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Human Development Index: Comparative Analysis of Countries of the Indian Subcontinent

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Abstract:

This research paper aims to examine and compare the Human Development Index (HDI) of the Indian subcontinent, which includes India, Pakistan, Bangladesh, Nepal, Sri Lanka, Bhutan, and the Maldives. The study utilizes 2021-22 data from Human Development Report (UNDP), focusing on key dimensions of human development, namely life expectancy, education, and standard of living.

The paper begins by providing an overview of the HDI and its significance as a comprehensive measure of development. It discusses the methodology used to calculate the HDI and highlights its limitations. Further, it takes overviews of ten countries belonging to the group having very high human development and five countries having low human development. The study presents a comparative analysis of the HDI across the countries of the Indian subcontinent. It examines trends over time and identifies variations in human development levels among the nations.

In conclusion, this research paper contributes to the understanding of human development within the Indian subcontinent by analyzing and comparing the HDI across its constituent countries. It provides insights into the specific dimensions of development and offers recommendations for promoting development in the domains of HDI indicators. The findings of this study can serve as a valuable resource for policymakers, researchers, and development practitioners working towards improving human well-being in the Indian subcontinent.

Key words: *human development index, life expectancy, education, living standards, developmental level,*

Introduction

"The real wealth of a nation is its people. And the purpose of development is to create an enabling environment for people to enjoy long, healthy, and creative lives. This simple but powerful truth is too often forgotten in the pursuit of material and financial wealth" Mahbub Ul Haq (1990).

Human Development Index (HDI) concept emerged in the late 1980 based on the conceptual foundation provided by Pakistani economist Dr. Mahbub ul Haq and Indian economist Dr. Amartya Sen. This concept became prominent in the 1990 when the first Human Development Report was published by the United Nations Development Program (UNDP). The Human Development Report 1990 describes human development as a process of enlarging people's choices. It must enable all individuals to enlarge their human capabilities to the fullest and to put those capabilities to the best use in all fields – economic, social, cultural and political. Human Development Index (HDI) is a comprehensive tool for measuring the levels of social and economic developments of different countries and ranking them accordingly (Mishra and Chaudhary, 2014). It is an alternative approach against the conventional, a single focus on economic growth. HDI is a composite index of three dimensions long and healthy life, Knowledge and decent standard of living. A long and healthy life is measured by life expectancy at birth. Knowledge level is measured by mean years of schooling and expected year of schooling and Standard of living is measured by Gross National Income (GNI) per capita expressed in constant 2017 international dollars converted using purchasing power parity (PPP) conversion rates.

Objectives

1. To study the trends of human development index.
2. To study the comparative analysis of the human development index of the countries of Indian subcontinent.

Data base Methodology

Present study is based on secondary data which is obtained from United Nations Development Program (UNDP), human development report 2021-22. According to the UNDP methodology in the period from 1990- 2010 the HDI has had four indicators belonging to three dimensions, these are a long and healthy life, knowledge and standard of living (table 1). Conducting these three indicators to one common measure is done by setting a minimum, equal to "0" and a maximum, equal to 1 for each dimension. Each of these indicators is weighted with the relative share in the total number of signs. A set of weighted indicators creates a complex HDI and determines the position for each country on a scale of 0–1. Zero (0) indicate low level of development and 1 indicate high level of development.

Following formula was used for measurement of all three primary indices:

Where: $\frac{(I - I\,min)}{(I\,max - I\,min)}$

'I' represents the actual value in the country.

min and max represents the minimum and maximum values of individual indices given in table 1.

The Human Development Index (HDI) is a simple arithmetic mean of all three primary indices:

Where: $HDI = \frac{I1 + I2 + I3}{3}$

I 1 represent life expectancy index, I 2 education index and I 3 GDP index.

