT GOALS IN THE KINGDOM OF SAUDI ARABIA'S 2030 VISION

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ABSTRACT

The United Nations (UN) has set 17 sustainable development goals (SDGs) in 2015/2016 as a strategic plan to help governments around the globe to develop national plans to achieve the Agenda 2030 for a sustainable future. These SDGs are somehow fulfilled in a way or another in the 2030 vision of the Kingdom of Saudi Arabia (KSA) besides other goals. This paper focuses on the 17 SDGs attainable in the KSA's vision. Each SDG has several strategic objectives or indicators which have target values to be achieved in the 2030 vision. The progress towards these targets are measured quarterly as a percentage of the target values and identify the enforcement of critical adjustments quarterly or annually. The Threshold21-iSDG model developed by the Millennium Institute (MI) has been used to assess the performance for SDG attainments in the KSA's vision. The progress for the 17 SDGs achieved by 2030 are compared for three different scenarios (i.e., business-as-usual (BAU), Vision Realization Programs (VRPs) and an "SDG" with critical adjustments) and they are portrayed on the SDG wheel. The progress attainable using SDG scenario is better compared to other scenarios.

Keywords: S3 city, sustainable development goals (SDGs), Vision Realization Programs (VRPs), 2030 vision of the Kingdom of Saudi Arabia (KSA), Threshold21-iSDG model.

1 INTRODUCTION

The population of urban cities has significantly increased all over the world as a lot of people have been moving towards these cities due to the improved quality of life and the better delivery of services. Hence, the urban cities are anticipated to grow as large percent (e.g., over 60% of the world population) will live in these cities [1], [2]. As the size of urban city increases, environmental issues will have become more critical due to rapid consumption of natural resources which result in pollution and waste. This contribute to biased social and economic and urban planning will face several challenges to deal with this problem and new solutions are required.

The traditional urban planning strategies do not seem to provide promising solutions; hence, a paradigm shift in urban planning is needed to develop new solutions to design smart, sustainable, and safe (S3) contemporary cities which consider connections between people, goods, information and other resources as a complex network and technological advances are at the heart of the design.

The vision of S3 contemporary cities utilize information and communication technology (ICT) and use internet of things (IoT) solutions combined with artificial intelligence (AI) in the design and development of a city to manage its resources and to improve its services to private or public as shown in Fig. 1. The initiative towards the S3 arises to provide different approaches to solve the problems of traffic, pollution, energy waste, etc. [3], [4].

The S3 contemporary cities align the new society requirements and the technological advances without sacrificing the needs of future generations [2]. The first stage of the S3 begins with a strategic plan by city's leaders and government officials whether national or regional to set the purpose, benefits, values and the investments required.





Figure 1: S3 contemporary cities utilizing ICT and Internet of Things (IoT) combined with artificial intelligence (AI) [2].

Although the infrastructure will grow as the size of the urban city increases, management is a big concern though might not even be possible if S3 strategies have not been considered. Thus, the quality of life and the delivery of service are not good as this affect people’s daily life ranging from traffic jam which will cause missing buses, trains and flights, lack of coordinated response in emergency, non-available information, shortage in supply and duplication of resources [2].

On the other hand, the benefits of S3 strategies are tremendous. The S3 city provides high standards of living and best delivery of service including employment opportunities, medical care, physical safety, education, transportation, utilities, telecommunication, etc. [2], [5]. The government of the Kingdom of Saudi Arabia (KSA) has set targets in the 2030 vision to raise the status of the cities so that they are ranked among the best cities in the world. One goal to be achieved in 2020 is to have a city within the top 100 most liveable cities in the world [6].

Best cities are ranked based on categories which include the digital governance, the quality of life, promotion, airport connectivity among other criteria [7]. The world’s top 100 best cities are ranked by bestcities.org and the top 5 best cities in the world are listed in Table 1.

Table 1: World’s top 5 best cities [7].

