eAnalysis of the targets and progress toward meeting the 2030 sustainable development goal - 6 on clean water and sanitation: Evidence from India

A B S T R A C T:

Sustainable Development Goals (SDGs) success has been a major challenge for governments of every nation over the past few years. In particular, this research focuses on ~~the~~ progress being made toward achieving SDG 6, which aims to make sure that every person has access to clean drinking water and sanitation. Access to safe drinking water and sanitation is perhaps the most squeezing challenge in the nation and is being tended to be ~~by the~~ public authority~~y~~ies on a fundamentally important premise. The core purpose of this paper was to evaluate the progress made to achieve the SDG 6 objectives in India and Indian states and UTs. Using SDG Index reports for 2018, 2019 and 2020, we assess the progress made in terms of SDG 6. The results showed that most states and UTs are in the front runner category and progress is being made. The paper raises various policy issues, including drafting water and sanitation regulations that benefit the poor and marginalized sectors of society, as well as states and areas that lack access. The importance of formal education, especially for rural women, cannot be overstated, which impacts their decisions about the type of bathroom to use and what water treatment alternatives are most applicable to their particular needs. Strong collaboration between non-state organizations and the government as well as involvement of local institutions such as PRIs in introducing reforms in the water and sanitation sectors are the ways to achieve targets under SDG 6.

Keywords: sustainable development goals, progress, clean drinking water, sanitation, SDG index.

1. Background

Globally, humanity faces the challenge of how to increase prosperity for all using the resources available on earth (Alcamo et al., 2020). Through the Millennium Development Goals of 2000 to 2015, the world has made progress toward addressing challenges such as poverty, hunger, diseases, illicit education, gender inequality, and environmental degradation. By simplifying these priorities into a set of eight goals and establishing metrics that ~~measure~~ authorities progress, the MDGs facilitate global awareness, political accountability, better metrics, public pressure, and public response (Sachs, 2012).In the same line, the Sustainable Development Goals (SDGs) were the subject of an international summit at the United Nations consisting of 192 nations on 25th September 2015 (Xu et al., 2020).In response to the

challenge of prosperity, the United Nations General Assembly formulated a development agenda composed of 17 Sustainable Development Goals (SDGs) covering the social, economic, and environmental dimensions of sustainable development, aiming to be achieved by 2030(Su et al., 2022). They set out an outline for sustainable progress for every country based on economic growth, social inclusion, and environmental protection. After establishing the 17 SDGs, the schedule moves on to implementing them and achieving them. The 42 targets across the goals focus on means of implementation, and Goal 17, the final goal, is entirely about means of implementation (Stafford-Smith et al., 2017). The SDGs cover all key developmental sectors, including education, health, sanitation, employment, infrastructure, energy, and the environment, and establish time-bound targets to help achieve them (NITI Aayog, 2021).

Among the Sustainable Development Goals (SDGs) for 2015–2030 based on the UN's Millennium Development Goals (MDGs), goal dedicated to clean water and sanitation has recently been endorsed by the United Nations General Assembly. SDG 6 pledges to ensure people's access to clean water and sanitation for all, with a focus on ensuring availability and sustainable management of water and sanitation (Chitonge et al., 2020). It is important to systematically identify and prioritize the gaps and weaknesses in the SDG 6 indicator framework to address them effectively (Guppy et al., 2019). It is crucial that communities have safe, clean water in order to maintain their health and well-being. In communities where safe, clean water has been provided, diseases such as cholera, polio, and typhoid have been eliminated (Jain, 2011).Among other things, humans have understood the importance of clean drinking water since ancient times (Kroehler, 2014).Clean water and sanitation (SDG 6) are particularly gaining importance because of the growing awareness about hygiene and health (Morton et al., 2017).There are an estimated 673 million people who still defecate in the open around the world(Odagiri et al., 2020) . It requires a series of joint efforts, investments, and public contributions to universalize water and sanitation services in rural and informal areas, specifically in the more vulnerable areas as these tend to have a higher impact on society, as well as added value that can correct the market failure and prevent the poor from continuing to spend more and receive worse quality services (Narzetti & Marques, 2021).