On the basis of HDI values all countries were classified into following three groups, which indicate the level of human development achieved:

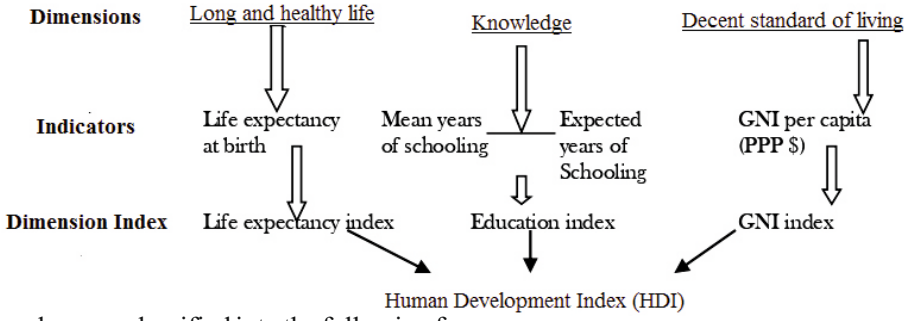
0.00 < HDI < 0.50 – low level of human development

0.50 < HDI < 0.80 – medium level of human development

0.80 < HDI < 1.00 – high level of human development

At 2010, the measurement of HDI methodology has changes (fig.1 and table 1). HDI is composed of geometric averages of three core dimensions: (1) Long and healthy life , measured by life expectancy at birth; (2) Knowledge, measured by arithmetic mean of expected years of schooling and mean years of schooling; (3) Decent standard of living, measured by the logarithm of GNI (PPP$) per capita. Because the data units of each indicator are different, it is necessary to standardize the data of each indicator before aggregating it into HDI. In the previous method (before 2010), the HDI was calculated as the mean arithmetic value of the dimension indicator. Now multiplicative aggregation method is use, where aggregations are made using the geometric mean value of each dimension indicators, which reduces the level of interchangeability between dimensions.

The dimension indicators are calculated as follows:



The index values are classified into the following four groups

- 0.00 <HDI < 0.55 – low level of human development
- 0.55 < HDI < 0.70 – medium level of human development
- 0.70 < HDI < 0.80 – high level of human development and
- 0.80 < HDI < 1.00 – very high level of human development

Table 1 Summary of HDI calculation

				2010 onwards		
		Transformation			**Transformation**	
Dimensions	**Indicators**	**Min**	**Max**	**Indicators**	**Min**	**Max**
Health	Life expectancy at birth (year)	25	85	Life expectancy at birth (year)	20	83.2
Knowledge (education)	Adult literacy rate (%)	0	100	Expected number of years of schooling	0	20.6
	Combined gross registration rate (%)	0	100	Average number of years of schooling	0	13.2
Standards of living	GDP per capita (PPP US$)	100	40,000 (limited)	GNI per capita (PPP US$)	163	108.211
Aggregation	Arithmetic mean			Geometric mean		

Source : Boban Dasic, et al (2020)

HDI value in the world and by groups of countries

Table 2 reveals the values of HDI and its indictors by human development groups and the world. In the recent (2021) HDR world's HDI values is 0.732, and is classified in countries human development for very high human development countries HDI value is 0.894 for countries of high human development 0.754 for middle human development countries 0.636 and for countries of low human development 0.518.

The recent HDR shows HDI values for 191 countries of the world. There are 66 countries in the group of countries having a very high HDI value. The country Switzerland (0.962) is at the top of the HDI value (table 3). Switzerland is not top in every HDI indicator. The first 10 country having high HDI values (table 3) observed Hong Kong, China (SAR) have the highest value (85.5) of life expectancy at birth. Australia recorded highest value (21.1) for expected year of schooling. The highest value mean years of schooling have been recorded in Germany (14.1). Ireland is the leading (76.169) country for gross national income (GNI) per capita (2017 PPP $).

The countries with high value HDI include 49 countries. In this group Indian subcontinent countries viz. Sri Lanka (0.782) and Maldives (0.747) are included at 73rd and 90th position respectively.

The group of countries with medium HDI includes 44 countries, and it includes countries of Indian Subcontinent, Bhutan (0,666) in 127th place, Bangladesh (0.661) in 129th place, India (0.633) in 132nd place and Nepal (0.602) in 143rd place.

Out of 191countries rest of the 32 countries are included in the low HDI group. Indian subcontinent country viz. Pakistan is included in this group with HDI 0.544 in 161st place. The worst-ranked countries (table 4) are Burundi (0.426), Central African Republic (0.404), Niger (0.400), Chad (0.394) and South Sudan (0.385) in the last 191st place.

