

Sustainable Development Goals and Indian Health System: A Kaleidoscope Perspective

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ABSTRACT

Healthcare has become one of India's most significant sectors in terms of both revenue and employment. The healthcare industry comprises hospitals, medical equipment, clinical trials, outsourcing, telemedicine, medical tourism, health insurance, and other related services. The Indian healthcare system is expanding significantly as a result of its increasing coverage and services, as well as rising investment by public and private entities. The primary objective of Consistent economic and environmental stability is the main goal of sustainable development, and this can only be achieved by examining and embracing issues pertaining to the social, environmental, and economic dimensions of decision-making.. Without sacrificing the quality of care, sustainable healthcare incorporates products, services, and healthcare operations with superior environmental performance. When describing sustainability issues in relation to health and well-being, three distinct types must be taken into consideration. This paper aims to provide an introduction to the Sustainable Development Goals (SDGs), a snapshot of the Indian health care system, and a conceptual model of sustainable healthcare, among other things.

Keywords: *Sustainable development goals; Health system; Healthcare quality and its pillars; & SD drivers.*

1.0 Introduction

Sustainable development is defined as “the development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Tsioumpri & etal .2020). Today, the term of sustainability cannot be limited to environmental health alone; it must be expanded to include a variety of other factors, such as the health of consumers, employees, and the community. Leading in incorporating elements of sustainability into business practises is essential for efficient resource management, continuous enhancement of services, and cost-effectiveness in the formation of service excellence for business sustainability (Marimuthu & Paulose, 2016).

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Consistent economic and environmental stability is the overarching goal of sustainable development, and it can only be achieved by appropriately analysing and accepting issues pertaining to the social, environmental, and economic dimensions of decision-making. Participatory decision-making is fundamental to the principles of sustainable development. Whatever sets sustainability apart from other developmental plans is this deeply rooted idea of integrativeness. (Mir & Singh, 2022).

The Millennium Development Goals (MDGs) and the Sustainable Development Goals (SDGs), which both commemorate historic global mobilisation to reach global targets, serve as contemporary representations of this issue (Breuer, et al., 2019). A new set of goals, the SDGs, must be reached by 2030 and are in fact a call to action. The SDGs' main themes are widely dispersed, summed up in the constant focus on the people, planet, peace, prosperity, and partnerships (Taylor, 2016).

The United Nations (UN) has twice committed to a specified agenda that must be fulfilled by all 189 member states in order to advance global development goals. The Sustainable Development Goals (SDGs), the current framework for 2015–2030, replaced the Millennium Development Goals (MDGs), which were established for the period 2000–2015. The MDGs succeeded in meeting many of their objectives. According to estimates, almost 21 million additional lives may have been spared over this time (Asi & Williams, 2018).

The Sustainable Development Goals (3) seek to provide a healthy life and promote wellbeing for people of all ages by 2030. Its goal is to stop epidemics like HIV/AIDS, tuberculosis, malaria, and other tropical diseases that are not given enough attention (Bayro & *etal.* 2022).

The third Sustainable Development Goal (SDG)—“ensure healthy lives and promote well-being for all at all ages”—is particular to health. It is one of the 17 SDGs that were adopted by the United Nations (UN) General Assembly in its seventieth session in 2015 and are intended to be accomplished by 2030. The universal health coverage (UHC; SDG 3.8) component of SDG 3 aspires to give everyone access to high-quality healthcare without facing financial hardship. Indirectly, other SDGs—such as those addressing hunger, gender equality, access to clean energy and water, sustainable cities and communities, combating climate change, and promoting peace, justice, and strong institutions—also help people achieve better health (Chatchai et al., 2020). The Sustainable Development Goals (SDGs) feature precise targets like their predecessors, the Millennium Development Goals, but also place more of an emphasis on wider, interconnected factors like sustainability and social justice, fostering a more integrated development agenda (Hone et al., 2018).

Sustainable development is centred on people. The commitment is to work towards a just, equitable, and inclusive world in which all parties are committed to fostering inclusive economic growth, social development, and environmental protection for the benefit of all, regardless of age, sex, disability, culture, race, ethnicity, origin, migration status, religion, economic status, or other status. The 17 interrelated sustainable development goals are established based on these aspirations. In September 2015, these will be completed.

