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Relationship Between Environmental Sustainability and Human Development Index: A Case of Selected South Asian Nations

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Abstract

All the economists today have established that externalities (free-rider issues) and public goods are the leading causes of market failure, holding the utmost level of relevance of environmental economics. Pollution types can be segregated physically based on the channels (water, air and land) or the sectors responsible for causing it (e.g., industry, electricity generation, transport, agricultural waste disposal, etc.). Thus, sustainability emerges as a key challenge of the twenty-first century for public think tanks and business communities in the form of carbon emissions and global warming. So, in order to understand the role of sustainability in the era of development, the overall broader purpose of the current study is to study the quantitative linkages between human development index (HDI) (a sustainability measure of standard of living, i.e., per capita GDP) and environmental performance index (EPI, measure of environmental health and ecosystem vitality) for the selected South Asian nations (SANs) and comparative analysis of India with the selected developing nations from 2002 to 2016. To test whether the degree of economic expansion and standard of living have a systematic relationship with the level of environmental deterioration (existence of Kuznet curve hypotheses) in a country which poses a future threat to the global warming potential (GWP), the study employs dynamic panel modelling on selected SANs, followed by descriptive graphical synthesis to visualize the association for India in particular. Several other macroeconomic and capital flow variables, such as energy consumption, direct foreign investment and so on, are considered in the extended empirical model development in order to supplement the holistic review of the situation. The findings of the panel analysis discover HDI to be positively associated with EPI, depicting higher human capital accumulation leading to lower environmental damage and better environmental performance. Additionally, the results confirm the deviation from environmental Kuznet curve (EKC) hypotheses to link economic growth positively with climatic worsening (due to recent reversals). The study finds its niche to separate it from various other studies as it includes human capital accumulation in order to find its effect in the long run on sustainability indicator. The overall results suggest crucial policy implications. The combined efforts of government at local and national levels could help in infusing green technology-based infrastructure. Additionally, environment trading system (ETS) could further be promoted in developing nations, particularly in many Western developed nations, in order to have a greener sustainable future.

Key Words

Environmental Performance, South Asia, HDI, Sustainability, Externalities

Introduction

Sustainability is a strategic confrontation in the twenty-first century for the policymakers and the commercial and professional fraternity on the planet. Today, development agendas that promote food security, climate change policies and social protection contributing to sustainable development are all of equal interest for most of the young researchers. Most of the growth strategies that primarily stimulate food insecurity, climate depletion, nation's fragility (refer to Table 1) and social unrest add to unsustainable development. Unfortunately, developing nations are more prone to face the impending unanticipated risk due to the same. With respect to economic growth, it is

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Table 1. Fragility States Index for South Asian Region

SAR Score	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
India	70.4	70.8	72.9	77.8	79.2	79.3	78.0	77.5	76.9	79.3	79.6	77.9
Pakistan	103.1	100.1	103.8	104.1	102.5	102.3	101.6	102.9	103.0	103.0	101.7	98.9
Bangladesh	96.3	95.9	100.3	98.1	96.1	94.4	92.2	92.5	92.8	91.8	90.7	89.1
Nepal	95.4	93.6	94.2	95.4	95.4	93.7	93.0	91.8	91.0	90.5	91.2	91.0
Sri Lanka	92.4	93.1	95.6	96.7	95.7	93.1	92.2	92.9	92.6	90.7	87.7	86.6
Afghanistan	99.8	102.3	105.4	108.2	109.3	107.5	106.0	106.7	106.5	107.9	107.9	107.3
Bhutan	87.9	86.4	85.4	87.3	87.3	85.0	82.4	81.8	80.9	78.7	77.6	76.0

Source: The authors (adaptation from the database by the *Fund for Peace*, the USA where the higher score indicates greater vulnerability).

quite pertinent that emerging nations' planet face arduous challenge that stems from the aggravated third generation's concerns of population growth and reliance on non-fossil fuel-based energy sources. Transition towards green growth and sustainability is indispensable. While there is evidence of declining energy consumption accompanying the development process, but for many of these countries, it remains unclear what path economic output will follow or whether it is likely to translate into rising CO_2 emissions over the long term. The climate policy is considered to foreplay for most of the nations to take place in their respective economic policies to ensure long-term perpetual economic growth with limited reliance on fossil fuel-based energy sources.