In view of the above facts the aim of the paper is to answer the research questions as what is the progress made in terms of providing clean drinking water and sanitation in India?

2. Major theme and targets in SDG-6

India has been committed to providing water and sanitation to its citizens since independence in 1947. Despite huge progress in gaining access to clean water and sanitation, billions of people -- primarily in rural areas -- still lack these basic necessities. Globally, over 673 million humans practice open defecation, and one in three do not have access to safe drinking water. Two out of 5 humans do not have a basic hand-washing facility with soap and water (UNO, 2022). The major themes of SDG 6 was to ensure access to water and sanitation for all. Table 1 describes the major theme and targets in terms of SDG-6 to be achieved by the countries by 2030.

Table 1 Theme and major targets of SDG - 6

Goal 6: Ensure admittance **to water and sanitation for all**		
6.1	By 2030, accomplish all inclusive and impartial access to protected and reasonable drinking water for all	Proportion of population using safely managed drinking water services.
6.2	By 2030, everyone should have access to satisfactory and equitable sanitation and cleanliness, and open garbage should be ended, paying special attention to the needs of women and girls, as well as disadvantaged individuals.	Extent of populace utilizing securely oversaw sterilization administrations, including a hand-washing office with cleanser and water.
6.3	By 2030, further develop water quality by lessening contamination, disposing of unloading and limiting arrival of dangerous synthetic compounds and materials, splitting the extent of untreated wastewater and considerably expanding reusing and safe reuse worldwide.	Extent of wastewater securely treated; Proportion of waterways with great surrounding water quality.
6.4	By 2030, significantly increment water-use effectiveness across all areas and guarantee practical withdrawals and supply of freshwater to address water shortage and considerably lessen the quantity of individuals experiencing water shortage.	Change in water-use efficiency for a really long time; Level of water pressure: freshwater withdrawal as a degree of open freshwater resources.
6.5	By 2030, carry out coordinated water assets the executives at all levels, including through transboundary participation as suitable.	Level of coordinated water assets the board execution (0-100); Proportion of transboundary bowl region with a functional game plan for water participation.
6.6	By 2020, safeguard and reestablish water-related biological systems, including mountains, timberlands, wetlands, streams, springs and lakes.	Change in the degree of water-related biological systems over the long haul.
6.A	By 2030, broaden overall cooperation and breaking point building moving to rural countries in water-and sanitization related activities and tasks, including water gathering, desalination, water adequacy, wastewater treatment, reusing and reuse propels.	Measure of water-and sterilization related official improvement help that is important for an administration composed spending plan.
6.B	Support and reinforce the cooperation of neighborhood networks in further developing water	Extent of nearby regulatory units with laid out and functional arrangements and systems for

and sterilization the executives.	cooperation of neighborhood networks in water and sterilization the board.

Source: (UNO, 2022) assessed from webpage on June 9th, 2022

3. Significance of clean drinking water and sanitation

A lack of sanitation can have many negative effects, including teen girls skipping school when they reach puberty. For example, in 2018 and 2019, between 15% and 25% of West African girls missed school due to lack of sanitation. It is more likely for women and girls to be responsible for collecting water for their families, making it more difficult for girls to attend school during school hours (WHO, 2021). More than 1.7 billion cases of diarrhea occur each year, and 446,000 children younger than 5 years die from diarrhea, mostly in low- and middle-income countries. It accounts for 9% of the 5.8 million deaths among children under 5 years. Cholera accounts for 3 million cases and 95,000 deaths, while typhoid fever accounts for 11 million cases and 129,000 deaths (WHO, 2021). A variety of diarrheal diseases can harm health and cause death in children under the age of one year. Most severe conditions are found in sub-Saharan Africa, where 42% of the population lacks access to improved water and 64% lack improved sanitation, with diarrheal diseases killing more people than in any other region (Montgomery & Elimelech, 2007). Water and sanitation services have been found in many studies as a more cost-effective and sustainable alternative to medical treatment in alleviating the impact of water-, sanitation-, and hygiene-related diseases (Montgomery & Elimelech, 2007).To guarantee universal access to education for all children, the underlying factors of water and sanitation provision in the school environment, and the impact on health and educational outcomes, must be systematically investigated and effectively addressed (Jasper et al., 2012).