Among the 191 countries surveyed shows that the countries that have the highest HDI values do not have the highest amount of individual indicators that are essential part of HDI. The HDI component life expectancy at birth is highest recorded in Hong Kong, China (SAR) (85.5) which is HDI at 4th position, followed by Japan (84.8) and Australia (84.5) at the place 19th and 5th respectively. The highest value for expected year of schooling recorded by Australia (21.1), followed by New Zealand (20.3) and Greece (20.0) which is HDI in 5th, , 13th and 33rd place respectively. The highest value of mean year of schooling recorded by Germany (14.1), which is HDI in the 9th place, Switzerland (13.9) in 1st place and Iceland (13.8) in 3rd position. The highest values of Gross national income (GNI) per capita are Liechtenstein (146,830), which is HDI at 16th place, Singapore (90,919)

in 12th place and Qatar (87,134) in 42nd place.

Table 2 Values of HDI and its indicators by groups of the world (UNDP, 2021-22)

Human Development Groups	Human Development Index (HDI) Value	Life expectancy at birth (years)	Expected years of schooling (years)	Mean years of schooling (years)	Gross national income (GNI) per capita (2017 PPP $)
Very high human development	0.896	78.5	16.5	12.3	43,752
High human development	0.754	74.7	14.2	8.3	15,167
Medium human development	0.636	67.4	11.9	6.9	6,353
Low human development	0.518	61.3	9.5	4.9	3,009
World	**0.732**	**71.4**	**12.8**	**8.6**	**16,752**

Table 3. Human Development Index and its components – the first ten countries belonging to the group Very High Human Development (UNDP, 2021-22)

HDI Rank and Name of Country **(2021)**		Human Development Index (HDI) Value	Life expectancy at birth (years)	Expected years of schooling (years)	Mean years of schooling (years)	Gross national income (GNI) per capita (2017 PPP $)	GNI per capita rank minus HDI rank	HDI rank
		2021	**2021**	**2021**	**2021**	**2021**	**2021**	**2020**
1	Switzerland	0.962	84	16.5	13.9	66,933	5	3
2	Norway	0.961	83.2	18.2	13	64,660	6	1
3	Iceland	0.959	82.7	19.2	13.8	55,782	11	2
4	Hong Kong, China (SAR)	0.952	85.5	17.3	12.2	62,607	6	4
5	Australia	0.951	84.5	21.1	12.7	49,238	18	5
6	Denmark	0.948	81.4	18.7	13	60,365	6	5
7	Sweden	0.947	83	19.4	12.6	54,489	9	9
8	Ireland	0.945	82	18.9	11.6	76,169	. .	8
9	Germany	0.942	80.6	17	14.1	54,534	6	7
10	Netherlands	0.941	81.7	18.7	12.6	55,979	3	10

Table 4 Human Development Index and its components – Low Human Development

HDI Rank and Name of Country		Human Development Index (HDI) Value	Life expectancy at birth (years)	Expected years of schooling (years)	Mean years of schooling (years)	Gross national income (GNI) per capita (2017 PPP $)	GNI per capita rank minus HDI rank	HDI rank
2021		**2021**	**2021**	**2021**	**2021**	**2021**	**2021**	**2020**
187	Burundi	0.426	61.7	10.7	3.1	732	4	187
188	Central African Republic	0.404	53.9	8.0	4.3	966	1	188
189	Niger	0.4	61.6	7.0	2.1	1,240	–3	189
190	Chad	0.394	52.5	8.0	2.6	1,364	–7	190
191	South Sudan	0.385	55	5.5	5.7	768	–1	191

Source: UNDP Report, 2021-22

Analysis of HDI trends during the period of 1990–2021

During the period from beginning of the HDI to the recent year the HDI values recorded linear increasing trend. During this period at the global level HDI values increase by 21.80 percent. All the groups of countries recorded positive trends. This positive trend for the countries belonging to the very high human development recorded 14.29 percent, high human development countries 53.37 percent, medium human development countries 40.40 percent and countries of low human development 45.51 percent. It shows that the highest growth achieved by the countries belongs to low human development group. This growth is not sufficient to transform them into upper level HDI.

