

Sustainable Development for Vulnerable poor in Indian economy

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ABSTRACT

But for him, India would have left much less the winds of change that had been blowing over the world; he made us aware of them and also more receptive. Yet he failed his people insofar as he could not adequately execute the great mandate, he had from them because he just was not relentless enough. He was our beautiful but ineffectual angel, beating his beautiful wings largely in vain. Hirendranath Mukherjee (1964). *The Gentle Colossus: A study of Inclusive growth achievement path*

Sustainable development is essential for the growth of modern economy. The present study is a venture to analyse the sectors that can have a positive impact on its development. Sustainable development can be reinforced if a region has a sound economic infrastructure, robust industrial development, demographically developed and water resources, energy and fed individuals. The secondary data gathered from various government publications and research articles has been put to various statistical techniques like ranking, principal component analysis and stepwise regression. The current energy challenges can be met with an integral policy for long term growth diverted to the development of various sector viz. industry, infrastructure, demography, agriculture etc. given the critical role of energy development in improving not only the quality of life but also productivity in various sector, a multipronged strategy have been suggested in the present study to help the planners and policy makers.

Retrieval of the genuine Indian economic identity is essential for the sustainable human and social development of the Indian people. This 'identity' has to be a concern for all committed Indian people. We need a historical and interdisciplinary intellectual enquiry for rediscovering the true economic identity of India. Further, we need to identify our resource potential including traditional technology. India is a continental economy with a diversified resource base. The foregoing facts reveal that UPA government attempted to formulate and implement a distinct economic identity for India. However, there is struggle between the Indian state and growth diversification on economic identity. But in this struggle, the Indian state is gradually defeated and new globalization is imposed on India which facilitates rapid economic growth. But globalization only enhanced the misery of the people of India. Hence 'de-globalization' is required for evolving a genuine economic identity of India.

Introduction:

A broad picture of where Indian stands today in cross-sectional terms have wide path. It is a country that remains crushingly poor but has had a decade of fast growth. In per capita income terms, with purchasing power parity correction, India has now outperformed Pakistan. On the other hand, China, whose economic performance even a decade ago was very close to India's, has now surged ahead and has more than double of India's per capita income, India's growth performance in the last decade has been second only to China's, but the gap between the two nations is, nevertheless, substantial.

Sustainable development is essential for the growth of modern economy. The present study is a venture to analyse the sectors that can have a positive impact on its development. Sustainable development can be reinforced if a region has a sound economic infrastructure, robust industrial development, demographically developed and water resources, energy and fed individuals. The secondary data gathered from various government publications and research articles has been put to various statistical techniques like ranking, principal component analysis and stepwise regression. The current energy challenges can be met with an integral policy for long term growth diverted to the development of various sector viz. industry, infrastructure, demography, agriculture etc. given the critical role of energy development in improving not only the quality of life but also productivity in various sector, a multipronged strategy have been suggested in the present study to help the planners and policy makers.

Data & Methodology:

The present study aims to identify the factors responsible for the status of Irrigation system and water resource management and reforms in urban water distribution systems and urban markets of India. The study is based on secondary data which is gathered from various government publications and research articles. The scope of the present study is to make a systematic attempt for the identification of factors responsible for the urban water distribution in India. The present paper is a modest attempt to study the divergence or convergence phenomenon across selected Indian states for the period 1980-81 to 20013-14. To test the implication of the theory, only single equation linear structure models both simple and multiple regressions are specified. A regression model is based on one and multiple independent variables. It is expressed in the following form:

$$Y_i = B_0 + B_1 X_{i1} + B_2 X_{i2} + B_3 X_{i3} + \dots + B_n X_{in} + e_i$$

(i = 1, 2, -----28)

Where X_i 's are independent variables, Y_i is the dependent variable and B 's are the regression coefficients. e_i 's is the disturbance term. The models are assumed to conform to the standard assumption of classical linear regression model.

To determine the factors that affect drinking water index, health index statistical regression models are estimated. These models establish the cause-and-effect relationship between the dependent and independent variable. The econometric model built is: Interaction between drinking water index and various factors.

Introduction of Indicators:

Regression analysis is applied to various composite indices rather than individual variables. Each index is a combination of number of variables, which are as follows:

1. Drinking water Index comprises of total availability of drinking water, climate effect, and number of populations, government water schemes and population ratio.
2. Health Index includes infant mortality rate, area served per government medical institution, government medical institutions per lakh of population, number of inpatient beds per lakh of population.
3. Economic Infrastructure includes road length per lakh population, banks per lakh population, post and telegraph per lakh population, power consumption per lakh population and percentage of villages electrified.

Result and Discussion:

Determinants of growth across Indian states:

Applying robust covariance matrix, heteroscedasticity bias of standard errors has corrected for both the equations, and the regression result based on equation 2 is presented in table-1. The Statistically significant F-value and close the two D-W statistics suggest that the model is good fit. The statistically significant coefficient of Industrial Index with the value 1.106, as shown in table 1 suggests that Industrial energy consumption has significant and robust impact on economic growth. Coefficients of developmental expenditure, urban population and

ratio of irrigated area to gross cropped area also bear positive and statistically significant impact on growth. The coefficients of infrastructure index and health index, albeit, are not statistically significant but bear the expected sign.