No	City	Country	Criteria			
			Programming	Promotion	Attraction	Air./connect.
1	London	UK	#1	#1	#3	#2
2	Paris	France	#3	#2	#4	#1
3	New York	USA	#2	#3	#5	#3
4	Tokyo	Japan	#4	#4	#2	#5
5	Barcelona	Spain	#5	#5	#4	#4

The 17 sustainable development goals (SDGs) identified by the United Nations (UN) can be used as the roadmap in the second stage to guide the urban planner and government officials to develop national plans to achieve the 2030 vision for sustainable future. The rest of this paper will focus on the 17 SDGs attainable in the 2030 vision of the KSA. Section 2 highlights the 17 SDGs set by the UN and Section 3 gives an overview of the KSA’s 2030 vision. In Section 4, the Threshold21-iSDG model developed by Millennium Institute (MI) has been used to assess the performance for SDGs attainments in the KSA’s vision.

2 SUSTAINABLE DEVELOPMENT GOALS

In 2015, the global leaders agreed upon adopting the UN 17 SDGs of the 2030 agenda for sustainable future for all. The global warming is the critical issue to be dealt with; hence, the 17 SDGs were built on the success of the millennium development goals (MDGs). These goals call countries all over the world, no matter what their status are (rich, middle income, poor), to pursue efforts in these goals and take immediate actions to promote prosperity and protect the planet [8].

The Paris Agreement was signed on January 2016 and entered into force November 2016 to strengthen the need of global response to the threat of climate change by limiting the rise of global temperatures. The Paris Agreement is an agreement within the United Nations Framework Convention on Climate Change (UNFCCC) to reinforce efforts of all countries and support their actions in greenhouse gas emissions mitigation, adaptation, and finance [9].

The 17 SDGs are blueprint which aim to shape the global economic growth that provides no poverty, equality, prosperity and peace and justice. They address the challenges related to essentials social needs for humanity like education, health, social protection, employment and other services while maintaining the standards for climate and environment [10]. The 17 SDGs are shown in Fig. 2 and highlighted below [8].



Figure 2: The 17 SDGs of the 2030 agenda for sustainable future for all [8].

2.1 The 17 SDGs

These goals are going to transform our world through global economic growth to end poverty in all forms everywhere by 2030, fight inequalities and tackle climate change with the efforts from all countries to ensure that no one is left behind [9]. These ambitious goals worth giving them a glimpse here.

2.1.1 No poverty

More than 10% of the world's population live in extreme poverty (836 million worldwide). Approximately half are in Sub-Saharan Africa. The goal is to provide sustainable jobs and promote equality.

2.1.2 Zero hunger

Approximately 13% of the world's population are undernourished. The majority live in developing countries where two thirds live in the two regions shown in Fig. 3.

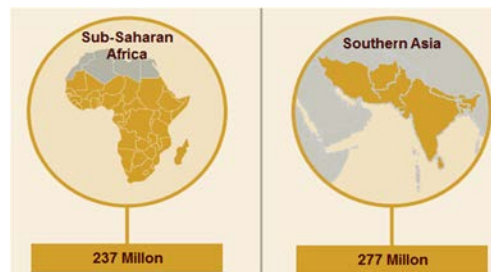


Figure 3: Two third of undernourished people live in two regions.

Nearly 50% of deaths in children under five is caused by hunger. In fact, other SDGs might not be achieved as hunger limits human development. Hence, the goal to end hunger by 2030 can be achieved through food security, improved nutrition and sustainable agriculture.

2.1.3 Good health and well-being

The goal to ensure healthy lives and to promote the well-being for all ages is essential to sustainable development.

2.1.4 Quality education

Obtaining a quality education is the foundation to improving people's lives and sustainable development.

2.1.5 Gender equality

Gender equality is not only a fundamental human right, but a necessary foundation for a peaceful, prosperous and sustainable world.