Table 1 clearly depicts that the world's most fragile states are heavily concentrated in South Asia itself. According to the recent scores and rankings, Afghanistan is considered to be the most unbalanced Asian state and therefore ranked seventh across the globe, followed by Pakistan at 10 (the higher the ranking, the less stable the country is considered). Bangladesh, Sri Lanka and Nepal exist at 29, 30 and 31, respectively, underlying South Asia as the region's most dense with relatively fragile states outside of the Middle East and North-Central Africa.

The hypothesis that links economic growth with environmental degradation is coined by Simon Kuznet and most popularly known as environmental Kuznet curve (EKC) hypothesis. The same establishes direct linkage among growth pairing environmental depletion in early stages of economic development which reverses after reaching a saturation point. To establish the same, we have used yet another sustainability indicator that focuses on environmental sustainability, given by the environmental performance index (EPI).[1] The initial version of EPI has its roots in the environmental sustainability index (ESI) (1999–2005), developed by a syndicate of Yale Center for Environmental Law and Policy and Columbia University. It ranks 180 nations based on 24 performance parameters across 10 issue groups, enfolding *environmental health* (EH)[2] and *ecosystem vitality* (EV). In general, EH is presumed to progress with economic growth and wealth, while EV is assumed to diminish with expanding industrialization and urbanization. Further, EPI highlights how close nations are to the globally targeted environmental policy standards.

Figure 1 indicates the time trend of the EPI score of SANs from 2002 to 2016. The environmental performance has been improved in the recent years for most of the South Asian Association for Regional Cooperation (SAARC) nations (as indicated by the extensions of radar in Figure 1 for Sri Lanka and Bhutan the most) but stand nowhere in comparison with top few developed nations that have consistently performed excellent in the recent years. Among the SANs, Sri Lanka and Bhutan record high levels of EPI at 65.55 and 64.49, respectively. However, in terms of percentage change over the past few years, Afghanistan and India have registered the maximum increase in terms of their EPI scores by 94 per cent and 72 per cent, respectively.

Table 2 represents the EPI score, in the year 2016, of top 11 nations that have persistently outshined over the years

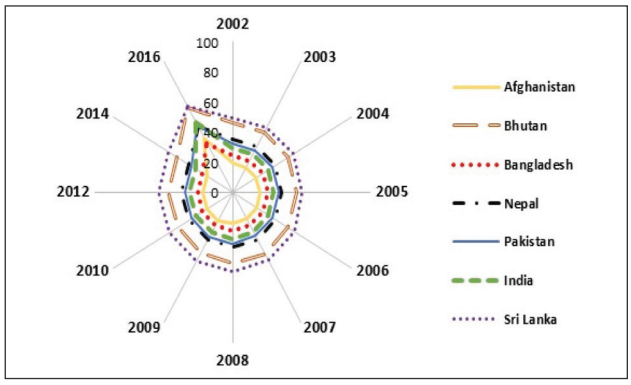

Figure 1. Time Trend of EPI of South Asian Nations

Source: The authors (representation from EPI reports, World Economic Forum database).

Table 2. Top 11 Nations EPI Score

EPI	2016	EPI	2014
Finland	90.88	Switzerland	87.67
Iceland	90.51	Luxembourg	83.29
Sweden	90.43	Australia	82.40
Denmark	89.21	Singapore	81.78
Slovenia	88.98	Czech Republic	81.47
Spain	88.91	Germany	80.47
Portugal	88.63	Spain	79.79
Estonia	88.59	Austria	78.09
Malta	88.48	Sweden	78.04
France	88.20	Norway	77.75

Source: The authors (adapted from EPI Reports, World Economic Forum database).

due to their adherence to respective environmental sustainability standards. The same hints towards their stable EH and EV on air quality, water and sanitation, agriculture, forests, fisheries, biodiversity and habitat, and climate.