Table-1
Regression results with growth rate as Dependent Variable

Variables	Un-standardized coefficients	Standardized Coefficients	Standard Error (S.E.)
Constant	2.510*	-	0.378
Infrastructure Index	0.025	0.165	0.097
Development Exp.	0.025***	0.197***	0.015
Log of PerCapita SDP	-0.357*	-2.134*	0.052
Urban Population	0.003*	0.426*	0.001
GIA to GCA	0.02***	0.587***	0.001
Education Index	1.104	1.378*	0.169
Health Index	0.012	0.038	0.034
Assam	-0.070	-0.286	0.050
Bihar	-0.0115*	-0.419*	0.044
Gujarat	0.036	0.116	0.041
Haryana	-0.014	-0.144	0.0456
Karnataka	0.006	0.026	0.031
Kerala	-0.0211	-0.756*	0.061
Madhya Pradesh	-0.178*	-0.677*	0.041
Maharashtra	-0.031	-0.121	0.050
Orissa	-0.117*	-0.449*	0.037
Punjab	-0.051	-0.212	0.070
Rajasthan	-0.005	-0.021	0.026
Tamil Nadu	-0.100*	-0.370*	0.032
Uttar Pradesh	-0.128*	-0.457*	0.044
West Bengal	0.054***	0.187***	0.031
F-value		3.419*	
R2		0.261	
Adj. R2		0.185	
D-W Statistics		1.89	
Degree of Freedom		224	

Note:*,**, and *** indicates 1%,5% and 10% level of significance d.f. ,GIC is Gross Irrigated Area ,and GCA is Gross Cropped Area

Source: calculated by the author

2. Energy Consumption:

Energy is one of the important requisites for the day to day functioning of household. Energy is derived from various sources such as biofuels, fossil fuels, electricity, etc. These sources are generally classified as conventional sources and energy is classified as commercial energy and renewable energy.

(a) Petroleum and Gas:

The demand for oil and gas has been consistently rising due to increasing population and a consumptive life style, particularly the use of natural gas, due to its clean and environment friendly nature. The government provides some incentive in the form of a subsidy and has rationalized customs duty on imports to encourage investors. The hydrocarbon vision for 2025 estimates the share of hydrocarbons in the future energy supply up to the year 2025 to be 45 percent, against the existing share of 42 percent.

(b) Electricity:

Electricity is the lifeline of the major economic activities of the modern age and is the commercial form of energy most in demand. The generation of electricity in the last three decades has increased from 61 billion kilo watt hour (kwh) in 1970-71 to 464 billion kwh in 1997 of which 72 percent was thermal, 24 percent was hydro electrical, three percent nuclear and about one percent wind. The compound growth rate during 1992-2020 was 6.6 percent. Despite significant development in this sector, the demand for electricity continues to outstrip the supply.

(c) Energy and Poverty:

Energy services are a necessary condition for sustainable development. Energy is one dimension of the determinant of poverty and development. Energy supports the provisions of cooking, lighting, comfortable living temperature; the use of appliances, piped water supply, and etc. Lack of access to energy contributes to poverty. The energy dimension of poverty or energy poverty may be defined as the absence of sufficient choice in accessing adequate, affordable, reliable, high quality, safe and environmentally benign energy services to support economic and human development.

Table-2
Fuel Costs per Unit End-use and Useful Energy

Users Category	Energy Exp. (Rs.per year)	Energy Exp. %	Price Per Unit End Use Energy (Rs.Per kwh)	Price Per Unit useful energy (Rs. Per kwh)
	Rural			
Biomass	1227	10.1	0.09	0.46
Biomass & Kerosene	1129	8.8	0.07	0.33
Biomass & Electricity	1477	8.6	0.08	0.31
Biomass,Kerosene&Electricity	1435	8.2	0.08	0.28
Kerosene&LPG	1670	6.1	0.19	0.37
Kerosene,LPG&Electricity	2105	7.1	0.18	0.31
Electricity& LPG	1896	6.4	0.20	0.33
	Urban			
Biomass	1328	9.4	0.14	0.68
Biomass & Kerosene	1185	8.8	0.08	0.37
Biomass & Electricity	1261	8.4	0.09	0.34
Biomass,Kerosene&Electricity	1595	8.7	0.09	0.33
Kerosene&LPG	2145	6.6	0.22	0.43
Kerosene,LPG&Electricity	2427	7.5	0.18	0.32
Electricity& LPG	2528	7.1	0.21	0.33

Source: <http://www.energyfor.de>

3. Urbanization:

The availability of electricity in urban areas has drastically altered the relationship between man and his environment. Urbanization reflects not merely a demographic change but the process of development. Unsustainable consumption pattern is one of the salient features of the cities. As urbanization increases the demand for electricity also increases. Urban manufacturing and industry require more electricity. Generation of electricity puts stress on

environment but it can be an instrument of sustainable development with an emphasis on more efficient use of energy. Improvement in the quality of life in rural areas through electrification of homes for lighting can decrease the negative aspects of balanced urban and rural development.

