

Environmental Management in India in Global Perspectives (With Special Reference to Haryana)

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The 21st century is the age of Environment. The adoption of new climate agreement at the 21st Conference of Paris (COP21) under the United Nations Framework Convention on Climate Change (UNFCCC) by 195 countries in December, 2015 is the latest milestone in this direction. The Millennium Development Goals (MDG) for 2000 to 2015 were replaced by the new Sustainable Development Goals (SDG) comprising a set of 17 goals and 169 targets in the Paris Agreement for the next fifteen years. Therefore, the SDGs are effective from January, 2016 and will end in December, 2030. The important pillars of the agreement are mitigation, adaptation, finance, technology development and transfer, capacity building and transparency of action and support. The Agreement invited parties to submit their first nationally determined contributions prior to the submission of their instruments of ratification and accession. The agreement and consensus of different countries from the world to a common framework on climate change and a set of targets of SDGs is indeed a monumental achievement. The year of 2015 has remained the warmest year as per the World Meteorological Organization. In one another report of International Energy Agency (IEA) in 2015, during the year of 2014, the concentration of CO₂ had increased 40 per cent higher than in the mid-1800s. In order to initiate the process of self evaluation, one must know where our country and state stands in the global world keeping in view some pertinent Environmental indicators of development so that Intended Nationally Determined Contribution (INDC) may be determined.

India certainly needs to develop in order to take rightful place in the comity of nations. With only 2.4 per cent of the world's land area, India has to support as much as 17.7 per cent of the world's population. After more than seven decades of planned development, India have been lagging behind in comparison with other such countries those who got their independence almost at the same time or such other countries who started their planned economic development in the mid of the twentieth century. In these circumstances, there is a dire need of self introspection for the nation as a whole and Haryana in particular. Currently the renewable energy has become a major focus area of the Government of India with the target of achieving 40 per cent cumulative electric capacity from non-fossil fuel-based energy resources by 2030. It seems that the financial resources with the Union Government and the State Government may be deficient for the purpose of producing and consuming eco products or green products. The challenges ahead may be forecasted from the fact that when development was already a difficult goal and now it has been converted into sustainable development, that is more difficult to achieve.

Objectives of the Study –

Keeping in view the aforesaid scenario of challenges, the followings are the specific objectives of the study –

- 1) To take stock and analysis the present status of India's environment in the global economy.
- 2) To examine and compare the environmental indicators of development for the whole of the world with India and Haryana in particular.
- 3) To provide pabulum for decision makers and planners to achieve the goals of the SDGs in its true spirit.

Sources of Data and Methodology –

The study is purely based on secondary data collected from the following sources:

- i) World Development Indicators, World Bank, 2015, Washington DC, Available at –
- ii) Statistical Abstract of Haryana, Department of Economic and Statistical Analysis, Govt. of Haryana, Panchkula, 2015-16.

The present study uses a research methodology of Exegesis of the Content Analysis which is quite an appropriate research technique for the systematic, objective and quantitative description of the data procured through various secondary sources. The relevant data have been collected, brought into a comparable form, condensed, organized and presented into two-dimensional tables. Then these tables are analysed and interpreted for further planning and decision-making for the state of Haryana and the whole of the nation, that is Indian union.

Results and Discussion –

Table-1 shows the status of forests and water resources country-wise for the whole of the world. Currently when there is a heavy deforestation globally, it is a sigh of relief that the area under forests have been increased at least for a few countries. India is also fortunate of being one among these countries where average annual deforestation rate has been -0.46 per cent for the period under 2000 to 2010. The most comfortable position has remained for Iceland (- 4.99 per cent), Bahrain (-3.55 per cent) Kuwait (-2.57 per cent) and Vietnam (-1.65 per cent) in the deforestation. The negative sign for deforestation shows that forest area has increased. The position for Haryana has also been negative, that is - 0.007 per cent that showed the increased forest area. However, it is less than the national average of India's deforestation. It is also important to mention here that the source of data and calculation methods for facts and figures for Haryana are different. The average annual world's deforestation growth has been 0.11w for the period of 2000-2010. The sign w with the figure 0.11 signifies the weighted average of the aggregates. The positive sign of the figure shows the forests resources have been depleting. In the Table-5 and the Column 4, country-wise nationally protected areas are shown as per cent of their respective total territorial area for the year 2012. It is also important to mention here that the nationally