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

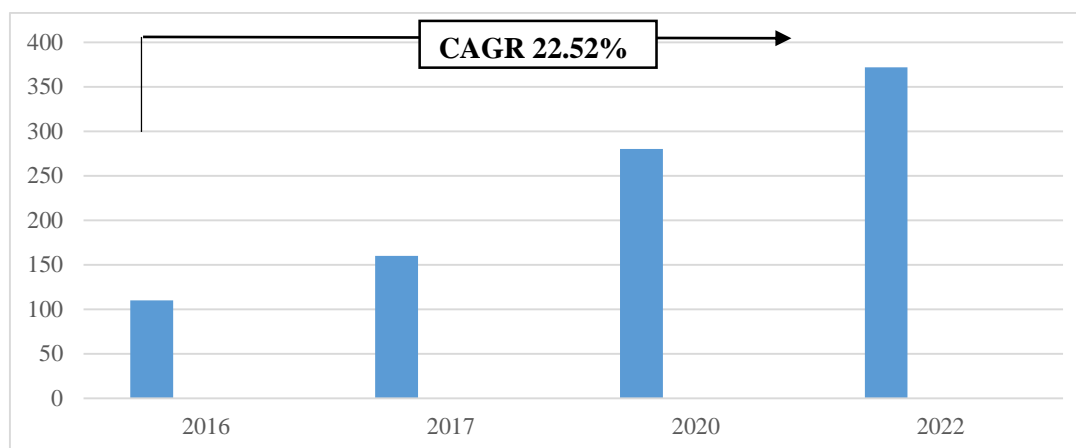
GOAL 16 Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable, and inclusive institutions at all levels

GOAL 17 Strengthen the means of implementation and revitalize the global partnership for sustainable development (Tangcharoensathien & *et al.* 2015).

2.0 Snapshot of Indian Healthcare System

India's healthcare industry has grown significantly in both employment and income. Hospitals, medical devices, clinical trials, outsourcing, telemedicine, medical tourism, health insurance, and medical equipment all fall under the category of healthcare. Due to improved services, coverage, and rising spending by both public and private entities, the Indian healthcare industry is expanding quickly.

The public and private sectors make up the two main components of India's healthcare delivery system. The government, or public healthcare system, concentrates on establishing primary healthcare centres (PHCs) in rural areas while maintaining a small number of secondary and tertiary care facilities in major cities. The bulk of secondary, tertiary, and quaternary care institutions are run by the private sector, with a concentration in metropolises and tier-I and tier-II cities (IBEF, 2022).

Figure 1: Healthcare Sector Growth Trend (US\$ Billion)

Source: IBEF Healthcare Sector Presentation June, 2022

Table 1: State/UT wise Number of Doctors Possessing Recognised Medical Qualifications (Under I.M.C Act) Registered with State Medical Councils/Medical Council of India from the Year 2010 upto 2019 (As on 31st December of Concerned Year)

#	State/UT	Upto 2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total Up to 2019
1	Andhra Pradesh	66109	4370	4498	5737	5415	4973	2654	3075	3756	2337	102924
2	Arunachal Pradesh	334	80	12	29	29	108	145	116	193	97	1169
3	Assam	19147	561	487	611	611	564	661	990	752	181	24083
4	Bihar	37368	969	464	1282	1282	970	575	1253	1332	1153	45795
5	Chhattisgarh	3224	882	595	812	812	542	653	733	774	787	9555
6	Delhi	6748	1006	946	1713	1713	2179	2549	2379	2801	3605	24999
7	Goa	2828	119	136	126	126	150	109	47	193	50	3890
8	Gujarat	47231	1795	2197	2188	2188	2427	2455	2890	3608	2802	69746
9	Haryana	5356	361	754	500	500	1112	1355	1452	1458	1678	14517
10	Himachal Pradesh	913	310	459	276	276	363	437	113	NR	1	3168
11	Jammu & Kashmir	11360	635	471	473	67	495	484	430	805	339	15559
12	Jharkhand	3245	490	355	283	285	314	310	320	402	594	6598
13	Karnataka	87734	3727	4207	4772	833	4251	4434	5002	5301	6306	126567
14	Madhya Pradesh	26669	947	1507	1298	1409	1417	1585	1792	1556	1991	40171
15	Maharashtra	138303	3157	3433	3682	4938	5485	5271	5755	6320	7499	183843
16	MCI	37300	3730	4864	5603	1169	NR	NR	NR	NR	NR	52666
17	Mizoram	NR	NR	0	0	5	15	23	15	16	23	97
18	Nagaland	0	0	0	0	0	20	50	21	25	18	134
19	Odisha	16786	460	380	719	2402	934	840	879	1544	1380	24780
20	Punjab	39291	1128	1083	1234	1270	1418	840	1392	1544	1458	50658
21	Rajasthan	28797	1146	1442	1468	1963	2040	1821	2186	2525	2865	46253
22	Sikkim	608	69	74	73	109	91	138	115	128	9	1414
23	Tamil Nadu	86822	3476	4182	9218	5064	5088	7997	6960	7167	8763	144737
24	Kerala	40007	2008	3451	1482	2500	3352	4567	1695	2814	3809	65685
25	Uttar Pradesh	58168	2081	2247	2253	594	2914	3025	3549	3669	3799	82299
26	Uttarakhand	3394	307	527	169	660	748	743	833	928	659	8968
27	West Bengal	59264	1230	917	1419	953	1586	1766	2337	2544	2038	74054
28	Tripura	NR	NR	227	64	391	236	235	212	NR	NR	1945
29	Telangana	0	0	0	0	0	1	2354	2587	2989	NR	7931
	Total	789706	31314	35048	40641	36395	43793	48076	48728	53600	54238	1234205

