

Emerging Issues and Challenges of Sustainable Development: A National Level Prospective

Dr. Ram Gopal

Department of Economics, University of Lucknow, Lucknow, Uttar Pradesh, India

ABSTRACT

This paper analyses the emerging issues and challenges of sustainable development in India by using secondary data. The growth of the population is very high which poses serious challenges for economic growth and environment sustainability. The use of modern technology, good communication facilities and creating new-innovations affects the environment and lifestyle of the people. On the other hand, increasing production and consumption of goods puts a strain on the environment causing pollution and emissions of carbon dioxide in the Earth's atmosphere. The issues of sustainable development is influenced by several factors like utilization of the available resources, urbanization, industrialization, climatic variability, and poor technology. Sustainable development mainly focuses to raise productivity, income, improve health, economic prosperity, and protect environment degradation. It also meets the needs of the present without compromising the ability of future generations to meet their own needs. The government has initiated several programmes and policies to increase sustainability. But, the programmes and policies have failed to achieve their goals. Climate change impacts human life immensely. For instance, air pollution directly harms human health and affects environment biodiversity.

How to cite this paper: Dr. Ram Gopal "Emerging Issues and Challenges of Sustainable Development: A National Level Prospective" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-6 | Issue-7, December 2022, pp.461-469, URL: www.ijtsrd.com/papers/ijtsrd52352.pdf



Copyright © 2022 by author (s) and International Journal of Trend in Scientific Research and Development Journal. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0) (<http://creativecommons.org/licenses/by/4.0>)

KEYWORDS: Sustainability, Climate, Health, Pollution, and Water

Sustainable development is “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”

–World Commission on Environment and Development, 1987

1. INTRODUCTION:

Development is a process of growth. Sustainable development is very necessary of the present and future generation. Sustainable Development is the most important concept for human life. Simply, need to protect the environment. It is related to economically, socially, and ecologically Sustainable Development. It is indicated to a systematic way of planning of development. These are major components of sustainability as Social, economic, and environmental. These are major components of sustainability as Social, economic, and environmental. Origin of Concept sustainable development was decelerated on the environment. For the first time, the Foundation for Sustainable

Development has discussed in 1972 Stockholm Declaration. Subsequently, the World Environment and Development Commission submitted a report in 1987, Called Our Common Future, also known as Brundtland. G.H. Brundtland was the prime minister of Norway chaired the commission. He was an effort to a connection between economic development and environmental protection. Rio Declaration is on Environment in 1992. It is significant and a milestone to set a new agenda and Development as a Sustainable Development.. Sustainable Development had come to be known in 1972 in the Stockholm declaration. It had focused that Emphasized that basic human rights - such as the right to liberty, equality and adequate living conditions, and the environment, allow for the right to live a dignified and healthy life.

It is shown in the Brundtland Report of the World Commission on Environment and Development in 1987. It is base on concern for our future in care of the present.

It will achieve the goals of balanced growth and development such as environmental sustainability, economic sustainability, and socio-political sustainability. In 1992, the Rio Declaration clear that environmental issues relate to citizens at all relevant levels. National - Everyone will have access to environmental information by government officials, including information on hazards and activities in their communities and the opportunity to participate in decision-making processes. Countries will assist and promote public awareness and participation by making information more widely available. As well as, accessibility to judicial and administrative proceedings.

The Constitution of India and Concept of Sustainable Development: Specific provision in Indian constitution for protection to the environment. India is the first country, which made provisions for environmental protection. According to the 42nd amendment to the Constitution in the year 1976. Article 48- specific provision for environment protection. Its improvements in several environmental cases and the Indian courts are also guided by the language of this Article. Article 51A (g) Every citizen is a duty for the protection of the environment. Schedule VII is related to environment protection by the center and states legislate. Indian Parliament enacted various legislations for the environment protection and improvement idea on the way of sustainable development. The government of India also passed various laws affecting and regulating environmental issues. Legislative enactments are always linked to principles of economic, social security, and sustainable development. Sustainable development is an issue at the national and international levels. For the sustainable development, many challenges are available at the world level. India is also concerned about the protection of the environment and sustainable development.

Such as lack of natural sources, industrialization, and urbanization, development of science and technology and high growth of population is a major threat to human existence. Ecology is a common heritage for all humans. Which increases the need of society day by day, thus, natural sources and the environment are affected. Natural sources are limited and demand is more. Indian citizens are legal and moral duty to protect and conserve natural resources. it is necessary, the development process is continuance with environmental protection. The Indian judiciary and government have the most important role in the conservation of the environment and natural resources. India's population growth is very high which presents serious challenges for economic development and environmental sustainability.