2.1.6 Clean water and sanitation

Clean, accessible water for all is an essential part of the world we want to live in.

2.1.7 Affordable and clean energy

Energy is central to nearly every major challenge and opportunity.

2.1.8 Decent work and economic growth

Sustainable economic growth will require societies to create the conditions that allow people to have quality jobs.

2.1.9 Industry innovation and infrastructure

Investments in infrastructure are crucial to achieving sustainable development.

2.1.10 Reduced inequalities

Universal policies are needed to reduce inequalities, paying attention to the needs of disadvantaged and marginalized populations.

2.1.11 Sustainable cities and communities

There needs to be a future in which cities provide opportunities for all, with access to basic services, energy, housing, transportation and more.

2.1.12 Responsible consumption and production

Responsible production and consumption are essential to sustainable development (e.g., recycle plastic, aluminium and glasses).

2.1.13 Climate action

Climate change is a global challenge that affects everyone, everywhere.

2.1.14 Life below water

Careful management of this essential global resource is a key feature of a sustainable future.

2.1.15 Life on land

Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss.

2.1.16 Peace, justice and strong institutions

Access to justice for all, and building effective, accountable institutions at all levels.

2.1.17 Partnership

Revitalize the global partnership for sustainable development.

2.2 The world's most liveable cities [11]



Figure 4: World's most liveable cities [11].

3 THE 2030 VISION OF THE KSA

From the international perspective, the Kingdom of Saudi Arabia has been an active member in the UN and it is committed to regularly donate generously in the UN programs since it joined and pays its obligations to end the poverty and hunger worldwide. King Salman Relief (KSrelief) centre was established in 2015, to provide global relief activities. More than 1,000 projects were implemented by KSrelief at a cost of \$3.25 billion in more than 44 countries varying from building schools, hospitals, shelters, water systems and other relief activities and distributing food baskets, clothing, toys, iftar meals, medical aids, and other items [12].

The largest donation in the history of the UN was an amount of \$1 billion and 250 million contributed to Yemen in 2019 by the KSA, State of Kuwait and the United Arab Emirates (UAE) [13]. Though the KSA is a rich country and a G20 member country, it has effective response towards making the world more stable with no conflicts due to social and economic imbalance.

Nationwide, the 2030 vision of the KSA's was built on three pillars: a vibrant society, a thriving economy and an ambitious nation. The KSA is the heart of the Arab and Islamic worlds, the hub connecting three continents (Asia, Africa and Europe) and the investment powerhouse. These are the intrinsic strengths upon which the three pillars of the 2030 vision were developed [6].

3.1 The three pillars of the KSA's 2030 vision

Fig. 5 illustrates the three pillars of the 2030 vision of the KSA.