Source: National Health Profile – 2021

The Table 1 depicts the Number of Doctors Possessing Recognised Medical Qualification. As per the table it is evident that majority of the doctors registered from Maharashtra state i.e., 1,83,843 Karnataka with 1,44,737 since from the year 2010 to 2019.

In the Table 2 outlined the number of Sub Centres, Primary Health Centres & Community Health Centres functioning in India.

Table 2: State/UT wise Number of Sub Centers, PHCs & CHCs Functioning in India as on 31st March, 2020 S. No. States/UT

#	State/UT	Sub Centres	PHCs	CHCs
	India	157921	30813	5649
1	Andhra Pradesh	7458	1385	198
2	Arunachal Pradesh	363	124	60
3	Assam	4680	1002	192
4	Bihar	10280	2027	64
5	Chhattisgarh	5569	837	174
6	Goa	218	59	6
7	Gujarat	9162	1795	362
8	Haryana	2617	485	131
9	Himachal Pradesh	2104	588	92
10	Jammu & Kashmir	2492	972	77
11	Jharkhand	3848	351	177
12	Karnataka	9435	2534	208
13	Kerala	5410	932	227
14	Madhya Pradesh	10226	1476	330
15	Maharashtra	10649	2675	418
16	Manipur	418	93	17
17	Meghalaya	443	143	28
18	Mizoram	370	65	9
19	Nagaland	415	137	21
20	Odisha	6688	1377	384
21	Punjab	3047	527	155
22	Rajasthan	13530	2477	614
23	Sikkim	153	25	2
24	Tamil Nadu	8713	1884	400
25	Telangana	4841	885	95
26	Tripura	1001	112	22
27	Uttarakhand	1847	295	68
28	Uttar Pradesh	20778	3473	723
29	West Bengal	10357	1369	348
30	A & N Islands	124	27	4
31	Chhattisgarh	0	48	2
32	D & N Haveli	97	13	4
33	Daman & Diu	258	546	23
34	Delhi	238	32	7
35	Lakshadweep	11	4	3
36	Puducherry	81	39	4

Source: National Health Profile – 2021

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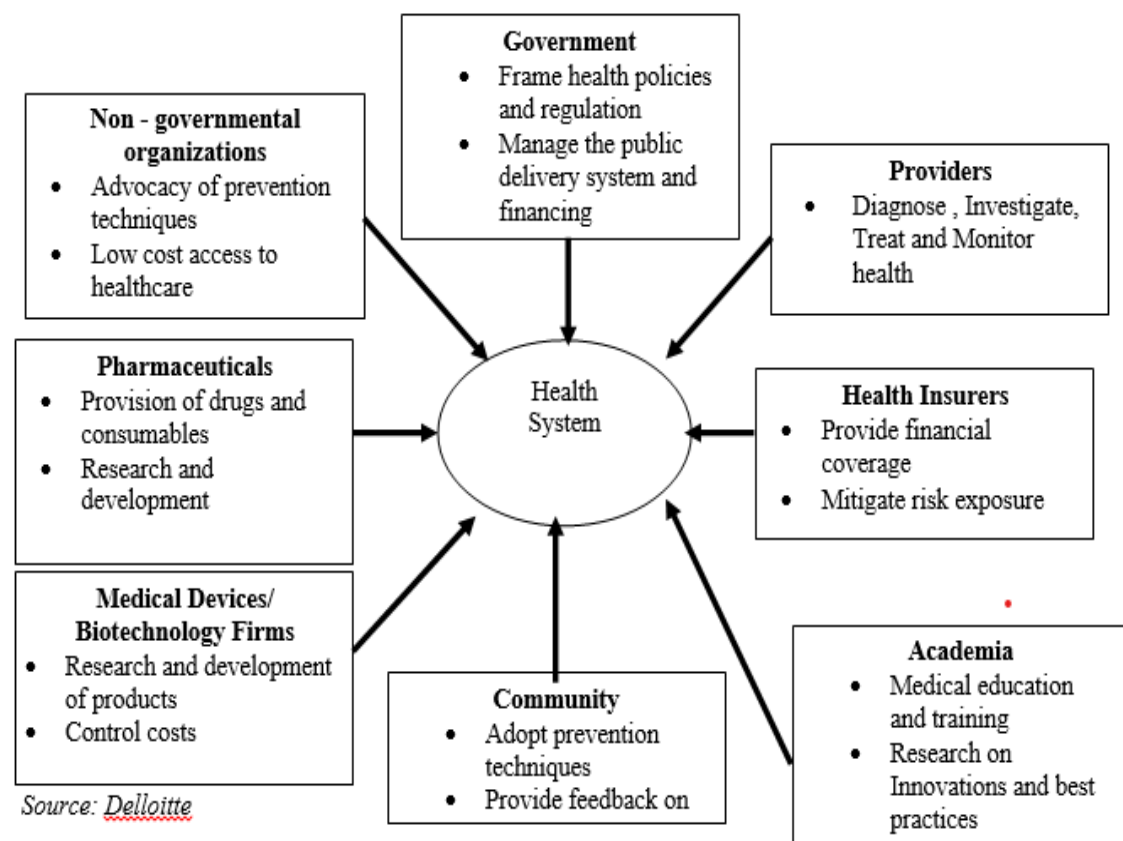
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3.0 Different Stakeholders and their Roles