Further, to proxy the economic development to test the EKC hypothesis, we have used qualitative composite indicator, that is, human development index (HDI). HDI is one of the significant indices to depict the level of social and economic development (well-being) of a country, coined by United Nations Development Programme (UNDP) in 1990. It primarily comprises three broad indices—education index, income index and life expectancy index. Alternatively, HDI includes a decent standard of living (given by GNI per capita), knowledge (given by expected years of schooling) and long and healthy life (with a holistic mix of qualitative and quantitative growth parameters). The two fundamental problems in the way of global sustainability entail (a) free-rider concern where other nations' cooperation towards global public good contribution remains disproportionate and (b) escape from the historical responsibility towards global warming.

The remaining article is organized as follows. The second section briefly discusses the theoretical and empirical review of literature. The third section highlights the underlying objective of the article, followed by data sources and sample selection in the fourth section. The fifth section explains analytical framework, modelling and methodology with preliminary investigation. The empirical strategy and estimation results are presented in the sixth section. Finally, the seventh section concludes the article with key policy remarks.

Brief Literature Review

There is a paucity of literature in the field that links EPI, HDI, GDP per capita, urbanization, FDI and other variables.

The existing literature so far has corroborated an inverted 'U-shaped' association either increasing or decreasing between environmental depletion and a rising per capita income level. Yandle, Bhattarai, and Vijayaraghavan (2004) furnished a complete outline and discussions of the empirical literature (Anderson & Cavendish, 2001; Perrings & Ansuategi, 2000; Antweiler, Copeland, & Taylor, 2001; Cavlovic, Baker, Berrens, & Gawande 2000; Dasgupta, Laplante, Wang, & Wheeler 2002; Ekins, 1997; Esty, 2001; Harbaugh, Levinson, & Wilson, 2002; Kelly, Coronado, Zhao, & Schatz, 2003; Lieb, 2002; Lindmark, 2002; Millimet, List, & Stengos, 2003; Paul, Polglase, Nyakuengama, & Khanna, 2002; Selden & Song, 1994, 2002; Van Soest & Bulte, 2001). The association among EPI, per capita GDP, urbanization, FDI and other variables is still debatable for the country set and period that is opted in the current study. In their assessment of the Kuznet Curve proposition, Dasgupta et al. (2002) identified the relevance of inclusion of technological progress, which is directly related to the climate change. At the same time, Andreoni and Levinson (2001) stipulated a theoretical justification of the EKC (assuming economies of scale in pollution abatement).

The well-known Kuznets curve (EKC) envisages emissions' increase until a certain level of income as developing countries *grow first and clean up later*. The study by Dasgupta, Hamilton, Pandey, and Wheeler (2006) proves that this contention is incorrect and finds testimony that climatic governance is also doable for developing countries.

Some of the studies have combined governance parameter with social issues like climatic upgradation and poverty alleviation. One of the studies by McGillivary and Smith (2005) on a chosen number of developing nations assesses a number of indicators such as poverty, inequality, health status, education status, gender bias, empowerment, governance and subjective well-being (environmental performance). He has obtained that most of the commonly used indicators are highly correlated to income, and, as a consequence, they are not able to give any more information than income can.

The existing literature in the HR field on the issue of sustainability recommends that more and more HR executives are keen to modulate their corporation as such to become exclusive environmental champions. A great extent of empirical research emphasizes the effect of environmental management practices on the performance of the organization (Iraldo, Testa, & Frey, 2009; Yang, Lin, Chan, & Sheu, 2010).

The study by Samimi, Kashefi, Salatin, and Lashkarizadeh (2011), Kashefi, Salatin, and Maryam (2011) linked environmental performance to HDI from 2006 to 2010 for 114 countries (comprising both developing and developed nations). The empirical results of the study indicate positive and significant association between HDI and EPI for developed nations only where the same does not hold good for developing nations.

Maccari (2014) investigated the relationship between the two components—HDI and EPI—for 129 nations for the year 2012. The results indicate a U-shaped association between HDI 2012 and EPI 2012 for the selected nations. At an increasing human development level, the same hints towards the global tendency of nations to depict deteriorating environmental performance only up to a tipping

(minimum) point, followed by increasing environmental quality. Overall, nations with medium- to low-development levels are undergoing the worst environmental conditions in comparison with nations at a lower or a higher human development level.