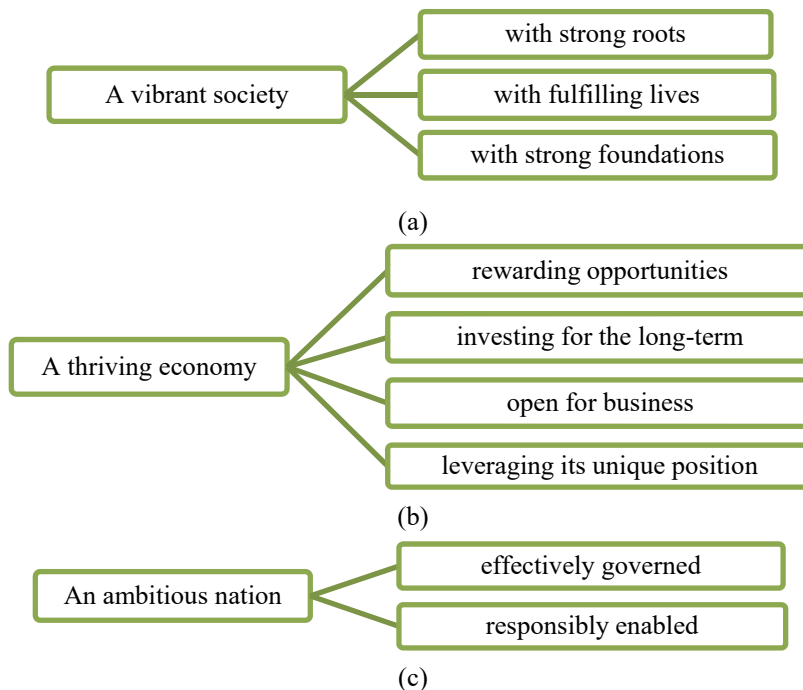


Figure 5: The three pillars of the KSA's 2030 vision. (a) Pillar 1; (b) Pillar 2; and (c) Pillar 3.

3.1.1 Pillar 1: A vibrant society

The goals under pillar 1 to be achieved by 2030 are:

- Serve 30 Million Umrah visitors.
- Increase household spending on cultural and entertainment to 6%.
- Increase the average life expectancy from 74 years to 80 years.

3.1.2 Pillar 2: A thriving economy

The goals under pillar 2 to be achieved by 2030 are:

- Lower the rate of unemployment from 11.6% to 7%.
- Increase the public investment fund’s assets to over SAR 7 trillion.
- Increase the private sector’s contribution to 65% of GDP.
- Raise the share of nonoil exports in non-oil GDP from 10% to 50%.

3.1.3 Pillar 3: An ambitious nation

The goals under pillar 3 to be achieved by 2030 are:

- Raise our ranking on the E-Government Survey Index from our current position of 36 to be among the top five nations.
- Rally one million volunteers per year.

3.2 The strategic objectives

The KSA’s 2030 vision was cascaded into strategic objectives with a clear methodology to enable effective implementation as shown in Fig. 6.

The KSA’s 2030 vision are transformed into 96 strategic objectives as depicted in Fig. 7.

The 17 SDGs are fulfilled in the 2030 vision of the KSA besides other goals [14]. Some examples are given below to show how these SDGs are attainable in the KSA’s 2030 vision. The examples are in health, sustainable cities responsible consumption and others.

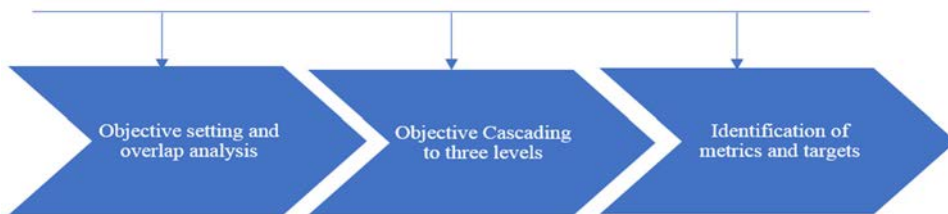


Figure 6: Cascading the KSA’s 2030 vision into strategic objectives.

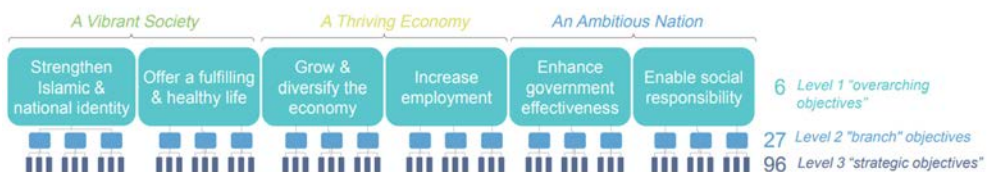


Figure 7: From KSA vision 2030 to 96 strategic objectives.

Fig. 8 shows how good health and well-being goal (goal three in the 17 SDG) will be attained through strategic objectives of the KSA’s 2030 vision.

Another example is illustrated in Fig. 9 to show how multiple SDGs are attainable in strategic objectives of the KSA’s 2030 vision. For instance, sustainable cities and communities goal, climate action goal and life on land goal are shown.