The use of modern technology, good communication facilities, and creating innovations affect the environment and lifestyle of the people. On the other hand, increasing production and consumption of goods puts a strain on the environment causing pollution and emissions of carbon dioxide in the Earth's atmosphere. The issues of sustainable development are influenced by several factors like utilization of the available resources, urbanization, industrialization, climatic variability, and poor technology. Sustainable development mainly focuses to raise productivity, income, improve health, economic prosperity, and protect environmental degradation. Thus, Sustainable development is beneficial for the present generation and future generation, include with biodiversity. Population growth is needed to reduce, for a long time human and bio sustainability and protect the natural resources. CO² emission is reduced then labour productivity increases if CO² will be increased then labour productivity is reduced.

2. Objective

Sustainable development studies under the major component such as - Population growth, Poverty and income consumption, Climate change effects on health and Productivity, Water crisis, pollution effects on human health and biodiversity.

3. Methodology

This paper is based on descriptive methodology and secondary data use for analysis. The statistical tools are used as correlation, percentage, and growth.

4. Challenges:

Economic, social and environmental problems are being faced all over the world for sustainable development. More than 1 billion people are still living in extreme poverty, and inequality is increasing among and within many countries; At the same time, the pattern of continuous consumption and production has incurred huge economic and social costs and this could endanger life on the planet. Achieving sustainable development will require global actions to fulfill legitimate aspirations for further economic and social progress, development, and employment needs, and at the same time strengthen environmental protection. There will be a need to make sustainable development inclusive and take special care of the needs of the poor and the weak. . Strategies should be ambitious, focused, and collaborative and adapt to different levels of development. They will need to systematically change consumption and production patterns, inter alia, significant price reforms; Encourage the conservation of natural endowment; Reducing inequality, and strengthen economic administration. FAO finds that the "The State of Food

Security and Nutrition in the World, 2019' report had 194.4 million people malnourished in India. At this rate, 14.5% of the malnourished population in India. In addition, 51.4% of women of reproductive age from 15 to 49 years are anemic.

Table-1 shows that Population growth is highest in India from 1951 to 2011. Population growth creates many challenges in India. The problems had wide spread like as poverty, unemployment, health, educational level and child labour in India.

Table-1: Population Growth in India

Year	Population (in Thousands)
1951	361088
1961	439235
1971	548160
1981	683329
1991	846421
2001	1028737
2011	1210855

Source: Economic Survey, Government of India

Table 2 express that Purchasing Power Priority (PPP) GDP is increasing continuously in India from 1991 to 2018.

Table-2: In India- GDP (in billions \$)

Year	Nominal	PPP
2018	2,726.32	10,498.50
2017	2,652.55	9,596.84
2016	2,290.43	8,787.92
2015	2,103.59	8,036.33
2014	2,039.13	7,362.57
2013	1,856.72	6,727.35
2012	1,827.64	6,214.47
2011	1,823.05	5,782.04
2010	1,675.62	5,381.66
2009	1,341.89	4,903.03
2008	1,198.90	4,511.26
2007	1,216.74	4,292.69
2006	940.26	3,882.92
2005	820.38	3,487.73
2004	709.15	3,134.05
2003	607.7	2,827.84
2002	514.94	2,573.96
2001	485.44	2,441.02
2000	468.4	2,278.71
1999	458.82	2,146.44
1998	421.35	1,943.93
1997	415.87	1,810.34
1996	392.9	1,710.38
1995	360.28	1,561.72
1994	327.28	1,421.94
1993	279.3	1,305.30
1992	288.21	1,217.26
1991	270.11	1,128.28

Source: World Bank

Table-3 India's top-5 states are the highest number of total poor population in the rural and urban area (2004-05 based on MRP consumption). The highest BPL people reduced in Maharashtra as compared to other major states between 2004-05 to 2011-12. But, BPL people (in thousands) are increasing all India levels.

The highest percentage changes were reducing in Madhya Pradesh as compared to other major states. In Uttar Pradesh and India level, total percentage of changes in total BPL people was reducing between 2004-05 to 2011-12.