protected areas include terrestrial and marine areas both. Germany has the largest nationally protected area in the world, i.e., 49 per cent followed by France (28.7 per cent), Bhutan (28.4 per cent) and Belize (26.4 per cent). Other countries having good nationally protected areas are the U.K. (23.4 per cent), New Zealand (21.3 per cent), Gabon (19.1 per cent), Australia (15.1 per cent) and the U.S. (15.0 per cent). In comparison, India has merely 5.0 per cent nationally protected area. In turn, Haryana has very meagre amount, that is, 0.020 per cent of such protected area. One must bear in one's mind that the source of data for Haryana and rest of the world is different. Not only this, the methods of calculation for Haryana is also different. However, the calculations may certainly give an idea about the existing situation of such protected area.

Similarly, the Table-1 also shows the fresh water resources for different countries. There are very fortunate countries like Iceland, Guyana and Bhutan which have largest 525074, 301396 and 103456 per capita cubic meters internal renewable freshwater resources respectively. Likewise Gabon, Canada, New Zealand, Belize, Russian Federation and Australia are also among fortunate countries which have ample per capita cubic meters renewable freshwater resources. In comparison, India has 1155 per capita cubic meters freshwater renewable resources. On the other hand, there are countries which have very less freshwater renewable resources, for example, Kuwait zero per cent and Bahrain 3 per cent per capita internal renewable freshwater resources. The world's average for renewable freshwater resources is 6055 per capita. While in case of Haryana, there is no such information available. Therefore, it cannot be compared. Lastly, the Column 6 shows country-wise the per cent of the population who have the access to improved water source in the year 2012. No doubt, many developed countries have cent per cent or near to hundred per cent population who have access to improved water resources. What is important that in the age of twenty first century, there are countries like Afghanistan where only 64 per cent of the population have access to good water source. However, the world's average in the matter is 89w per cent where w refers to weighted average.

The Table-2 and column 3 shows country-wise per cent of the population who have to access improved sanitation facilities in the year 2012. Keeping in view this variable, there is a lot of contrast. Some countries have perfect access while others have a very meagre access. For example, countries like Andorra, Australia, Canada, France, Germany, Japan, Kuwait, Qatar, United Kingdom and United States have hundred per cent access to sanitation facilities. On the other hand, the scenario of Afghanistan, China, India, Indonesia, Pakistan and Vietnam is not comfortable at all. In this matter, the world's average is 64w where w denotes the weighted average. Haryana does not have such data but may not be different than the average of India. The column 4 shows the percentage growth in urban population for the year 2012-13 country-wise. It's highest among Qatar, Afghanistan and Kuwait, that is, 5.7, 4.0 and 3.6 per cent respectively. There is only one country Trinidad and Tobago where there is negative 1.2 per cent growth in urban area. In most of the developed countries like United States, United Kingdom, New Zealand, Japan, Germany and France, it is less than one per cent for 2012-13. One less known country in

Europe is Andorra where the urban population is also grown by only 0.5 per cent during the period 2012-13. In India, it is grown by 2.4 per cent that is even more than the world's average which is 2.1w per cent where w signifies the weighted average. The figure for Haryana