Recognising the roles that diverse stakeholders play along the care continuum becomes equally vital. The system's many stakeholders are represented by the healthcare ecosystem, along with their roles in terms of inputs and functions.

- A wide range of stakeholders, including the government, insurers, providers (public and commercial), manufacturers of drugs and medical equipment, NGOs, and academic institutions.
- A variety of inputs, such as money, capital, medicines, and equipment; and trained human resources (doctors, nurses, administrators, etc.).
- A number of supporting activities, such as hospital administration, auxiliary services (such as upkeep, security, cleaning, and kitchen), IT systems, and supply chain management.
- The business environment, including legislation, the political climate, real estate, and population demographics

Figure 2: Various Stakeholders and their Functions in the Healthcare System



4.0 Sustainable Development in Healthcare

Since the establishment of the United Nations Conference on the human environment in 1972, sustainable development of healthcare has made great progress at the local, national, regional and international levels. However, the famous Brundtland Commission Report points out the unequal development of environment, economy and society (Xue & *etal.*2021). Today, sustainable development goals and sustainable health care should be funded, but national health care finance is obviously not sufficient to meet these investment needs yet. Consequently, the public and private sustainable financial sector has an important role to play in filling this investment gap. Mobilizing public and private investors to finance sustainable projects on health care system should be important (Sepetis, 2020). Notably, the SDGs contain no mention of primary health care (PHC)¹—one of the principal strategies for reshaping health care, promoting health-enhancing policies across sectors, and developing more equitable and fairer societies (Hone & *etal.*, 2018).

Although the number of SDGs—17 goals and 169 targets—has drawn criticism, each goal and target has connections and reflects the need for multifaceted and multisectoral policy interventions for sustainable development in a nation. In order to address these, measures such as universal health care (UHC), employment, decent jobs, quality education, environmental protection, hunger, food insecurity, and malnutrition must be taken. Each of these concerns is integrated with health considerations and accepted within an equity framework. (Tangcharoensathien, 2015).

5.0 Definition of Sustainable Healthcare

Sustainable healthcare refers to healthcare operations, goods, and services that have better environmental performance without sacrificing the standard of care provided. There are three distinct types of sustainability challenges that need to be considered when discussing their relationship to health and wellness. (Eriksson & Turnsted, 2019).