4. Objectives

- To assess the progress of clean drinking water in the historical context in India
- To undertake an assessment of the progress of sanitation situation in India
- To discuss the key learning and suggest policy implications emerging from the study

5. Methods and Material

The primary point of this paper was to evaluate the headway made to accomplish the objectives with regards to SDG 6 in India and Indian states and UTs. We use SDG Index reports to assess the advancement. The detailed progress on the SDGs is provided in the SDG Index reports, which were ~~was~~ first published in 2018. A position is given for every country-well defined for its encouraging in three elements of social, economic, and environmental aspects of a country. All things considered the SDG India Index report shows the advancement of 28 States and 8 UTs in three aspects towards SDG accomplishments. In India, up ~~until~~ to this point, three versions of the SDG record report have been set free from the principal gauge report delivered in the year 2018 to the most recent third report delivered in the year 2020. These observing reports show the nations progress towards the accomplishment of every one of the 17 SDGs. A significant highlight note is that the targets well defined for SDG got successively expanded from every year from base 39 to 54 and as of now more extensive number of focuses around 70 has been recognized. The inferences were drawn on the basis of progress made in terms of rank achieved in SDG 6.

6. Results and Discussion

Admittance to safe drinking water and sanitation is perhaps the most squeezing challenge in the nation and is being tended to by ~~the~~ public authorities~~y~~ on fundamentally important premise. The Government of India is focused on giving access to safe drinking water and sanitation to sterilization ~~to~~ in all homes by 2022. Public drives like the Swachh Bharat Mission, National Rural Drinking Water Program and National Mission for Clean Ganga – Namami Gange have given the essential push to India's responsibility on giving widespread admittance to clean water and sanitation to all. Because of the Swachh Bharat Mission, as of November 2018, 96 percent of the designated family latrines have been developed and 3.9 lakh towns across India have been covered. Sanitation in India is difficult where the public authorities~~y~~ ~~has~~ have a mammoth undertaking, of not just building latrines for change so that individuals comprehend the dangers of open pool and start to utilize these latrines.

To gauge India's performance towards clean water and sanitation in 2018, five public level pointers have been recognized, which catch three out of the eight SDG 6 focuses for 2030 framed under this Goal. In 2019 and 2020, seven national-level indicators have been identified, to measure India's performance towards the Goal of Clean Water and Sanitation, which capture four out of the eight SDG targets for 2030 outlined under this Goal. These indicators have been chosen in light of accessibility of information at the sub-national level and to ensure comparability across States and UTs. The indicators are shown in Table 2.

Table 2 Goal 6: Ensure access to water and sanitation for all

SDG 6 global targets		Indicators selected for SDG 6 India Index in 2018	National Target Value For 2030	Indicators selected for SDG 6India Index, 2019 7 2020	National Target Value For 2030
6.1	By 2030, accomplish all inclusive and evenhanded admittance to protected and reasonable drinking water for all.	1) Proportion of populace having protected and satisfactory drinking water in rural areas.	100	1) Percentage of households having improved source of drinking water	100
6.2	Get rid all sorts of viciousness against women and girls, including dealing, sexual abuse, and various other types of double-dealing in the general population and within confidential circles.	2) Percentage of households with individual toilets in rural areas.	100	2) Percentage of rural households with individual household toilets	100
		3) Percentage of open defecation free districts.	100	3) Percentage of urban households with individual household toilets	100
		4) The installed sewage treatment capacity as a percentage of sewage generated in urban areas.	68.79	4) Percentage of districts verified to be ODF	100
				5) Proportion of schools with separate toilet facility for girls	100
6.3	By 2030, further develop water quality by diminishing contamination, taking out unloading and limiting arrival of dangerous synthetic substances and materials, splitting the extent of untreated wastewater and significantly expanding reusing and safe reuse internationally			6) Percentage of industries (17 classifications of profoundly contaminating ventures/terribly dirtying industry/red classification of enterprises) following waste water treatment according to CPCB standards.	100
6.4	By 2030, considerably increment water-use effectiveness across all areas and guarantee manageable withdrawals and supply of freshwater to address water shortage and significantly diminish the quantity of individuals experiencing water shortage.	5) Percentage annual ground water withdrawal against net annual availability	70		
6.6	By 2020, protect and restore water-related environments, including mountains, woods, wetlands, streams, springs and lakes.			7) Percentage of blocks over-exploited	0