The new millennium is ushering in a new urbanized era. Perhaps the forces of change economic, social, technological, and political render this process inevitable. Rapid urbanization is associated with a rise in energy demand, which potentially threatens the sustainability of human settlements and the natural environment. The spatial concentration and diversification of human and economic activities hasten the demand for resources and compromise the carrying capacity of final disposal systems and infrastructure.

4. Drinking Water Depletion:

It has been observed that nations across the world often disregard the environment to achieve their present developmental goals. This adversely affects the future productivity of natural resources and has serious implications for future economic development. India has also learned the similar experiences and it has been felt that the success of the inclusive growth also involved some failures on the environment front. Out of the 5723 assessment units assessed jointly by State Ground Water Departments and Central Ground Water Board (CGWB) in India, 4078, were found safe (71%), 550 semi-critical (10%), 226 critical (4%) and 839 over-exploited (15%). Just six states (Gujarat, Haryana, Maharashtra, Punjab, Rajasthan and TamilNadu comprising 1413 assessment units, have 762 assessment units which are semi critical, critical or over-exploited (54% against national average of 29%). even though the 2020 estimates are not strictly comparable with 1995 estimates.

Table-3
Results of Regression of Natural Log of Ground Water Level on Time
(1990-91 to 1920-21)

D.V.	Intercept b ₀	Reg. Coff. b ¹	t-value b ₀	t-value b ¹	F-value	d- value	R ²	Adjusted R ²	CAGR (%)
Ln (Y)	6.651 (0.025)	0.026 (0.002)	266.771	12.942	1677.5	1.809	0.898	0.893	2.645
Ln (Y1)	6.922 (0.033)	0.023 (0.003)	208.205	8.876	78.76	2.399	0.806	0.795	2.326
Ln (Y2)	7.063 (0.025)	0.031 (0.002)	282.059	15.597	243.255	1.654	0.928	0.926	3.149
Ln (Y3)	6.371 (0.038)	0.017 (0.003)	165.847	5.498	30.223	1.284	0.614	0.594	1.714
Ln (Y4)	6.133 (0.039)	0.008 (0.033)	155.644	2.665	7.104	1.579	0.273	0.234	0.804
Post-Reform Period (1991-92 to 2013-14)									
Ln (Y)	7.272 (0.020)	0.012 (0.002)	356.544	5.703	32.603	2.438	0.699	0.678	1.208
Ln (Y1)	7.475 (0.0250)	0.010 (0.003)	303.346	3.814	14.548	3.047	0.511	0.475	1.005
Ln (Y2)	7.789 (0.021)	0.008 (0.002)	367.020	3.514	12.378	1.415	0.469	0.431	0.803
Ln (Y3)	6.784 (0.40)	0.018 (0.004)	167.572	4.376	19.153	2.807	0.578	0.548	1.816
Ln (Y4)	6.354 (0.031)	0.003 (0.003)	213.297	0.823	0.678	2.783	0.046	-0.046	0.300

Note: Where figures in parentheses are standard errors; Y, Y1, Y2, Y3, and Y4.

Source: calculated by author

They show deterioration as the differences between the two estimates are too large to be explained by the minor differences in the classification methodology used in the two estimates. The percentage of over exploited blocks has increased from 4 percent to 5 percent which is a matter of concern. In most parts of the exploited areas, the prime cause of over-exploitation is the rising demands for ground water from agriculture

Conclusion:

The improvements in energy supply would enable developing countries to achieve dramatic improvements in their standards of living with only marginal increases in their inputs of energy. Increasing income levels tend to lead to a higher use of energy services by citizens of modern society. Some saturation effects occur, but they do not have a dominant effect on energy consumption. The effects of energy efficiency improvements, especially in space heating and large appliances, may be more important. Nevertheless, improvement in lifestyles would evolve towards higher levels of energy use. Many of the driving forces described here can not easily be altered to lead to lower energy use. But energy-efficiency improvement had a considerable impact in the early 1980s.

The social and environmental pattern is consistent with sustained growth in an interdependent world over the long term. Given the social and environmental stress caused by past development strategies, the goal of raising human well-being worldwide must be pursued through a development process that "does better" a poverty eliminating growth path that integrates social and environmental concerns in pursuit of the goal of sustained improvements in wellbeing.

The importance of managing human, physical and financial assets is well known. Social and environmental assets enhance human well-being, assets generally complement capital, can improve management and productivity of assets, it can enhance human capital accumulation and the productivity of physical capital can improve social environment which will ultimately improve sustainable environment for sustainable development in India.

Government should frame such policies which will involve all the resources in development process then it will lead to the sustainable development in the country. In this process every person will involve in the development process so the target of inclusive growth be achieved.

The planning should be micro level because a huge part of villages remains untouched from the fruits of development so we have to make the planning from below as trickle down impact is not working in the country.

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