Last example is shown in Fig. 10 to give another evidence where goals two, six and 12 of the 17 SDGs are attainable through the KSA rich and no poverty and zero hunger exist.



Figure 8: Attainment of health goal (goal three in the 17 SDG) in the strategic objectives.



Figure 9: Attainment of multiple goals (11, 13 and 15 SDGs) in the strategic objectives.



Figure 10: Attainment of multiple goals (two, six and 12 SDGs) in the strategic objectives.

3.3 Vision Realization Program (VRPs)

To achieve the 96 strategic objectives of KSA’s vision 2030, the Council of Economic and Development Affairs (CEDA) established 13 Vision Realization Programs (VRPs) to achieve the goals of the 2030 vision of the KSA. The VRPs are developed in three steps as follows:

Step 1: Study strategic objectives, analyse and group them based on similarity.

Step 2: Strategic objectives groups prioritized to form 13 VRPs.

Step 3: VRP cards developed, and gaps identified.

Macroeconomic targets, program targets and relevant strategic objective targets are the three target categories used to track the progress of VRPs. The vision progress is measured quarterly, and critical actions are enforced. More details about the vision progress and VRPs can be found on the internet at this link <https://vision2030.gov.sa/en/vision-progress#>.

4 THRESHOLD-21 ISDG MODEL

Threshold-21 iSDG model has been developed by Millennium Institute (MI) to help decision makers of governments to design effective strategies for sustainable development to address the challenge of aligning national strategies with Agenda 2030 as shown in Fig. 11 [15].

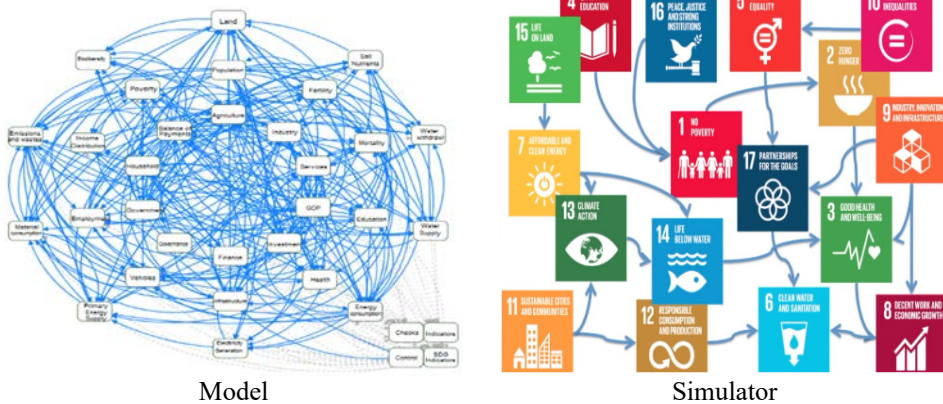


Figure 11: Threshold-21 iSDG where the connections show how SDGs are interrelated.

A target value for the 2030 vision is entered for each indicator as shown in Table 2.

Similarly, the base targets of the 2030 vision of the KSA can be set for various SDGs with several indicators. The 17 SDGs attainment in the KSA’s 2030 vision have been highlighted in [14] to prove the efforts pursued by the KSA towards the Agenda 2030. Two goals in the KSA’s 2030 vision have been chosen to be validated through simulation. The first goal is to increase the average life expectancy from 74 years to 80 and the second goal is to lower the rate of unemployment from 11.6% to 7%.

The average life expectancy in the KSA’s 2030 vision is shown in Fig. 12. Obviously, the life expectancy (sex) are increased. Not that, the performance for all the 17 SDGs can be measured and compared by modifying the intervention areas (e.g., health and sustainable city goals).

Table 2: 17 SDGs with target values and indicators.