Figure 3: Sustainable Healthcare

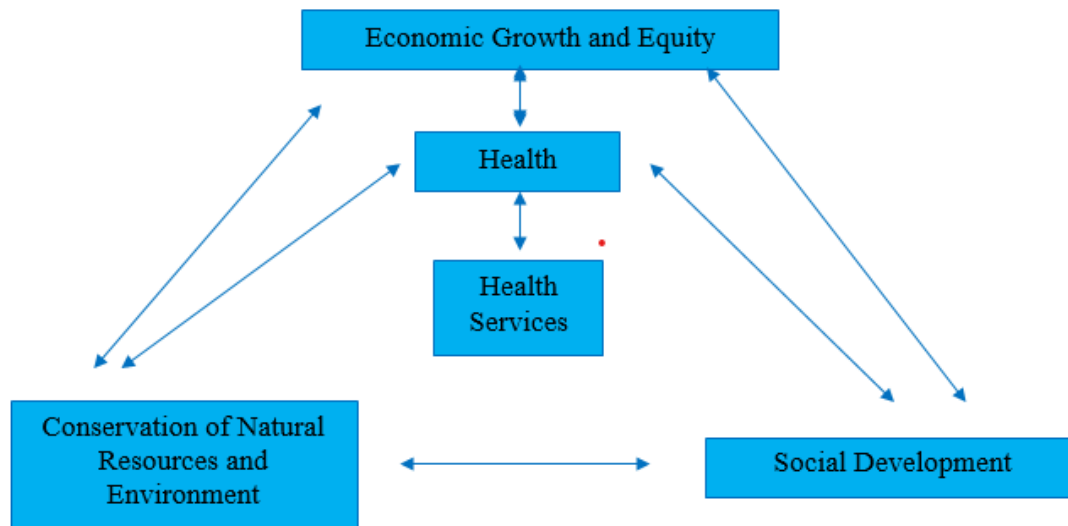


Source: Nordic Whitepaper about Sustainable Healthcare, 2019

Figure 5 illustrates the central role of health services in the nexus that connects health and sustainable development. It also implicitly captures the role that health services trade can play within this nexus (Chanda, 2017).

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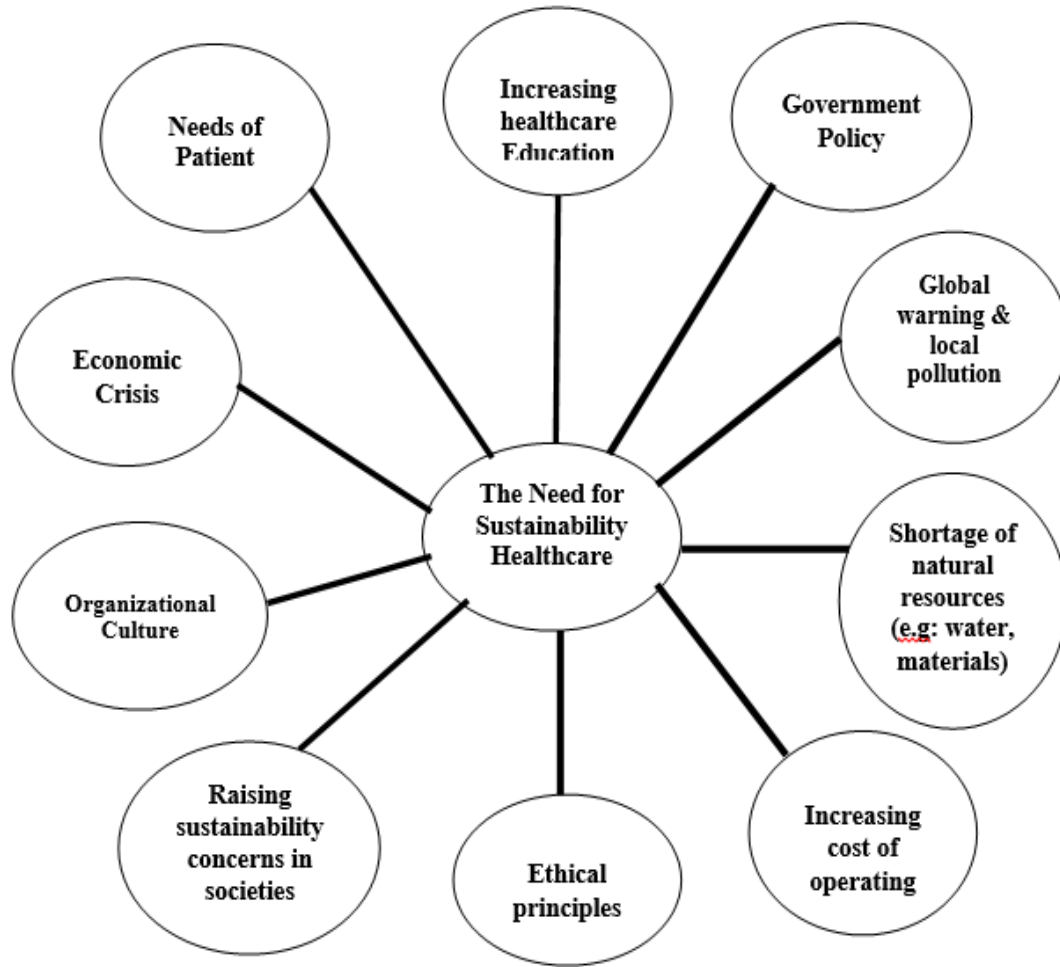
Figure 4: Triad of Health and Sustainable Development

The service's dependence (and effects) on various groups, such as patients and careers, workers, local communities, and persons involved in the supply chain, would be taken into account when analysing the use of social resources. A "Seven Capitals Matrix" can help identify the full spectrum of resources that are being used—or could be used—to produce health improvement for an even more comprehensive assessment of the current system (Mortimer *et al.*, 2018).