Table-3- Status of poor people in major states

Top-5 States	2004-05		2009-10		2011-12	
State	Total No. of BPL people (in Thousands)	Total No. Percentage of BPL People	Total No. of BPL people (in Thousands)	Total No. Percentage of BPL People	Total No. of BPL people (in Thousands)	Total No. Percentage of BPL People
U P	73,070	40.90	73,790	37.70	59,819	29.43
Bihar	49,380	54.40	54,350	53.50	35,815	33.74
Maharashtra	39,240	38.20	27080	24.50	23,406	31.65
M P	31,570	48.60	26,180	36.70	19,792	17.35
West Bengal	28,830	34.20	24030	26.70	18,498	19.98
All India	467,220	37.20	354,680	29.80	1269,783	21.92

Percentage change and difference between 2004-05/2011-12

Top-5 BPL States	difference (BPL people in thousands) between 2004-05/2011-12	% change in total BPL between 2004-05/2011-12
U P	-13,251	-28.04
Bihar	-13,565	-37.98
Maharashtra	-15,834	-17.15
M P	-11778	-64.30
West Bengal	-10,332	-41.58
All India	802,563	-41.08

Source: Census-2011 Population, Computed as Tendulkar Method on MRP base Consumption.

Table 4 depicts that per capita calorie intake is higher in rural India during 1993-94 to 2011-12. In the urban area, Per capita calorie intake is also high in 1993-94, 2004-05, and 2011-12. Thus, in India per capita calorie intake is high in urban areas between 1999-00 and 2009-10. This shows that per capita calorie intake is high in rural areas as compared to urban areas in India.

Table-4: Per Capita Calorie intake per day in Uttar Pradesh and India

	1993-94	1999-00	2004-05	2009-10 Sch-1	2009-10 Sch-2	2011-12 Sch-1	2011-12 Sch-2
Rural India	2153	2149	2049	2020	2147	2099	2233
Urban India	2071	2156	2020	1946	2123	2058	2206

Source: NSSO Report No.560: Nutrition Intake in India-2011-12

Table 5 shows that the overall average MPCE is higher in urban areas as compared to rural areas in India. There is a need to improve consumption expenditure in India.

Table-5: Average monthly per capita consumption expenditure in 1993-94 to 2011-12

Average monthly per capita consumption expenditure (in Rs. at constant price 2009-10)		
India		
Year	Rural-MPCE	Urban-MACE
1993-94	741.54	1340.42
1999-00	813.92	1508.13
2004-05	844.32	1527.98
2009-10	927.70	1785.81
2011-12	1074.20	2012.62
% Change in 1993-94/2011-12	44.86	50.14

Source: Various round of NSSO survey -data based,

Overall average MPCE is higher in urban areas as compared to rural areas in Uttar Pradesh and India. However, rural and urban MPCE is lower in India. There is a need for improvement in consumption and per capita income in India.

5. Current and Future Water Requirements

In 1990, the total amount of drainage was estimated at 552 bcm i.e. 30 percent of the country's renewable water resources (1869 bcm-billion cubic meters). Surface water contribution was 362 bcm, while groundwater discharge was about 190 BCM (billion cubic meters). About 460 bcm water is used for irrigation. While 25 bcm is used for domestic activities. About 19 bcm and 15 bcm are used for energy and industrial activities. Currently, more than 80% of the 750 bcm of water used in India is for irrigation. The 20% balance is used to meet domestic, energy, industrial, and other needs.

With the rapidly growing population, along with industrial and urbanization activities, the water demand is expected to increase even faster. The total water demand of 1050 bcm, and the total utilizable water of 1,122 bcm will increase in the country till 2025. It is only projections of water availability problems in beyond 2025. Hence, the country may have to face an acute water crisis. It is worth noting that scientific assessment of water requirements for ecosystem conservation also requires more attention.

6. Population Stress and water insecurity

India's population is around 1.21 billion as of 1st March 2011. An estimation, the population of India is expected to stabilize at about 1,640 million by the year 2050. As a result, gross per capita water availability will be 1,140 m³ / year in 2050, down from 2001 1,820 m³ / year. Require total water in the country for various activities by the year 2050 is estimated to be around 1,450 km³ / year. The usable water resource potential (1,122 km³/yr) is higher than current estimates used through traditional development strategies. Therefore, approximately 500 km³ / year of water availability around 2050 compared to the current availability need to be almost tripled. In quantitative terms as potential sources for increasing, the anticipated losses have been considering various options. It is cleared that keeping in view the gestation period and capital requirements, rainwater harvesting and water-conservation measures should be given top priority. This is followed by refurbishment and recycling followed by intra-basin and then inter-basin transfers in the final stage. The environmental challenges of water resource development and management in India are expected to rapid coming in years. These environmental challenges can be addressed through four broad approaches: improving efficiency and reducing loss, recharge of groundwater aquifers, treatment of pollution, wastewater reuse and recycling.