However, Arfanuzzaman (2016) focused on a specific country study (Bangladesh) over the period 2000–2012. The study discovers that CO_2 emissions, HDI, income per capita and EPI have a co-integrating relationship in the long run, whereas transitory effect analysis depicts no short-run shock of explanatory variables such as CO_2 emissions, HDI, per capita income on the EPI.

Chowdhury and Islam (2017) explored the relationship between EPI and GDP growth rate BRICS nations over the period 2008–2016. The findings suggest a negative linkage between EPI and GDP growth rate. The study empirically establishes existence of no strong correlation for all the BRICS nations except Russia.

All the Intergovernmental Panel on Climate Change (IPCC) reports on climate hint towards the eminent challenge to tackle global warming along with intact economic growth. From all the postulations, economic development determines the health of environmental performance to a significant extent. Yet, the validation behind the unhealthy environmental performance continues to remain debatable both empirically and graphically (due to simultaneous growth of output, energy and foreign investment for developing nations in general).

The current article finds its niche to investigate empirical dataset till 2016 for the selected SANs, considering new proxy variables for climate and economic health of these nations with the inclusion of macroeconomic variables to understand the role of third-generation issues (peculiar to emerging nations' region like South Asia).

Objective

In the light of the ongoing sustainability concerns, the broader rationale of the current study is to study the quantitative linkages among HDI[3] (a sustainability measure of standard of living and economic growth indicator), EPI (measure of EH and EV) and other macroeconomic variables for selected SANs from 2002 to 2016. There is a paucity of studies on sustainability that have blended qualitative indicators with macroeconomic and financial parameters to depict the umbrella view.

Data Source and Sample Selection

The data are obtained mainly from World Development Indicators, the World Bank. EPI data are extracted from the *Yale Center for Environmental Law & Policy (World Economic Forum)*. HDI data are collected from UNDP Human Development reports[4] and reviews on qualitative indicators.

The sample is purposefully considered to be of selected South Asian (developing) nations[5] in order to examine any pertinent distinction on the association among the studied variables due to differences in the stage of development. The period considered for the study is from 2002 to 2016 so as to investigate the recent reversals (if any) for developing nations for growth pairing with positive impact on the environmental performance.

Research Methodology

In order to conduct empirical examination of the linkage among the variables, the study has applied *dynamic panel modelling technique (system Generalized Methods of Moments, GMM)* on the selected *South Asian countries*. In order to have the preliminary investigation of the dataset, it has considered the descriptive statistics in order to understand the measure of central tendency and dispersion (refer to Table 3).

In econometrics, the Arellano–Bond estimator is a generalized method of moments estimator used to estimate dynamic panel data models. Blundell and Bond (1998) developed a condition under which it is feasible to employ an additional set of moment condition. These additional moment conditions can be used to improve the small sample performance of the Arellano–Bond estimator. These moment conditions are functions of the model parameters and the data, such that their expectation is zero at the parameters' true values. The GMM method minimizes a certain norm of the sample averages of the moment conditions. The GMM estimators are known to be consistent, asymptotically normal and efficient in the class of all estimators that do not use any extra information aside from that contained in the moment conditions. The validity is tested using Sargan–Hansen Test.

Table 3 depicts the broader nature of the panel dataset variables' scattered-ness and variability of selected SANs considered for the study.

Table 3 indicates the summary statistics of the variables along with their respective measures of dispersion and ranges. Macroeconomic variables, such as per capita GDP, GDP growth and population density, indicate relative higher mean values and greater range intervals.

Table 4 further analyses the data using correlation (association) technique in order to understand the preliminary linkage among the variables used in the article.

Since the study includes macroeconomic variables and we have examined the previous period impact of the environmental performance on the regression equation, dynamic panel technique is found to be appropriate to establish the causal regression relationship. We have tested the curvilinear relationship (non-linear) of environmental performance with per capita GDP over a long period. Additionally, the same is established in the Indian context graphically as well in order to justify it logically.