Table 5 Human Development Index Trends, 1990-2021

World/ Human Development Groups	Human Development Index (HDI) Values							
	1990	2000	2010	2015	2018	2019	2020	2021
Very high human development	0.784	0.826	0.868	0.889	0.898	0.902	0.895	0.896
High human development	0.557	0.625	0.7	0.734	0.751	0.756	0.753	0.754
Medium human development	0.453	0.506	0.582	0.627	0.643	0.645	0.642	0.636
Low human development	0.356 b	0.399	0.477	0.506	0.518	0.522	0.519	0.518
World	**0.601**	**0.645**	**0.697**	**0.724**	**0.736**	**0.739**	**0.735**	**0.732**

Source: UNDP report 2021-22

Figure 1 reveled that from the period 1990 to 2021 growth of the world HDI was 21.80 percent. East Asia and the Pacific was the fastest growing region with 47.73 percent, followed by South Asia 42.99 percent and sub-Saharan Africa with 34.40 percent. The countries of Sub-Saharan Africa recorded 34.40 percent growth but are still in the group of low human development. The South Asia reached in the group of medium human development. During the period of investigation East Asia and Pacific shifted from group of low human development to a group of high human development. Arab States, Latin America and the Caribbean and Europe and Central Asia move from medium development to group of high development.

During the year 2020 – 2021 over 90 percent of the countries recorded decline trend in HDI values because of the worldwide pandemic of Covid-19. Majority of countries belonging to the group of low, medium and high human development index suffer decline HDI values. However, very high Human Development Index countries did not impact on the HDI.

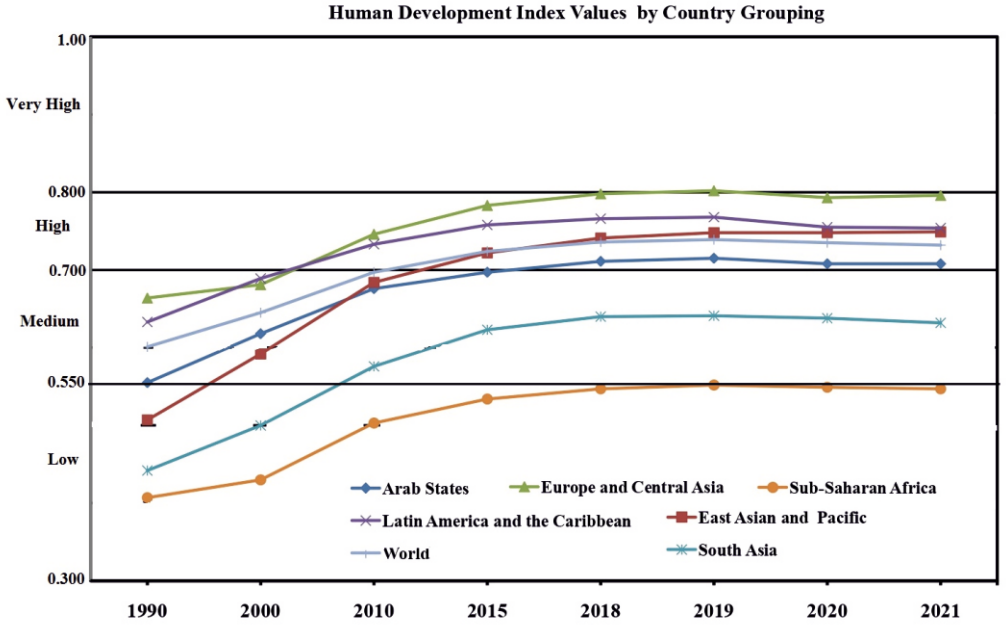


Table 6 Average annual HDI growth in %

World/ Human Development Groups	Average annual HDI growth in %			
		2000–2010	2010–2021	1990–2021
Very high human development	0.52	0.5	0.29	0.43
High human development	1.16	1.14	0.68	0.98
Medium human development	1.11	1.41	0.81	1.1
Low human development	1.15	1.8	0.75	1.22
World	**0.71**	**0.78**	**0.45**	**0.64**

Source: UNDP Report, 2021-22

Table 6 shows that the countries belonging to low development group had recorded highest increase in human development. During the period 2015 to 2021 the human development ranking highest increase recorded in China (progress for 19 positions) followed by Dominican Republic (progress for 16 positions), Egypt (progress for 13 positions) and Bosnia and Herzegovina (progress for 10 positions). The highest significant downward change was recorded by the Bolivarian Republic of Venezuela (decrease by 41 places) followed by Lebanon (fall by 21 positions), Belize and Ecuador (decrease by 14 places). (Human Development Report 2021-22).

Comparative analysis of the HDI of the Indian subcontinent countries

The countries namely India, Nepal, Pakistan, Sri Lanka, Bangladesh, Bhutan and Maldives are the countries of Indian subcontinent. From the countries of the Indian subcontinent (table 7) Sri Lanka and Maldives fall under the category of high human development with the HDI values 0.782 and 0.747 respectively. Bangladesh, Bhutan, India and Nepal belong to medium human development.