Because of the complexity and urgency of environmental challenges, there is a need to pursue these approaches together. However, an essential prerequisite for water and human security is ecological security. Most of these instruments have fortunately been tried or tested at least on a pilot scale in India. The challenge is to institutionalize systems for these interventions and instruments to work on a large scale.

Water is the most crucial for irrigation to increase agricultural production, to ensure food security, Live stocks, sustainable agriculture development. It is observed that per capita water availability is becoming a serious problem due to the growing population in India.

Table 6 shows that the per capita water availability was 5177 m³ per year in 1951. In addition, the total population was only 361 million in 1951. In addition, with the population increasing to 1027 million, the per capita water supply has dropped dramatically to 1820 m³ per year. Latter, the per capita water availability will further drop down to 1341 m³ in 2025 and to 1140 m³ in 2050.

Table 6 Per capita water availability in India

Year	Population (Million)	Per capita water availability (m ³ /year)
1951	361	5177
1955	365	4732
1991	846	2209
2001	1027	1820
2025	1394	1341

Source: Government of India, 2009, Agricultural Statistics at Glance 2014

On the other hand, utilization of groundwater for irrigation purposes has been increasing while the surface water has been declining from 1950 to 2009 in the country. It is observed that due to the overutilization of groundwater, most of the Indian states are suffering from water stress and water scarcity condition. As result, it would affect agricultural production and food security. Sustainable agriculture facilitates to increase in the quality of topsoil, by facilitating storage and retain the rainwater.

Table 7 depicts that per capita (Cubic meters- m³) renewable internal freshwater resources is very less in India in comparison to China, France, USA, and Australia and world level among the given five countries. However, per

capita, a (Cubic meters- m³) renewable internal freshwater resource is high in Australia as compared to the other five countries given the above.

Table-7: Per capita (Cubic meters- m³) renewable internal freshwater resources five countries at world level

Countries	1982	1992	1997	2002	2007	2012	2014
Australia	32415.34	28122.32	26570.18	25036.38	23622.50	21633.53	20932.48
USA	12169.17	10985.76	10335.33	9797.47	9354.94	8974.71	8844.32
World	8990.83	8010.30	7365.86	6994.54	6567.51	6064.16	5920.51
France	3580.46	3398.44	3335.29	3235.97	3124.21	3046.00	3015.86
China	2788.93	2414.65	2286.85	2196.97	2134.48	2082.63	2061.91
India	1981.18	1595.99	1449.76	1326.97	1225.75	1144.83	1117.59

Source: World Bank

7. Water requirements of ecosystem:

Many people do not regard water for eco-systems as social and economic use. Nevertheless, access to freshwater is an indisputable requirement for the maintenance and functioning of valuable ecosystems and landscapes in which human activities are an integral part. Ecosystems are also important in securing human health, as they provide services that are as fundamental as our life support systems - such as pest control and detoxification, and waste decomposition. They contribute to the production of food (crops and fish), medicines, and other commodities. They provide water treatment, recreation, and waterway transportation.

In addition, terrestrial ecosystems help balance rainwater infiltration, groundwater recharge, and river flow regimes. Rapid population growth and continuous consumption and production patterns have increased water demand. In the greater competition for water, ecosystems and biodiversity are the losses. Economic development and human health activities risk biodiversity through the loss of useful materials, genetic stocks, and potential drugs. As ecosystems and biodiversity decline, they have the potential to provide resilience to the degradation of organisms and harm to communities and human health. The decline in quantity and quality of water flow has reduced the productivity of many terrestrial, aquatic and coastal area ecosystems and led to the loss of biodiversity. In remote areas, ecosystem degradation has destroyed fishing, agriculture, and grazing and reduced the survival of rural communities dependent on these activities. If the average national per capita availability of 2,000 M³ is to be maintained, given the increasing population, North India is the only river in India that has significant surplus water to meet the country's future needs.