Table 4 depicts key prospective linkages of EPI to HDI and other macroeconomic and financial variables used in the study. The following pertinent observations are worth mentioning:

Table 3. Descriptive Analysis

Variables	Obs.	Mean	Std Dev.	Min.	Max.
EPI	75	37.19	10.15	24.24	65.55
GDPpc	75	1275.96	848.60	465.55	3759.23
Urbanization	75	26.32	7.89	14.26	39.22
Population_g	75	1.36	0.45	0.75	2.13
FDI	75	1.13	0.82	−0.10	3.67
HDI	75	0.57	0.09	0.46	0.77
Fin_Mkt_Dev	75	37.19	13.17	15.39	81.05
Energy usage	65	407.83	130.21	149.73	637.43
GDPg	75	5.49	2.09	0.12	10.26
Pop_D	75	457.15	361.23	171.37	1251.84

Source: The authors (using Stata13).

Table 4. Correlation Matrix

	EPI	HDI	GDPpc	Urban	Population_ Growth	Financial Market Development	Energy Usage	Pop_D
EPI	1							
HDI	0.7544	1						
sig	0.0000							
GDPpc	0.8065	0.9314	1					
sig	0.0000	0.0000						
Urbanization	−0.4621	−0.3462	−0.243	1				
sig	0.0000	0.0023	0.0357					
Pop_Growth	−0.4797	−0.683	−0.49	0.6841	1			
sig	0.0000	0.0000	0.0000	0.0000				
Fin Mkt Development	0.0278	0.072	−0.0487	−0.2881	−0.4836	1		
sig	0.8128	0.5391	0.6784	0.0122	0.0000			
Energy Usage	−0.4858	0.378	0.5073	0.1334	0.0782	0.0689	1	
sig	0.0000	0.0019	0.0000	0.2893	0.5358	0.5853		
Pop_D	−0.4900	−0.0991	−0.1986	0.2728	−0.1462	0.0315	−0.7681	1
sig	0.0000	0.3977	0.0876	0.0179	0.2107	0.7882	0.0000	

Source: The authors (using Stata13).

1. EPI is positively and significantly associated with HDI and per capita GDP. The same hints towards the healthy position of environmental ecosystem and its vitality with incremental standard of living and per capita income of the people in SANs.
2. EPI is negatively and significantly linked to urbanization, population growth and density and energy usage. The same directs towards deteriorating environmental performance with increasing movement of people from rural areas to urban centres through higher reliance on fossil-fuel-based energy sources.
3. EPI is found to be insignificantly related to financial market development parameter. Since the financial markets of most of the SANs are yet to reach their potential level of development, therefore the same is not found to be significantly impacting the environmental ecosystem.

Table 5 includes the panel regression results of empirical testing on selected SANs dataset from 2002 to 2016 as per the trailing regression equation:

$$\begin{aligned}\mathrm{EPI}_{it} = {} & \alpha + \beta_1(\mathrm{EPI}_{it-1}) + \beta_2(\mathrm{Urban}_{it}) + \beta_3(\mathrm{Pop\_D}_{it}) \\ & + \beta_4(\mathrm{FDI}_{it}) + \beta_5(\mathrm{HDI}_{it}) + \beta_6(\mathrm{FinMktDevelop}_{it}) \\ & + \beta_7(\mathrm{Energy\ Usage}_{it}) + \beta_8(\mathrm{HDI}_{it}^2) + \varepsilon_{it}\end{aligned}$$

where

- EPI is used to proxy the EH of the SANs (to represent the climatic uplift).
- Urban is used to represent the number of people staying in urban areas as a percentage of total population.
- Pop_D is included to estimate the impact due to increasing population density in the urban and non-urban centres in the selected SANs.

- HDI represents the social cum economic growth indicator to estimate the magnitude of influence due to improvement in standard of living and per capita income level of the people staying in the selected developing nations group.
- FDI captures the financial growth effect in the form of direct foreign investments that have been apportioned to the SANs.
- Energy usage primarily is considered to investigate the impact due to SAN's reliance on fossil-fuel-based (highly carbon intensive) energy utilization for their 80 per cent of the total requirements.
- HDI_s*q* term is included in the regression equation to find out the reversal in the scenario (direct linkage between growth and climatic depletion), EKC postulation.