Table – 1
Global Forests and Water Resources

Sr. No.	Country	Deforestation ^a Average Annual (%) 2000-10	Nationally Protected Areas (Terrestrial and Marine Areas) % of Total Territorial Area 2012	Internal Renewable Fresh water Resources ^b per capita cubic meters 2013	Access to Improved Water Source (% of Total Population) 2012
1	2	3	4	5	6
1.	Afghanistan	0.00	0.4	1543	64
2.	Andorra	0.00	9.8	3984	100
3.	Argentina	0.81	6.6	7045	99
4.	Australia	0.37	15.0	21272	100
5.	Bahrain	-3.55	6.8	3	100
6.	Belize	0.67	26.4	45978	99
7.	Bhutan	-0.34	28.4	103456	98
8.	Canada	0.00	7.0	81071	100
9.	China	-1.57	16.1	2072	92
10.	France	-0.39	28.7	3033	100
11.	Gabon	0.00	19.1	98103	92
12.	Germany	0.00	49.0	1327	100
13.	Guyana	0.00	5.0	301396	98
14.	Iceland	-4.99	13.3	525074	100
15.	India	-0.46	5.0	1155	93
16.	Indonesia	0.51	9.1	8080	85
17.	Japan	-0.05	11.0	3377	100
18.	Kuwait	-2.57	12.9	0	99
19.	Malaysia	0.54	13.9	19517	100
20.	New Zealand	-0.01	21.3	73614	100
21.	Pakistan	2.24	10.6	302	91
22.	Russian Federation	0.00	11.3	30056	97
23.	United Kingdom	-0.31	23.4	2262	100
24.	United States	-0.13	15.1	8914	99
25.	Vietnam	-1.65	4.7	4006	95
26.	World	0.11w	14.0w	6055s	89w
27.	Haryana	-0.007^{TS.1}	0.026^{TS.2}	N.A.	N.C.^{TS.3}

Source: *Ibid.*, Table 1.

Notes: a -Negative values indicate an increase in forest area.

b - River flows from other countries are not included because of data unreliability.

T 5.1 The data for the Forests in Haryana is taken and calculated from the Statistical Abstract of Haryana, 2015-16 for the periods 2000-01 and 2010-11.

T 5.2 Calculated on the basis of the data available in the Statistical Abstract of Haryana, 2015-16.

T 5.3 Data taken from Statistical Abstract of Haryana, 2015-16. The data form is quite different. There are 254 villages below 40 LPCD as on 01-04-2016.

N.C. Not Comparable

L.P.C.D.

Litres per capita daily.

s The Aggregates are simple total.
averages.

w

The Aggregates are totals by weighted

Table – 2
Social Overhead Capital Indicators

Sr. No.	Country	Access to Improved Sanitation Facilities (% of Total Population) 2012	Urban Population (% Growth) 2012-13	Energy Use (Per capita Kilograms of Oil Equivalent) 2011	Electricity Production (Billion Kilowatt Hours) 2011
1	2	3	4	5	6
1.	Afghanistan	29	4.0	-	-
2.	Andorra	100	0.5	-	-
3.	Argentina	97	1.0	1967	129.6
4.	Australia	100	1.9	5501	252.6
5.	Bahrain	99	1.1	7353	13.8
6.	Brunei Darussalam	-	1.8	9427	3.7
7.	Canada	100	1.4	7333	636.9
8.	China	65	2.9	2029	4715.7
9.	France	100	0.7	3869	556.9
10.	Germany	100	0.6	3811	602.4
11.	India	36	2.4	614	1052.3
12.	Indonesia	59	2.7	857	182.4
13.	Japan	100	0.5	3610	1042.7
14.	Kuwait	100	3.6	10408	57.5
15.	Malaysia	96	2.7	2639	130.1
16.	Mexico	85	1.6	1560	295.8
17.	New Zealand	-	0.8	4144	44.5
18.	Pakistan	48	2.8	482	95.3
19.	Qatar	100	5.7	17419	30.7
20.	Trinidad and Tobago	92	-1.2	15691	8.9
21.	United Kingdom	100	1.0	2973	364.9
22.	United States	100	0.9	7032	4326.6
23.	Vietnam	75	3.1	697	99.2
24.	World	64w	2.1w	1890w	22158.5w
25.	Haryana	N.A	N.C. 5.96 ^{T6.1}	N.C.1029 ^{T6.2}	N.C. 26719.45 ^{T6.3 @}

Source: *Ibid.* Table 1.