Source: (NITI Aayog, 2018)**,** (NITI Aayog, 2021)

Globally, there has been an increase in access to safe drinking water and sanitation (Fuller et al., 2016).The latest data on access to clean water, adequate sanitation revealed that between 2015 and 2020, globally 107 million people gained access to safe drinking water and 115 million people gained access to safe toilets at home(WHO, 2021).Despite this, 2 billion people lack access to safe drinking

water at home, and 3.6 billion people, or half of the world's population, do not have access to safe home sanitation. Of these, 1.9 billion live with basic sanitation, and 494 million practice open defecation (WHO, 2021).

India stands firm on a critical footing among creating economies with a complex interconnected trap of quickly developing populace, combined with biophysical stress, social hardship and financial imbalance connected with usage, accessibility and admittance to water assets and sanitation facilities (Roy & Pramanick, 2019). Clean sources of drinking water include water that is supplied directly to homes, yards, and plots through pipes, community water points or standpipes, tube wells, hand-dug wells, springs, and rainwater harvesting systems. However, it is considered safe and affordable if it is delivered directly to homes, with an acceptable level of quality (Kanyagui & Viswanathan, 2022). For the SDGs to be achieved and to guide policy development and implementation, it is vital to monitor progress by evaluating the past and current conditions at national and local level. Nevertheless, the real challenge is that there is no systematic way to assess progress towards achieving the SDGs. (Xu et al., 2020). A rise in per capita GDP leads to an improvement in sanitation-related indicators, which, in turn, contributes to a decrease in water- and sanitation-related illnesses, particularly in children and the elderly. Prioritizing the appropriation of water resources and assessment of sanitation, policy, and management solutions are therefore necessary (Roy & Pramanick, 2019). The major thrust of the SDG Index was on the following parameters:

a) **Safe and Adequate Drinking Water in rural areas**: Access to clean drinking water and sanitation is an important indicator of socio-economic development of the country. The adequate provision of safe drinking water and sanitation is crucial to achieve sustainable development and can contribute greatly towards the eradication of malnutrition and hunger (Bertheau, 2020). As per the SDG report 2018, 71.8% of the population living in rural areas ~~has~~ have access to safe drinking water, which has now increased to 97.44% in 2020. ~~The~~ ~~r~~Rural sanitation coverage in India had been very dismal during the 1950's. In 2018, 82.72% of rural population had access to sanitation facility which has now increased to 100% in 2020 (NITI Aayog, 2018).
b) **Open Defecation Free Districts:** About 32% of districts ~~has~~ have been verified to be open defecation free by 2018 and 100% coverage ~~was~~ has been achieved in this regard (NITI Aayog, 2021).
c) **Installed Sewage Treatment Capacity**: Achieved up to 2018, 37.58% and have to be achieved 68.79% by 2030.
d) **Annual Ground Water Withdrawal:** About 62% of the net available groundwater in India is withdrawn. The national upper limit is 70 percent so that ~~the~~ ground water is replenished at a

normal rate. Haryana, Punjab, Rajasthan and Delhi need to improve this ratio which has far surpassed the maximum limit.