Results

From Table 5, the following pertinent observations could be noted:

1. EPI is found to be positively and significantly associated with HDI (Models 1–6). The relationship holds good for all the models tested. The same confirms the direct strong impact of human development towards better EH in SANs. Additionally, this result deviates from the EKC postulation that establishes direct linkage between economic growth and per capita emissions. Since HDI is a vital indicator of human development to include social effects like education and health, this could be contemplated as the desired effect. Because the level of education depends on the HDI and when a nation's level of education enhances, population growth rate drops and consequently reduces the strain on natural resources, thereby increasing EPI. Different strata of the society having higher social development are indeed considered to be more concerned about the environmental perils, thereby leading to higher EPI (Gurluk, 2009; Samimi et al., 2011).
2. As expected, EPI is found to be negatively and significantly impacted by increments in urbanization, energy usage and population density (Models 2–5).

Table 5. Regression Results

	Dependent Variable				
	EPI	EPI	EPI	EPI	EPI
	(1)	(2)	(3)	(4)	(5)
Regressors	Sys_GMM	Sys_GMM	Sys_GMM	Sys_GMM	Sys_GMM
L1.EPI	0.3862***	1.4877***	1.6192***	0.5607***	0.3767***
	(0.1505)	(0.1797)	(0.1247)	(0.1187)	(0.1496)
HDI	8.2407***	29.1276*	13.5063**	22.9314***	20.9108***
	(0.2436)	(0.1345)	(0.4360)	(0.7249)	(0.1397)
Urbanization		−0.6857***	−0.5262**	−0.2207**	−0.2039***
		(0.1345)	(0.2451)	(0.0959)	(0.0857)
Financial market development			−0.0061	−0.0049	
			(0.0444)	(0.0100)	
Energy usage				−0.0027*	−0.0078**
				(0.0023)	(0.0031)
Foreign direct investment					0.0567
					(0.0668)
HDI_sq					−0.8611
					(0.5760)
Pop_Density					−0.0014***
					(0.0045)
Constant	−2.3212 ***	−19.5794**	−26.9940**	10.1776***	16.1919***
	(0.4713)	(0.6352)	(0.1692)	(0.3614)	(0.0267)
Sargan Test	0.57	0.45	0.68	0.59	0.76
Wald χ^2	252.75	328.46	309.20	337.65	380.05
Prob > χ^2	0.0000	0.0000	0.0000	0.0000	0.0000
Number of observations	65	65	65	65	65
Number of groups	5	5	5	5	5

Source: The authors (regression results based on DPM-GMM, STATA 13 testing).

Notes: 1. ***, ** and *Signify 1%, 5% and 10% levels of significance, respectively (***$p < 0.01$,**$p < 0.05$, *$p < 0.1$).

2. *Z*-statistics in parentheses.

3. Sargan test establishes the robustness of all the model specifications tested above.

4. The quadratic term of GDP per capita is negative but non-significant.

Due to recent structural shifts in the developing nations' diaspora, SANs have witnessed movement of people from rural areas to urban centres (shift from agriculture to secondary and tertiary sector). The same have adversely impacted the EH due to industrialization and greater usage of fossil fuel-based coal sources.

3. Surprisingly, the empirical results indicate a somewhat contentious relationship on EPI due to increments in financial openness (proxied by Financial Market Development) and FDI (Models 3–5). Also, the square term of HDI remains insignificantly but negatively impacting EPI. This further eliminates any prospective progressive incremental changes in environmental degradation in the long run.
4. Sargan testing conforms to the robustness of different model specifications (Models 1–5).