8. Water Pollution

Key challenges to better water quality management in India are the temporary and local variability of rainfall. Water quality problems due to uneven geographical distribution of surface water resources, persistent drought, overuse and contamination of groundwater, drainage and Stalinization, and treated, partially treated and untreated wastewater from urban areas, industrial areas and flows from the irrigation sector without proper management of municipal solid waste and animal manure in rural areas. It is estimated that urban centers with a population of more than 50,000 in India, generates about 38,000 million liters per day (mld).¹ of wastewater (more than 70% of the urban population).

Given population growth, the demand for freshwater for all uses will be uncontrollable. According to an estimate, wastewater may fall to 100,000 (mld) in urban area, and 50,000 (mld) in rural India till 2050. However, wastewater management is not the address of that range. Most human activities, whether domestic, agricultural or industrial, impact water and ecosystems. World Health Organization statistics show that half of India's diseases are water-related. Waterborne diseases can be controlled by managing human consumption and production patterns. It is therefore important that you have an understanding of what people are doing, including water management systems, and their effects on water and the environment.

9. Domestic Water Pollution

Waste management systems are unable to keep pace with the vast amounts of daily generated organic and non-biodegradable waste. As a result, waste is disposed of in an unscientific manner in most parts of India. This reason is increasing the pollutant load of surface and groundwater. On the other hand, a large population of the poor in India has little choice but to stay away from the natural resource base and pollute the environment in the

¹ million liters per day (mld)

process. The deforestation for food, fuel, fodder, and fiber and pollute the water sources on which they depend, because they cannot access sanitation services. Domestic water use today, although a small fraction of the total water requirement. This leads to a considerable waste of valuable resources and insufficient revenue for operation and maintenance. Revenue is lower due to supply inefficiencies and resource depletion due to system inefficiencies. Due to inadequate sanitation facilities, in most parts of the country, wastewater from domestic sources is rarely treated. Excess organic pollutant loads find their way into surface and groundwater.

10. Industrial Water Pollution

The industrial sector contributes about 20 percent of national income, about 8 percent of current water use. With rapid industrialization and urbanization, the water requirement for energy and industrial is projected to increase by about 18 percent (191 bcm) of the total requirements in 2025. Negative environmental management systems, especially in industries such as thermal power stations, chemicals, metals, and minerals.

Leather processing and sugar mills have discharged highly toxic and organic wastes. This has caused pollution of surface and groundwater sources, from which water is also extracted for irrigation and domestic use. The need to implement regulations regarding the discharge of industrial wastewater and drainage of groundwater is quite strong, while greater incentives are needed to promote the reuse and recycling of wastewater. On the other hand, agricultural water pollution is also polluted for water. Waterlogging and salinity affect quality. Thus, Water quality is further affected due to the overuse of chemical fertilizers and pesticides.²

Status of Water Quality in India-2011, Monitoring of Indian National Aquatic Resources Series: SEMINARS/ 35/ 2013-14 (Central Pollution Control Board - Ministry of Environment & Forests)

11. Climate change and air pollution affect humans and species

Air pollution has a serious impact on society. Droughts, floods, deforestation, homelessness, and extinction of animal and plant species due to climate change are the consequences of famine and disease. At least six million deaths occur annually worldwide due to atmospheric pollution and a quarter of lung cancer cases, heart attacks, and strokes, representing 0.3% of world GDP in health costs, as well as productivity at work lowers. Table 8 shows that per capita energy fuel consumption is increased continuously in India during 1990-91 to 2012-13.

Table-8: Per Capita Energy Fuel Consumption in India-1990-91 to 2012-13

Year	Per Capita Energy Fuel Consumption (In Mega Joules)
1990-91	2332.5
1995-96	2593.58
2000-01	3047.81
2005-06	3497.59
2006-07	3727.24
2007-08	4451.49
2008-09	4846.24
2009-10	5276.58
2010-11	5789.03
2011-12	6205.25
2012-13	6748.61

Source: Government of India

Table 9 depicts that solid fuel used for cooking is high in rural India, thus total solid fuel used for cooking is high as compared to Kerosene and LPG/PNG in India from 2001 to 2011. Solid fuel is also a cause of air pollution. It is harmful to human, animal, and plant species.