Table 3: Seven Capitals of Healthcare Adapted from Sustainable System-wide Commissioning - Guide for Clinical Commissioning Groups

Financial	Budget, incentives and finance, accounting models that enable healthcare delivery
Staff	Expertise, motivation and time
Patients	Commitment, skills, understanding and confidence to look after their health, contribute to treatments and initiate access to services based on agreed thresholds or unforeseen needs
Community	Patients' social support networks that underpin healthy, independent living such as families, friends, charities, facilitated relationships with support services and other patients
Staff Networks	Connections between staff, experts in other fields and patients that enable information sharing and coordination of care
Infrastructure	From buildings and energy use, to equipment, IT systems and local transport systems
Natural	Services provided by nature such as clean air, fertile soil, stable climate, available water, green space. Also, raw materials for consumables eg metals, chemicals, fossil or renewable fuels and biomaterials

Source: Mortimer & *etal*, 2018

Figure 5: The Need for Sustainability Healthcare

Source: Marimuthu & Paulose, 2015

The health system's public health initiatives play an equal role in preserving community health and retaining residents' interest in illness prevention, illnesses, as well as leading healthy, fulfilling lives. Whether brought on by human activity or a natural calamity, any abrupt blip in the smooth provision of health services has the potential to adversely affect the majority of essential services. The SDG 3 targets are listed in the table that follows (Khetrapaul and Bhatia, 2020).

Additionally, new institutions should be founded and intake capacity should be increased as part of the strategies. A stronger focus on expanding current public health spending, enticing individuals to enter the nursing profession, and developing and funding healthcare facilities to accommodate them are among the crucial supporting measures (Karan et al., 2023).

Table 4: Summarized Targets for Sustainable Development Goal 3

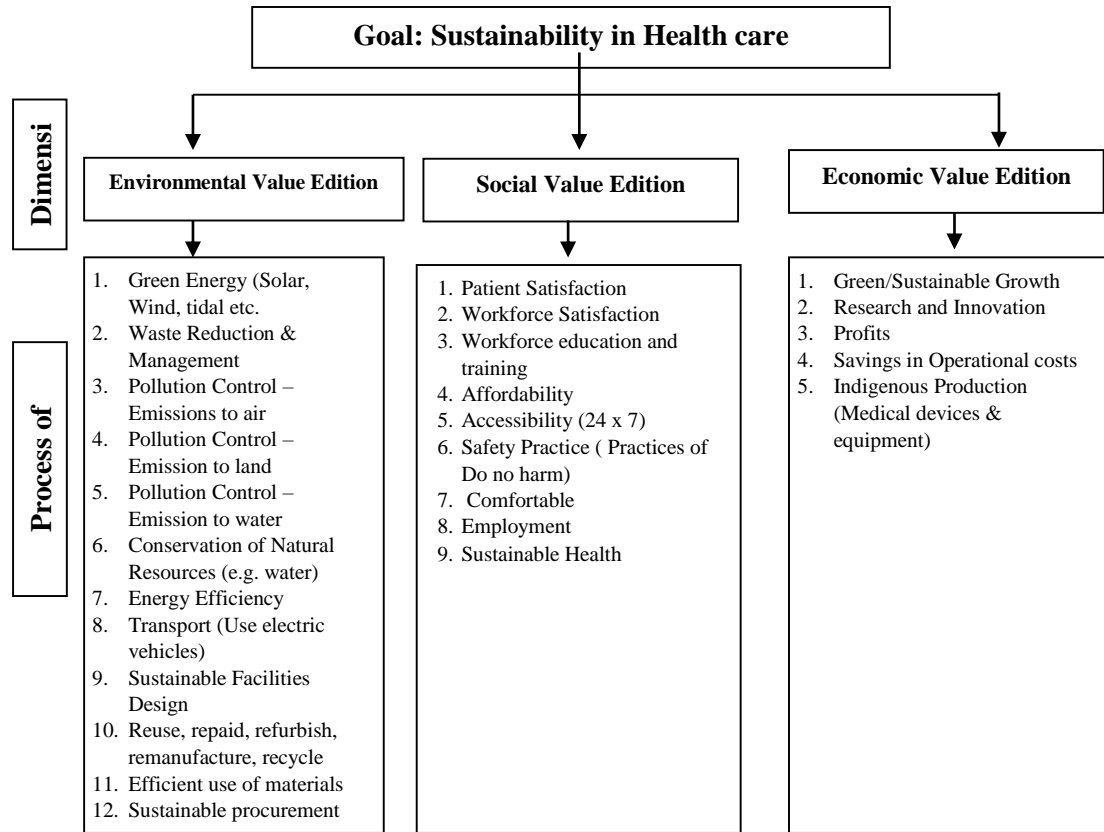
By 2030
<ol style="list-style-type: none"> 1. <u>reduce</u> the global maternal mortality ratio to <70 per 100,000 live births 2. <u>end</u> preventable deaths of <u>newborns</u> and children under five years of age and reduce neonatal mortality to at least as low as 12 per 1000 live births and under-5 mortality to at least as low as 25 per 1000 live births. 3. <u>end</u> the epidemics of AIDS, TB, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases 4. <u>reduce</u> by one-third pre-mature mortality from non-communicable diseases and promote mental health and well-being. 5. <u>strengthen</u> the prevention and treatment of substance abuse. 6. <u>halve</u> the number of global deaths and injuries from road traffic accidents. 7. <u>ensure</u> universal access to sexual and reproductive healthcare services. 8. <u>achieve</u> universal health coverage. 9. <u>substantially</u> reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination. <u>3A</u>. Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control. <u>3B</u>. Support the research and development of vaccines and medicines for the communicable and non-communicable diseases. <u>3C</u>. Substantially increase health financing and the recruitment, development, training and retention of the health workforce. <u>3D</u>. Strengthen the capacity of all countries for early warning, risk reduction and management of national and global health risk