Conclusion and Policy Implications

The current study has endeavoured to combine qualitative social factor with environmental performance. Most of the studies so far have drawn inferences based on the quantitative factors interlinkages with climatic emissions. None of the studies has blended both social parameters with financial and macroeconomic variables to investigate the amalgamated impact on the environmental ecosystem for SANs (in particular). The period consideration is intentionally taken to be more recent so as to have a fair idea of the recent reversals (deviation from the conventional EKC postulation). The empirical results confirm the deviation from EKC hypotheses to link economic growth positively with climatic worsening. A direct inference, that could be drawn based on the empirical panel regression results, is that greater human capital accumulation (through skilled and educated masses) could enable developing nations to confront growing global warming concern effectively. Further, other macroeconomic control variables, such as energy usage, urbanization and population density, direct towards unfavourable impact of climatic depletion. Based on the empirical results, some of the very important policy inferences could be drawn.

It is said that no single policy could work in isolation to correct the situation of global warming in developing nations. There is an immediate need to have multifold policy measures that could merge mitigating and adaptive steps.

Mitigating measures: There shall be macroeconomic strengthening by a persistent pursual of national and local targets towards formulation of climate change policies and bylaws (like endorsement of low emission-based techniques, usage of silicon cell-based fuel vehicles, etc.). Additionally, environment trading system (ETS) could further be promoted in developing nations in particular like in many Western developed nations in order to have a greener sustainable future.

Adaptive measures: There is a requirement to change the entire framework conditions by the policymakers to induce private sector through regulatory government policy interventions that could provide the required stimulus to create positive externalities for the environmental performance.

Some of the developed countries have productively employed 'Green Bonds[6]' in the space of projects based on renewable energy sources. Additionally, to foster the renewable energy share, developed countries are moving fairly steadfast from fossil fuels towards the higher share of renewable-based energy sources: mainly relying on solar-based energy and wind power plus water-based energy generation.

Further, human resources are considered to be the indispensable asset that plays a vital role in corporate world. The contemporary HR role is ascribed with additional responsibility of incorporating the *Green HR philosophy* in the mission statement. Green process and policies are now making their way through within the HR space complementing the existing green practices and initiatives. Green HR efforts have resulted in increased efficiencies, cost reduction, employee retention and improved productivity, besides other tangible benefits.

Additionally, *Education*[7] to develop *Human Capital* could be instrumental in 'climate change adaptation'. Education does more to reduce deaths from climate-related disasters than economic growth as per one of the recent research findings. Education can also deliver the scientific facts about the biggest issue facing young people, something that is being felt by millions worldwide. It equips youth with the skills to help combat climate change and be part of a green recovering and positive future.

The researchers say education helps reduce vulnerability to disasters and enhances adaptation to climate change. Education and awareness-raising enable informed decision-making, play an essential role in increasing adaptation and mitigation capacities of communities and empower women and men to adopt sustainable lifestyles.

Lastly, the foundation of *Tomorrow* shall be laid down *Today*. In order to have a greener sustainable future, greater international coalitions and regional green agreements of developing nations with developed nations could really incentivize and improve the global issue of climate change in entirety.

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Notes

1. The EPI ranks countries' performance on high-priority environmental issues in two areas: protection of human health and protection of ecosystems. Within these two policy objectives, the EPI scores national performance in nine issue areas comprised of more than 20 indicators (EPI, 2016a, 2016b).
2. EH comprises air quality, heavy metals and water quality issue groups, whereas EV consists of biodiversity and habitat, forest, fisheries, climate and energy, air pollution, water resources and agriculture issue groups.
3. The HDI is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living. The HDI is the geometric mean of normalized indices for each of the three dimensions (extracted from http://hdr.undp.org/en/content/human-development-index-hdi)
4. Available at http://data.un.org/ (accessed 9 March 2018).
5. Selected South Asian Nations comprise of Bangladesh, Nepal, India, Pakistan and Sri Lanka.
6. A green bond is a tax-exempt bond issued by federally qualified organizations or by municipalities for the development of brownfield sites. Brownfield sites are areas of land that are underutilized, have abandoned buildings or are underdeveloped, often containing low levels of industrial pollution. Green bonds are short for qualified green building and sustainable design project bonds.
7. Available at https://www.carbonbrief.org/education-is-top-priority-for-climate-change-adaptation-study-shows (accessed 10 March 2018).

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