6.1 Government of India Initiatives

The national indicators for this Goal cover various dimensions which include providing adequate safe and clean drinking and providing access to sustainable sanitation practices for all. India has been actively striving to provide access to clean drinking water and sanitation to the people by initiating various schemes from time to time. The Department of Drinking Water and Sanitation is the nodal Department for generally strategy, arranging, subsidizing and coordination of two lead projects of Government of India specifically the Swachh Bharat Mission(Grameen) [SBM(G)] for rural sanitation and the Jal Jeevan Mission [JJM] (which includes now subsumed the erstwhile National Rural Drinking Water Programme [NRDWP]for rural drinking water supply.

Water supply has traditionally been the focus of Indian public policy, with poor and unsustainable sanitation services. The latter was heavily reliant on government subsidies for both capital and operation and maintenance (O&M) costs. Across the country, poor sanitation services were characterized by limited managerial and financial autonomy, limited accountability, poor cost recovery, and limited capacity.Various programmes and policies in the sanitation sector were initiated by the governments from time to time:

a) **Swachh Bharat Mission**:The Swachh Bharat Mission (SBM), which was comprised of two components: SBM-Grameen (SBM-G) and SBM-Urban (SBM-U), brought about significant changes in India's sanitation sector. The essential objectives of the SBM are the abrogation of open poop, the cancelation of manual searching, present day and logical civil strong waste administration, conduct change on solid disinfection rehearses, mindfulness age about sterilization and its connect to general wellbeing, limit working of nearby states, and the making of an empowering climate for public area support in capital consumption and O&M use. The Mission permits state legislatures to embrace a state-explicit execution strategy, including the utilization of assets and components.

b) **Swachh Bharat Mission (Grameen) [SBM (G)]** was launched on October 2, 2014, to accelerate efforts to achieve Open Defecation Free (ODF) status in rural areas of the country by October 2, 2019, and to focus on safe sanitation. By 2019-20, more than 10 crore toilets would have been built in rural areas across the country under the programme. As a result, all 36 states and territories declared themselves Open Defecation Free (ODF) by October 2nd, 2019. After

achieving ODF status, the Government of India approved Phase-II of the SBM (G) on February 19, 2020, to be implemented between 2020-21 and 2024-25, with a focus on creating ODF Plus villages that include ODF sustainability and Solid and Liquid Waste Management (SLWM). The programme also aims to reach newly established households and ensure that no one is denied access to toilet facilities. At the launch of SBM(G) on 2nd October, 2014, ~~the~~ sanitation coverage was 38.70%. It now stands at 100%.

c) During 2018-2019 spending plan, the Central Government declared a plan in the sterilization area, called Galvanizing Organic Bio-Agro Resources Dhan (GOBAR-DHAN), with a mean to oversee and change over dairy cattle fertilizer and strong waste in ranches to compost biogas and bio-CNG. This plan would enhance the target of SBM-G for making clean towns and is a vital part of ODF in addition to (open deserting +) methodology of SBM-G.

Water is a state subject, according to the Indian Constitution, and the Central Government's role is limited. The Constitution also calls for power to be devolved from states to local bodies like Gram Panchayats and Urban Local Bodies. In the water and sanitation sectors, such devolution of power from the state to local bodies remains deficient. However, the Central Government has enacted several laws and developed policies and programmes at the national level, which it has been putting into action in collaboration with the states. Various programmes and policies for providing the clean drinking water were initiated by the governments from time to time:

a) **The National Water Policy (NWP) (2012)**, which is currently being revised, the National Water Mission (NWM) of India (2008), the Draft Water Framework Law of India (2016), the Model Ground Water Bill (2016), the Atal Bhujal Scheme (2019), and the **Har Ghar Jal Programme** are all important policies and programmes in the water sector.

b) **Accelerated Rural Water Supply (2009-2012),** which provided rural areas with adequate water for drinking, cooking, and other domestic needs on a sustainable basis.