Source: <https://sustainabledevelopment.un.org/SDG>

6.0 Conceptual Model for Sustainability in Healthcare

The model outlined the three dimensions: environmental, social, and economic. This model describes the process of sustainability (Mehra & Sharma), 2021).

The elements identified in the literature from the 30 most cited articles in the period from 2016 to 2021 were grouped into five drivers for developing and managing sustainability in hospitals, as shown in Figure (Oliveira & *etal*, 2022).

Figure 6: Concept Model for Sustainability in Healthcare

Source: Mehra & Sharma, 2021

Fortunately, the majority of nations continue to base healthcare on the ideas of equality and solidarity. Instead of accepting health as a fundamental right based on the idea of social solidarity, the application and penetration of neoliberal concepts into the healthcare sector may lead to these ideals being directed towards making money for corporate interests. Healthcare services in almost every country face a number of obstacles in the future, notwithstanding the highly unexpected economic and political components of global development:

1. A change in the demographic profile.
2. Insufficient resources; rising prices.
3. Medical genderization.
4. A lack of skilled workers.
5. Employees' quality of life as well as their ability to live within acceptable social boundaries.
6. Threats to nonlinear healthcare.
7. Amplification of administrative procedures.
8. Cybersecurity is number 8 (Pekar, 2019).

Figure 7: Drivers for Developing and Managing Sustainability in Hospitals to Achieve the SDG Goals

Circular Economy	Sustainable Buildings	Knowledge Management & Organizational Culture	Organizational Management	Technological Innovation
<ul style="list-style-type: none"> • Shared Decisions • Green purchasing/procuring • Supplier Selection • Revenue Logistics • Partnership with recycling companies • Reuse of materials and instruments. • Hospital Waste Management 	<ul style="list-style-type: none"> • Environmental sustainability requirement • Economic viability • Social sustainability requirements 	<ul style="list-style-type: none"> • Intellectual Capital • Active Participation of HRs. • Training awareness • Engaging employees • Sustainable Ideas • Creating work teams • Openness to Change • Listening to stakeholders • Health care course curricula • Corporate social responsibility • Mission, Vision & policies 	<ul style="list-style-type: none"> • Public Private Partnership • Corporate Governance • Objectives, targets & KPIs • Environmental Management system • Health Technology Assessment • Lean Six Sigma 	<ul style="list-style-type: none"> • Technological innovation for economic sustainability • Technological innovation for environmental sustainability • Technological innovation for social sustainability