Table-9: Fuel used for cooking decadal 2001-2011

Category	2001 2011						
	Fuel category	Solid	Kerosene	LPG/PNG	Solid	Kerosene	LPG/PNG
Rural		91.1	1.6	5.7	86.5	0.7	11.4
Urban		31.4	19.2	4.8	26.1	7.5	65
Total		74.3	6.5	17.5	67.3	2.9	28.5

Source: Government of India, 2015

² Status of Water Quality in India-2011, Monitoring of Indian National Aquatic Resources Series: MINARS/ 35/ 2013-14 (Central Pollution Control Board - Ministry of Environment & Forests)

Table-10 depicts that CO₂ emission is increasing continuously but labour productivity is reducing in India from 2007 to 2014. This condition shows a negative correlation between CO₂ emission and labour productivity. According to research, extreme heat affects daytime labor productivity and economic growth in many developing countries, including India, due to increased carbon dioxide (CO₂) in the atmosphere.

Table-10: CO₂ emissions and labour Productivity

Year	CO ₂ emission per capita (in Metric tons)	Labour Productivity	Correlation between CO ₂ Emission and labour Productivity
2007	1.19	8.9	
2008	1.31	3.2	
2009	1.43	8.2	
2010	1.4	9.7	
2011	1.48	6.5	
2012	1.6	5.4	
2013	1.59	4.5	
2014	1.73	5.4	-0.40166 (negative correlation)

Source: CO₂ emission world bank

12. Conclusion

Sustainable development is that maintain the continued growth without destroying the environment. Population growth creates many challenges in India. However, Purchasing Power Priority (PPP) GDP is increasing continuously in India from 1991 to 2018. India's top-5 states (UP, Bihar, Maharashtra, MP, and West Bengal) are the highest number of total poor population in the rural and urban area (2004-05 based on MRP consumption). As well, in India per capita calorie intake is higher in rural as compared to urban during 1993-94 to 2011-12.

Reason for Industrial and urbanization activities, the water demand is more expected to increase even faster. Excess to per capita (Cubic meters- m³) renewable internal freshwater resources is very less in India in comparison to China, France, USA, and Australia, and world level. But, freshwater is an indisputable requirement for the maintenance and functioning of valuable ecosystems and landscapes in which human activities are an integral part. Economic development and human health activities reduce the risk of biodiversity through the loss of useful materials, genetic stocks, and potential drugs. The demand for fresh water will increase. According to an estimate, it can say that per capita water availability will fall to 1341 m³ in 2025 and 1140 m³ in 2050. Excess organic pollutant loads find their way into surface and groundwater. Urban and rural polluted water pollutes the groundwater. On the other hand, agricultural water is also polluted the grounds and ponds water. Water logging and salinity affect quality. Thus, Negative environmental management systems, especially in industries such as thermal power stations, chemicals, metals, and minerals., Leather processing, and sugar mills have discharged highly toxic and organic wastes. It is caused by the

pollution of surface and groundwater sources. In the case of air pollution, at least six million deaths occur annually worldwide due to atmospheric pollution and a quarter of lung cancer cases, heart attacks, and strokes, representing 0.3% of world GDP in health costs, as well as productivity at work, lowers. In India, total solid fuel used for cooking is high as compared to Kerosene and LPG/PNG from 2001 to 2011. Solid fuel is also a cause of air pollution. It is harmful to human, animal, and plant species. CO₂ emission is increasing continuously but labour productivity is reducing in India from 2007 to 2014. There is a negative correlation (-0.40166) between CO₂ emissions and labor productivity. Due to the increasing carbon dioxide (CO₂) into the atmosphere level affect the excessive heat of the day labor productivity and economic growth, especially in many developing countries, including India.

References:

- [1] EnviStats-India 2019, Vol.I Environment Statistics, Central Statistics Office, Ministry of Statistics and Programme Implementation, Government of India, New Delhi
- [2] Taherzadeh, O. and West, C. (2016) 'The State of Corporate and Government Water Reporting in India.
- [3] Tracey Strange Anne Bayley -"Sustainable Development" Linking economy, society, Environment (OECD-2008)
- [4] Jarkko Saarinen: Traditions of Sustainability in Tourism Studies" (University of Oulu, Finland-doi:10.1016/j.annals.2006.06.007), Annals of Tourism Research, Vol. 33, No. 4, pp. 1121–1140, 2006 0160-7383/\$ - see front matter _ 2006 Elsevier Ltd. All rights reserved. Printed in Great Britain
- [5] D. M. Nachane: Liberalization, Globalization and The Dynamics of Democracy in India (Asia