Goals	Year					
	2016	2017	2018	~	2029	2030
Goal 1: No poverty						
Several indicators	target	target	target	~	target	target
Goal 2: Zero hunger						
Several indicators	target	target	target	~	target	target
Goal 3 Health and well-being						
Several indicators	target	target	target		target	target
Goal 8: Decent work						
Several indicators	target	target	target		target	target
Goal 11: Sustainable cities and communities						
Goal 17: Partnership						

Table 3: 17 SDGs with several indicators in the 2030 the KSA.

Goals	Year					
	2016	2017	2018	~	2029	2030
Goal 1: No poverty						
	0	0	0	~	0	0
Goal 2: Zero hunger						
	0	0	0	~	0	0
Goal 3 Health and well-being						
3.1 Life expectancy for male	73.5	74	75	~	79	80.5
3.2 Life expectancy for female	75.5	76	76.5	~	82	82.5
3.3 Access to healthcare	0.98	0.99	1	~	1	1
Goal 8: Decent work						
8.1 Youth not in education or employed	0.2	0.15	0.12	~	0	0
8.2 Unemployment rate	0.134	0.137	0.14	~	0.115	0.11
Goal 11: Sustainable cities and communities						
11.1 Mortality due to traffic accident	0.025	0.020	0.018	~	0.012	0.001
11.2 Mortality due to disaster	4 e-5	4 e-5	4 e-5	~	2 e-5	2 e-5
11.3 Collected waste and disposed	0.6	0.65	0.70	~	0.75	0.8
Goal 17: Partnership						

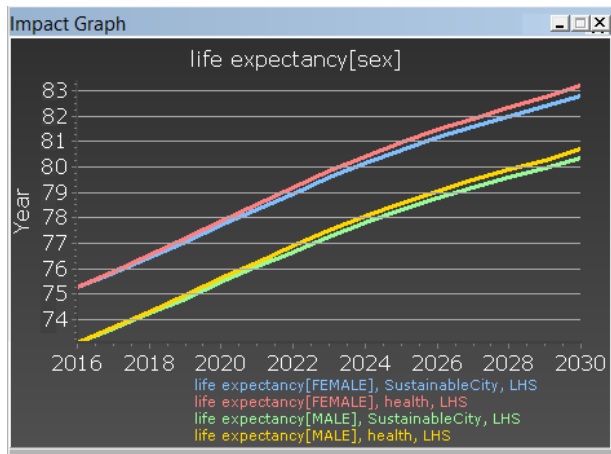


Figure 12: The average life expectancy goal in the KSA’s 2030 Vision.

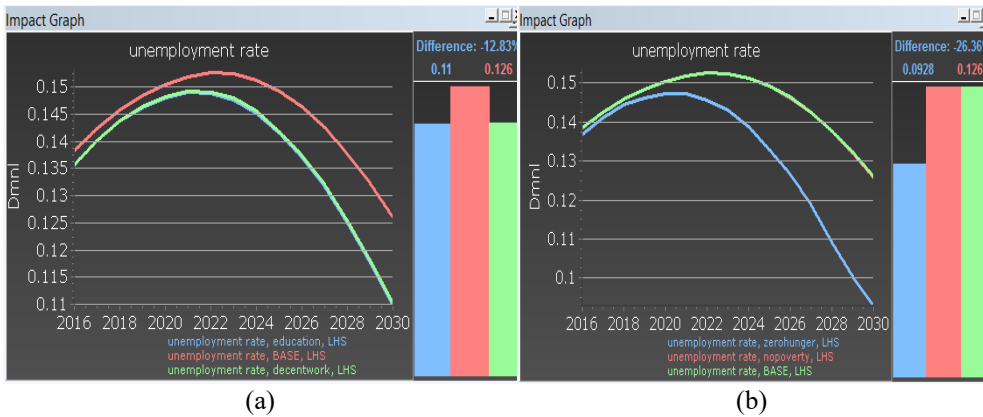


Figure 13: The unemployment rate goal in the KSA’s 2030 Vision (assumed).