Pakistan falls in the group of low human development with the HDI value 0.544.

Table 7 Human Development Index and its components -Indian subcontinent

HDI Rank	Country	Human Development Index (HDI) Value	Life expectancy at birth (years)	Expected years of schooling (years)	Mean years of schooling (years)	Gross national income (GNI) per capita (2017 PPP $)
		2021	2021	2021	2021	2021
73	Sri Lanka	0.782	76.4	14.1	10.8	12,578
90	Maldives	0.747	79.9	12.6	7.3	15,448
127	Bhutan	0.666	71.8	13.2	5.2	9,438
129	Bangladesh	0.661	72.4	12.4	7.4	5,472
132	India	0.633	67.2	11.9	6.7	6,590
143	Nepal	0.602	68.4	12.9	5.1	3,877
161	Pakistan	0.544	66.1	8.7	4.5	4,624

Source: UNDP report 2021-22

Among the countries of Indian subcontinent Sri Lanka has recorded the highest HDI value (0.782) having 73th rank. Sri Lanka has observed two indicators that measure HDI namely expected years of schooling (14.1) and mean years of schooling (10.8) at the top in term of their value. The indicator life expectancy at birth and gross national income (GNI) per capita (PPP US $) has a higher value than Sri Lanka.

Maldives is in the 90th position according to HDI (0.747). The HDI indicators such as life expectancy at birth and gross national income (GNI) per capita (PPP US $) have a higher value in Indian subcontinent. Maldives is the tourist destination. Tourists across the world come here so gross national income (PPP US $) is significantly higher than other Indian subcontinent countries.

Bangladesh has HDI of 0.661, ranking 129th out of 191countries. Bangladesh's life expectancy at birth was 72.4 year, while expected years of schooling was12.4 year and mean years of schooling 7.4 year.

India is in the 132th position according to HDI (0.633). The life expectancy at birth has 67.2, expected years of schooling has 11.9, Mean year of schooling 6.7 and gross national income (GNI) per capita (PPP$) has (6,590). It was more than Bangladesh.

Nepal's HDI (0.602), is better positioned (143th) than Pakistan (161th). The value of Gross national income (GNI) per capita of Nepal (3,877) is the lowest of all countries of the Indian subcontinent.

Pakistan is in the worst position in Indian subcontinent countries having 161 ranks in HDI. Of the HDI indicators except gross national income (GNI) per capita (PPP $), Pakistan is at the bottom in terms of their value.

On the basis of above analysis we can conclude that in countries of Indian subcontinent there is higher dissimilarity in all the HDI indicators.

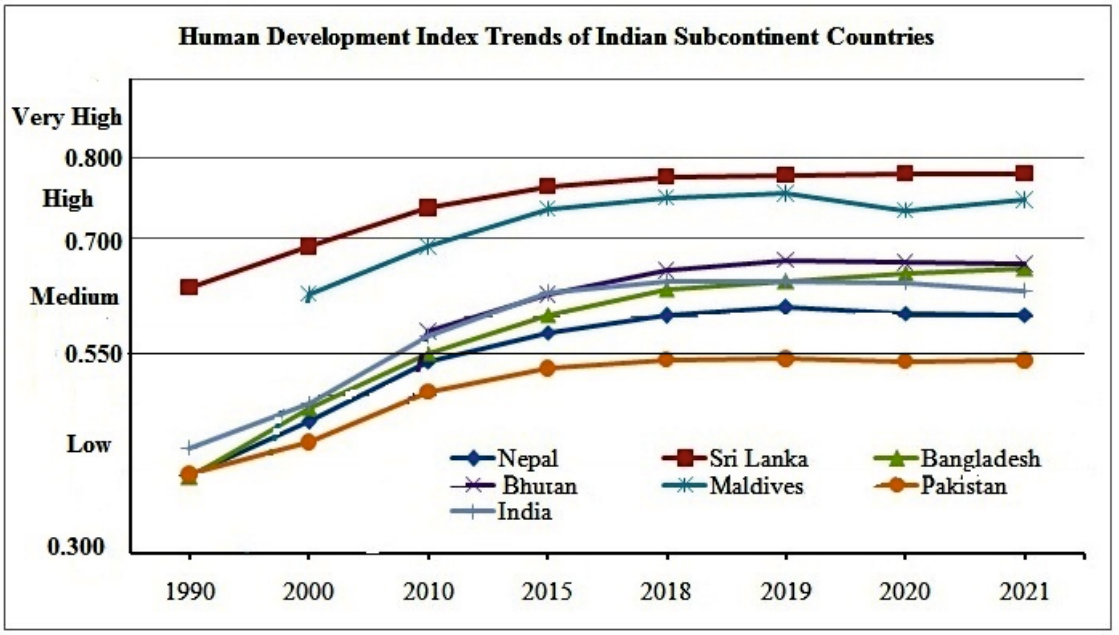
Table 8 Human Development Index Trends 1990 -2021