c) **National Rural Drinking Water Programme (NRDWP) (2013)**, which aimed to provide access to 55 liters of water per capita to 50% of the rural population by 2017, and had a combined approach for water supply and sanitation.

d) **Jal Jeevan Mission JJM (Rural):** The Prime Minister of India launched the **Jal Jeevan Mission JJM (Rural)** in August 2019, calling for a Jan Andolan (people's movement) to improve people's participation in water management, with the JJM aiming to provide safe water through functional tap connections to every rural household by 2024. **JJM (Urban)** was announced in 2021 to provide

functional tap water connections to 2.86 crore (28.6 million) urban homes in 4,378 urban bodies. The programme specifically aims to improve people's lives and reduce the burden on women, particularly girls, by providing safe water within household premises and ensuring that every woman and her household receives safe and adequate drinking water on a long-term basis.

Table 3 Performance of states and UTs in index score for SDG 6 and overall SDGs index score in 2018, 2019 & 2020

S.No	State/UT	SDG 6 Index score	Overall SDGs index score	SDG 6 Index score	Overall SDGs index score	SDG 6 Index score	Overall SDGs index score
		2018-19		2019-20		2020-21	
1	AndhraPradesh	59	72	96	67	92	72
2	ArunachalPradesh	64	60	88	53	67	60
3	Assam	42	57	78	55	64	57
4	Bihar	31	52	81	50	91	52
5	Chhattisgarh	98	61	92	56	89	61
6	Goa	65	72	77	65	100	72
7	Gujarat	100	69	92	64	93	69
8	Haryana	80	67	81	57	80	67
9	HimachalPradesh	95	74	82	69	85	74
10	Jammu&Kashmir	52	66	85	59	88	66
11	Jharkhand	51	56	78	53	83	56
12	Karnataka	62	72	88	66	85	72
13	Kerala	62	75	77	70	89	75
14	Madhya Pradesh	63	62	92	58	88	62
15	Maharashtra	81	70	83	64	90	70
16	Manipur	44	64	87	60	87	64
17	Meghalaya	40	60	70	54	75	60
18	Mizoram	67	68	81	56	85	68
19	Nagaland	58	62	75	57	87	61
20	Odisha	46	61	85	58	86	61
21	Punjab	60	68	74	62	66	68
22	Rajasthan	43	60	76	57	54	60
23	Sikkim	78	71	79	65	89	71
24	TamilNadu	66	74	90	67	87	74
25	Telangana	55	69	84	67	96	69
26	Tripura	38	65	69	58	82	65
27	UttarPradesh	55	60	94	55	83	60
28	Uttarakhand	78	72	90	64	85	72
29	WestBengal	54	62	83	60	81	62
30	Andaman&NicobarIslands	71	62	85	61	87	67
31	Chandigarh	100	79	100	70	99	79
32	Dadra&NagarHaveli	100	62	91	63	95	62
33	DamanandDiu	99	62	96	61	95	62
34	Delhi	62	68	61	61	61	68
35	Lakshadweep	100	68	69	63	100	68
36	Puducherry	45	68	86	66	91	68
	India	63	57	88	60	83	**66**
	Target	100	100	100	100	100	100