Hospitals contributing to sustainable development

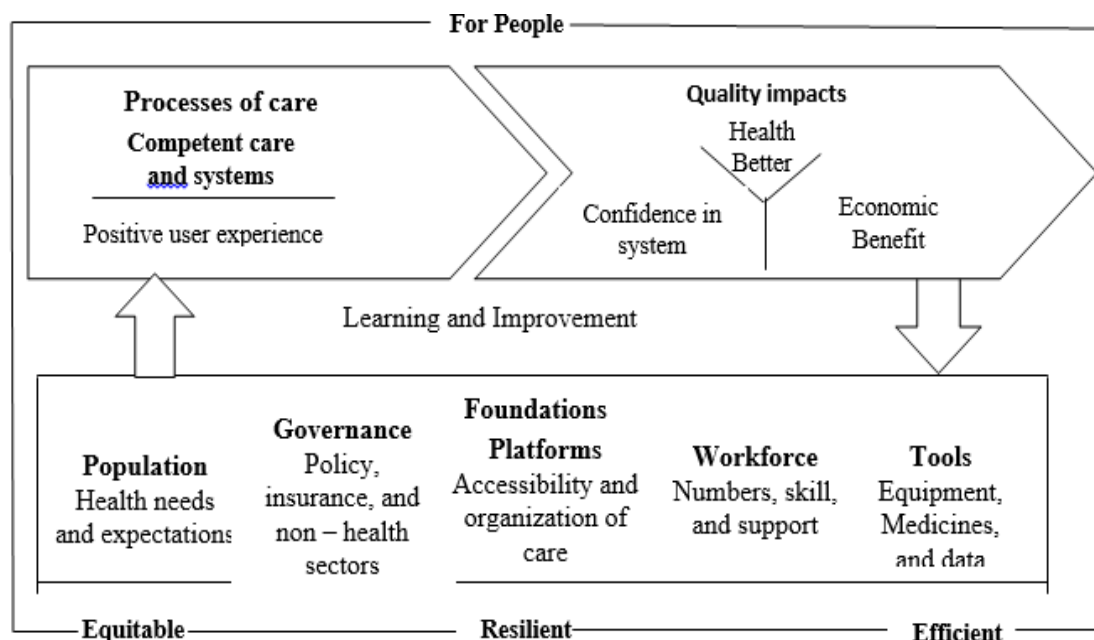


7.0 The Meaning of Quality in Health

Healthcare quality is the most crucial idea in health policy. Most often, this idea is a fundamental rule at both the national and international levels. Since access to decent

healthcare is a fundamental right, the government is working to solve numerous problems at the national level. Foundations, care procedures, and quality impacts make up a new conceptual framework for high-quality healthcare systems (Figure 8). This framework is based on our definition of high-quality health systems and draws inspiration from earlier frameworks in the fields of health systems and quality improvement, such as Donabedian's framework, the WHO's building blocks and maternal quality of care frameworks, Judith Bruce's family planning quality framework, Getting Health Reform Right, the Juran trilogy, and the Deming quality cycle (Kruk et al., 2018). Health services are that portion of the health system that concentrates specifically on delivering medical treatment to society. A complex web of structural connections between institutions and populations that have an effect on health are included in a health system (Lambrini Kourkouta, 2021).

Figure 8: High-Quality Health System Framework



Source: The Lancet Global Health Commission, November, 2018

8.0 Six Pillars of High-Quality Care

The US National Academy of Medicine created one of the most well-known classifications of medical care quality. It outlines six pillars of high-quality care: equity, timeliness, efficiency, patient-centeredness, and safety. Despite this apparent unity, various topics are viewed differently in practise. Few quality assessment programmes include timeliness and patient centeredness, and very few programmes address the efficacy and equality of care. Many programmes exclusively concentrate on effectiveness and safety.

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Table 5: Six Pillars of High-Quality Care

Pillar # 1	Safety - High-quality care avoids preventable harm to patients.
Pillar # 2	Effectiveness - High-quality care is based on scientific knowledge and given to all who could benefit / not given to who is not likely to benefit (i.e. avoiding underuse and misuse, respectively).
Pillar # 3	Patient-centeredness - High-quality care is respectful of and responsive to individual patient preferences, needs, and values and ensures that patient values guide all clinical decisions.
Pillar # 4	Timeliness - High-quality care minimizes wait times and harmful delays for both those who receive and those who provide care.
Pillar # 5	Efficiency - High-quality care avoids waste of any kind (e.g. equipment, supplies, ideas, energy).
Pillar # 6	Equity – High-quality care does not discriminate care recipients based on their personal characteristics (e.g. gender, ethnicity, geographic location, socioeconomic status).

Source: Annegret F. Hannawaa, 2022

8.0 Conclusion

Out of 13 goals make up Sustainable Development Goal 3 is intended to address important health issues like reproductive, maternal, and child health, communicable diseases, non-communicable diseases (NCDs), and environmental diseases; universal health coverage; and access to medicines and vaccines that are high-quality, safe, effective, and affordable for everyone. Additionally, issues related to everyone's health and wellbeing are addressed, both directly and indirectly.

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