Although the 2030 vision of the KSA identifies the unemployment rate at 11.6% and the goal to be achieved in 2030 is 7%. In simulation, it is assumed at 13.5% and the target achieved by 2030 is 11% when intervention were goals four and eight; however, it drops by 2% to 9% when intervention were goals one and two as shown in Fig. 13.

Finally, despite the 17 SDGs are ambitious and more efforts are needed by some countries; however, they are still not pursuing their efforts. It has been shown in Fig. 13(b) that targets of lower or higher values can be achieved by modifying the interventions and the 17 SDGs can be accelerated the same way by changing scenarios as shown in Fig. 14.

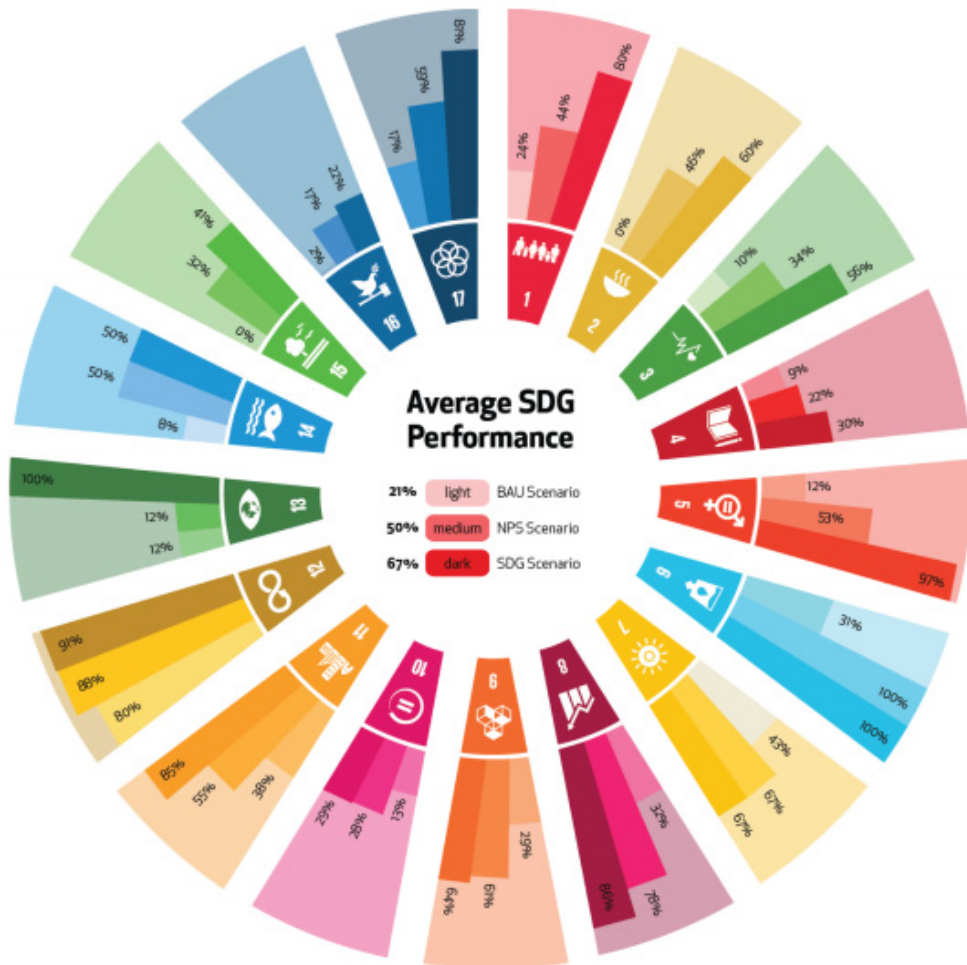


Figure 14: The progress of SDG for three scenarios [16].

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