	Sri Lanka	Maldives	Bhutan	Bangladesh	India	Nepal	Pakistan
1990	0.636	..	..	0.397	0.434	0.399	0.400
2000	0.688	0.628	..	0.485	0.491	0.467	0.441
2010	0.737	0.688	0.581	0.553	0.575	0.543	0.505
2015	0.764	0.736	0.627	0.602	0.629	0.579	0.534
2018	0.776	0.750	0.658	0.635	0.645	0.601	0.545
2019	0.778	0.755	0.671	0.644	0.645	0.611	0.546
2020	0.780	0.734	0.668	0.655	0.642	0.604	0.543
2021	0.780	0.747	0.666	0.661	0.633	0.602	0.544
Change in HDI ranking 2015–2021	9	6	6	11	–1	4	–2
Average annual growth % 1990–2000	0.79	--	-	2.02	1.24	1.59	0.98
Average annual growth % 2000–2010	0.69	0.92	..	1.32	1.59	1.52	1.36
Average annual growth % 2010–2021	0.54	0.75	1.25	1.64	0.88	0.94	0.68
Average annual growth % 1990–2021	0.67	..	----	1.66	1.22	1.34	1

Source: UNDP annual report 2021-22

The above table depicts that during the period 2015 to 2021 except India and Pakistan rest of the countries of Indian subcontinent have shown rising HDI values, but the rates vary significantly. Highest positive change of HDI ranking was recorded by Bangladesh (increase of 11 places), followed by Shi Lanka (increase of 9 places), Maldives, Bhutan (increase of 6 places) and Nepal (increase of 4 places), while Pakistan and India recorded negative change by 2 and 1 places respectively.

In the period 1990-2021 highest average annual growth of HDI is recorded by Bangladesh (1.66%), then Nepal (1.34), India (1.22), Pakistan (1.00) and Sri Lanka (0.67). If the growth of trend continues at the same rate the countries of Indian subcontinent will take long time to move upper group.



Some of the limiting factors of slow growth in HDI of countries of Indian subcontinent are internal political and religious crises, limited foreign investment, high density of population, high population below poverty line, high unemployment rate, high inflation rate, budget deficit, high level of external debt, low budget for education, lack of education facilities, widespread corruption, terrorism, high frequency of natural as well as manmade disasters, less health infrastructure, low connectivity etc.

Thus, faster economic growth is the only way to solve the problems of countries of Indian subcontinents. It improves the conditions of education, literacy of the adult population, standards of living, augmenting health facility and promoting economic growth, which will result in the growth of HDI.

Conclusion

Based on the Human Development Index (HDI) rankings of the Indian subcontinent countries, it is evident that there is variation in the levels of human development within the region. Sri Lanka ranks the highest, followed by the Maldives, while Pakistan has the lowest HDI ranking among these countries.

These rankings provide a snapshot of the overall well-being and development of each country, considering factors such as life expectancy, education, and income. It is important to note that HDI rankings are dynamic and subject to change as countries progress.

The HDI rankings highlight the areas where each country can focus on improving the quality of life for its citizens. Efforts to enhance education, healthcare, income distribution, and overall socio-economic development can contribute to raising the HDI scores and improving the well-being of the population in these countries.

It is worth mentioning that HDI rankings should be viewed as one among various indicators used to assess human development, and they provide a general overview rather than a comprehensive analysis of a country's progress. While the HDI provides a valuable snapshot of development, it has its limitations. It does not capture factors like income inequality, gender disparities, or environmental sustainability, which are essential dimensions of human well-being. As a result, additional indices and

indicators, such as the Gender Development Index and the Inequality-adjusted Human Development Index, are often used in conjunction with the HDI to provide a more comprehensive understanding of a country's development status.

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