- Research Centre Working Paper 32,LSE, June 2010)
- [6] Government of India: India in Figure-2018
- [7] World Economic and Social Survey 2013, "Sustainable Development Challenges" (Department of Economic and Social Affairs E/2013/50/Rev.ST/ESA/344)
- [8] Achieving the Sustainable Development Goals in India - A Study of Financial Requirements and Gaps Submitted to the Ministry of Environment, Forest and Climate Change, August 2015
- [9] Poonam Gupta, "India Development Update India's Growth Story March 2018 (pgupta5@worldbank.org, The World Bank, New Delhi Office 70 Lodhi Estate, New Delhi 110 003, India +91 (0) 11 4147 9301 www.worldbank.org/in)
- [10] Sugata Marjit and Eden Yu: Globalization And Environment In India, ADBI Working Paper Series (No. 873 September 2018)
- [11] The Sustainable Development Goals Report 2018(United Nations New York, 2018)
- [12] Dr. K Balanagarajan and Dr. V Gajapathy: Climate Changes and its Impact on Employee Productivity (International Journal of Applied Engineering Research ISSN 0973-4562 Volume 13, Number 1 (2018) pp. 27-29 © Research India Publications. <http://www.ripublication.com>)
- [13] Economic Survey 2018-19 Volume-2, Government of India Ministry of Finance, Department of Economic Affairs, Economic Division North Block-New Delhi-110001,E-mail: cordecndn-dea@nic.in, July, 2019
- [14] Concepts and Framework, Statistics Related to Climate Change - India 2015, Government of India, Ministry of Statistics and Programme Implementation Central Statistics Office Social Statistics Division New Delhi
- [15] India and Sustainable Development Goals: The Way Forward-Published in 2016 by: Research and Information Systems for Developing Countries (RIS) Core IV-B, Fourth Floor, India Habitat Centre Lodhi Road, New Delhi-110 003, India, Website: www.ris.org.in
- [16] Anant Sudarshan and Meenu Tewari: The Economic Impacts of Temperature on Industrial Productivity: Evidence from Indian Manufacturing, Draft: December 7, 2013
- [17] Composite Water Management Index, Niti Aayog, August 2019 (Ministry of Jal Shakti and Ministry of Rural Development)
- [18] Ruchita S and Rohit S: Effect of Global warming on Indian Agriculture (Journal of Climatology and Weather Forecasting, PP 1-5)
- [19] G N Kathpalia and Rakesh Kapoor: Water Policy and Action Plan for India 2020: An Alternative (Development Research and Communications Group,B-177, East of Kailash, New Delhi 110 065, November 2002
- [20] Ravi Fernando, (2012),"Sustainable globalization and implications for strategic corporate and national Sustainability ", Corporate Governance, Vol.12,pp.57 2-589,<http://dx.doi.org/10.1108/14720701211267883>, Downloaded on: 28-08-2012
- [21] World Economic Situation and Prospects 2019 (United Nations, New York, 2019)
- [22] Inclusive Green Growth -The Pathway to Sustainable Development (© 2012 International Bank for Reconstruction and Development / International Development, Association or The World Bank, Washington DC 20433) Internet: www.worldbank.org
- [23] Impacts of higher temperatures on labour productivity and value for money adaptation: lessons from five DFID priority country case studies (Report prepared for the UK Department for International Development Final Report -August 2017)
- [24] Planning Commission Government of India: Sustainable Development, 'Emerging Issues in India's Mineral Sector' May 2012(Institute for Studies in Industrial Development, New Delhi)
- [25] Identification Of Emerging Issues For Sustainable Development Chapter-5,PP 77-94 (Global Sustainable Development Report 2016)
- [26] Guillermo Montt and Federico Fraga Marek Harsdorff: The future of work in a changing natural environment: Climate change, degradation and sustainability (ISBN 978-92-2-031208-7 (web pdf) International Labour Office – Geneva: ILO, 2018
- [27] Martin Khor, TWN: Globalization and The Crisis of Sustainable Development (published by Third World Network, 131 Jalan Macalister 10400 Penang, Malaysia. Website: www.twinside.org.sg),Second Printing: 2002,ISBN: 983-9747-71-1
- [28] Status of Water Quality in India 2011 (Monitoring of Indian National Aquatic Resources Series: MINARS/ 35/ 2013-14) Central Pollution Control Board, Ministry of Environment and Forests, Website: <http://www.cpcb.nic.in>