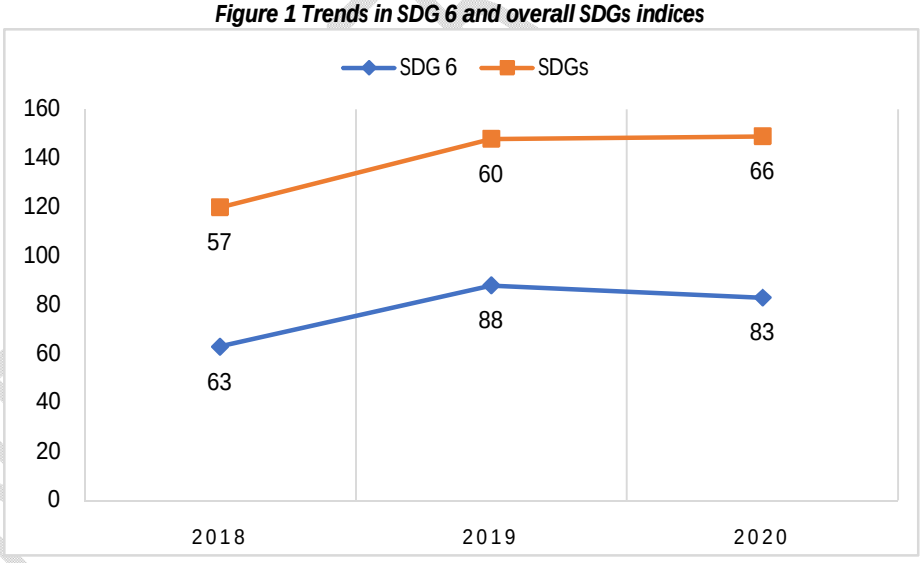
Sources:(NITI Aayog, 2021); --- represent data not available

Achiever (100) Front Runner (65-99) Performer (50-64) Aspirant (0-49)

6.1 Progress in SDG 6 in India

In 2018, the SDG 6 Index Score based on five public level indicators caught three out of the eight SDG focuses for 2030. The Index Score for Clean Water and Sanitation varied between 31 and 100 for states and 45 and 100 for UTs. Among the States, Gujarat has accomplished a full score of 100. A similar score is shared by Chandigarh, Dadra and Nagar Haveli, and Lakshadeep (NITI Aayog, 2018). To measure India's progress towards Goal 6, the 2019 SDG Index Score identifies seven national-level indicators ranging from 69 to 96 for states and 61 to 100 for UTs. Andhra Pradesh and Chandigarh were remaining the top-performing states and union territories, respectively. Among the States and UTs (except Delhi), all scored higher than or equal to 65, putting them in the category of Front Runners. Chandigarh, with a score of 100, was in the category of Achiever. SDG Index Scores for Goal 6 in 2020 range from 54 to 100 for States and 61 to 100 for UTs using the same methodology as in 2019. The top performers among States and UTs were Goa and Lakshadweep, with 100 scores. Twenty-five States and six UTs grabbed a position in the category of Front Runners. There were no states or UTs behind in the Aspirants category, however, two states and one UT were in the Performers category (NITI Aayog, 2021).

Figure 1 Trends in SDG 6 and overall SDGs indices



The SDG 6 index scores which was 63 in 2018, increased to 88 and in 2020 it was 83, reflecting a continuous increase figure 1. The overall SDGs index is also following the same pattern.

6.2 Conclusion and policy implications

This paper raises numerous policy issues which are well worth considering for accomplishing smooth water and sanitation (the SDG6) objectives in India. There may be a need for formulating water and sanitation regulations that focus on the poor and the marginalized sections of the society and on deprived areas and states. One of the ways to accomplish this is through providing support for techno-institutional support systems, through which terrible communities will be able to receive 24/7 access to potable water and appropriate sanitation facilities at very affordable costs.

The importance of formal education, especially for women in rural areas, cannot be underestimated anymore. Despite the fact that advanced water and sanitation infrastructure facilities, like piped water closets and private latrines, greatly reduce the occurrence of water-borne illness. The education of women and girls increasingly impacts the choices they make about what type of bathroom to use and what water treatment alternatives are most applicable to their particular needs. Through strong collaboration between non-state organizations and the government in rural communities within the country, the SDG6 goals can be achieved through effective planning and delivery of reforms, thereby reducing the harmful effects of the lack of potable water and adequate sanitation.

Since sanitation isn't developing at the same pace as the water sector in India, the government must employ progressive economic policies that encourage the construction of family lavatories and community-based day-to-day sewerage remedy systems. Low-income households who build household toilets may be offered educational incentives as scholarships. It will be crucial in the long run for effective participation of local institutions (PRIs) to carry out reforms in the water and sanitation sectors to have adequate budgetary allocations every day.

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