Notes:

T 6.1 The data have been calculated on the basis of the data available in the Statistical Abstract of Haryana, 2015-16. The increase of 5.96 per cent in the urban population is from the Population Census, 2001 to Population Census, 2011, for a period of ten years.

T 6.2 Figure of 1029 is taken from the Statistical Abstract of Haryana, 2015-16 that represents units sold per capita (KWH).

T 6.3 Figures of 26,719.45 is taken from the Statistical Abstract of Haryana, 2015-16 that represents Generated Gross (Million GWH) for the year 2014-15.

@ Installed capacity of jointly owned projects have been shown divided between the partner States as per their theoretical share.

w The Aggregates are totals by weighted averages.

N.A. Not Available.

N.C. Not Comparable

is not comparable at all. The figure 5.96 per cent growth in urban areas refers to the whole of ten years period, i.e., Population Census 2001 to 2011. However, for one year, the figure may be merely 0.596 per cent that is far less than the average of India and the whole of the world.

The Table-2 and Column 5 shows the energy use per capita kilograms of oil equivalent for the year 2011. It is highest among Qatar, Trinidad & Tobago and Kuwait, that is, 17419, 15691 and 10408 in the world. Further, there are the countries like Brunei Darussalam (9427), Bahrain (7353), Canada (7333), the U.S (7032), France (3869) and Germany (3811) which have higher energy use. The average for the world is 1890w, where w refers to the weighted average. The status of India is far less than the world, that is, merely 614 per capita kilograms of oil equivalent of energy use in 2011. The figure for Haryana has been taken from a separate source and is not comparable at all. The Column 6

of the table shows the Electricity Production in billion kilowatt hours for the year 2011. It is highest for China (4715.7), the U.S. (4326.6) and India (1052.3). India's position is quite comfortable in the world, however, it is far less than the highest producers of China and the U.S. The figure for Haryana and calculation method is not comparable at all.

Conclusion and Suggestions –

India is fortunate that there is no dearth of natural resources and moreover, it's a huge country. There are ample freshwater resources, may not be highest in the world but these are not very less in the world. Keeping in view the huge population, there is a need of proper harnessing of these resources. There is a need of maintenance of these resources. There is a dire need of protecting our forests and freshwater resources. The tendency of urbanization is strong that is a negative factor going against the national economy. Despite such a tendency, the access to improved sanitation facilities has been deficient. There is an ever need of focus on the clean energy production and its optimum use. The study revealed that the status of India, keeping in view the variables under consideration, has been near the global average. In turn, Haryana is more comfortable than India's national average. However, the comparison with other economies which got their independence with India's contemporary period, have been dismal. The progress for India has not been so impressive keeping in view that India being a big country with huge natural resources.

India has been a strong social and political economy from ancient period. There is a dire need of a strong political will that may proceed ahead quite aggressively like Japan, South Korea and of course China as well. In India, there is no scarcity of natural resources. Everyone will also agree that there is rampant corruption in India. It means that there are leakages of public funds earned through rich natural resources. In such a scenario, India must break the vicious circle of poverty with strong national character along with political will. India must learn a lesson from Japan and proceed ahead on the path of economic and social development. There is an ever need of devoting on the human capital formation instead of physical capital formation. Besides, the Benefit-Cost analysis may go a long way to look at several ways of solving a problem and then providing the best solution. Such a process of choosing the course of action will result the least amount of damage to the expected outcome for the environmental quality. Further complicating this analysis are the interrelationships of the various requirements of the environment that might have a great impact by the particular chosen course of action. Sometimes it is almost impossible to predict the various outcomes of a course of action on account of the unexpected consequences. Therefore, a comprehensive policy is required by encompassing all the above possibilities. Such a strategic and empirically focused indigenous developmental path especially devised for the Indian economy will be instrumental for overall social, economic and technological development in the modern times.

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