Strategic Transport Planning for infrastructural development in roads and transport for strengthening different socio-economic indicators in Odisha

M. Mishra,
Research Scholar, P. G. Department of Mathematics,
Vani Vihar, Utkal University, Bhubaneswar, 751004,
Odisha.
Mob. 09853248760
E-mail: manoranjanmishra.1966@gmail.com
Address for Correspondence
Sri M.Mishra, C/o A.C.Swain, Plot No. A/141, Saheed
Nagar, Bhubaneswar 751007 ODISHA, INDIA

C. Das
Retired Professor of Mathematics, N.I.T., Rourkela.

Abstract: The author's destination in present paper is to study the effectiveness of infrastructural development in roads and transport sector over different socio-economic indicators by using correlation and factor analysis models

Key words: –   Strategic Transport Planning (STP), Principal component model, Mean, Standard deviation, correlation, Kayacr Normalization. Socio-economic indicators.

Introduction:

Transport is the nerve center of total economic activity. The nature and characteristics of transport depends on the level of economic development. Transportation department is a premier global foundation which leads to socio-economic peace, progress and prosperity. Strategic transport planning (STP) is the basis of Odisha and has got international flavor. STP is the soul of society as it passes from one generation to another. Key to better STP is culturing consciousness. Emergence of creative potential in the supreme form is the backbone for framing suitable STP models. Atkinson (1997) develops an integrated model of performance measurement which intends to capture STP issues.

Industrial welfare can be ascertained only when infrastructural development in roads and transport will be properly made of and rightly utilized in the changing current industrial and economic policy by applying suitable mathematical models for sustaining international standard progress. To be specific, transport sector in connection to logistic system can sustain perpetual growth in economy as well as rapid industrialization within the State.

Main Focus:

For Odishanization, STP for infrastructural development in roads and transport is essential as well as inevitable. STP is unified, comprehensive and integrated plan designed to assure that the basic objectives of the enterprise are achieved. It is the determination of the basic long term goals and objectives of an enterprise and the adoption of the courses of action and allocation of resources necessary for carrying out these goals. The objective of STP is to make the best use of resources in a changing environment. The basic objective is how STP can be executed more successfully to improve the probability of success. STP models boost up moral courage, intelligence integrity and burning commitment within the spirit of both employees and management.

The 21st century demands the wellbeing of human beings by building progressive STP, which is the stepping stone for social stability. The growing gap between STP and its implementation is dangerous to economic growth of Odisha. STP should be effective by dogged determination, rugged common sense and razor sharp intelligence of planner and not by hollow concept, tea-cup debate and impotent ideas.

To be meaningful and purposeful, to be of futuristic relevance and creative importance, it must be view objectivity and fearlessly changes in the forces of STP induced by constitutional calculus and explain how the mutation in the materialistic equation within society has altered the human condition. STP is dependent upon several environmental changes like economic change, political change, social change, ecological change, changes in law, changes in size of population and technological changes. Corporate STP is

the determination of basic long-term goals of transport sector and the adoption of course of action and allocation of resources necessary for carrying out these goals.

Basically, strategy is a formula for achieving success. STP involves understanding the environment and to guide the transport department by making it adopt to the environment. It relates to the activities of transport sector and also requires matching of the transport sector's activities to its resource capacity and also to decide about the allocation and reallocation of resources. It's is a process of analyzing, planning and evaluating transport business strategies by achieving its goals and projections. STP can reduce risks faced by the transport sector.

Results and Interpretation:

Table -1: Mean and Standard Deviation of transportation and allied aspects with some social parameters during the period from 2003-04 to 2012-13.

Social Parameters	Mean	Std. Deviation
Transportation (Rs. In Lakh)	1141511.20	598623.78
Road Length (in Kms.)	2440.26	1341.80
Amount spent in Road (Rs. In Crore)	917.47	673.57
No. of Vehicles (In 000)	2314.81	688.09
Agriculture & Animal Husbandry (Rs. In Lakh)	2513458.40	961149.29
Forestry (Rs. In Lakh)	341347.00	83787.00
Fisheries (Rs. In Lakh)	172483.60	63959.46
Mining & Quarrying (Rs. In Lakh)	1399819.40	759168.63
Manufacturing units (Rs. In Lakh)	1879955.50	897408.71
Electricity, Gas & Water Supply (Rs. In Lakh)	377646.50	97613.81
Construction (Rs. In Lakh)	1368434.00	529561.15
Hotel & Restaurant Trade (Rs. In Lakh)	1760100.20	898683.65
Storage (Rs. In Lakh)	15302.00	8551.02
Communication (Rs. In Lakh)	149768.10	61709.34
Banking & Insurance (Rs. In Lakh)	490424.70	260188.39
Real Estate (Rs. In Lakh)	856150.50	378146.79
Public Administration (Rs. In Lakh)	620812.90	296440.90
Other Services (Rs. In Lakh)	1441740.40	693536.10
Total GSDP (Rs. In Lakh)	14405854.40	6427863.16
Population (In Lakh)	403.47	16.19
Consumer Price Index	400.38	83.57

Sources: Collected and compiled from Economic Survey (2012-13).

On application of reliability analysis to the considered data, the Cronbach's Alpha has been calculated as 0.748 which signifies the adoptability of the data for further analysis [8].

Table -2 : Correlation Between Transportation and Allied aspects with some Social Parameters

Social Parameters	Total Transport	Road Length	Amount spent in Roads	No. of vehicles
Agriculture & Animal Husbandry	0.696	0.872*	0.897*	0.903*
Forestry	0.689	0.883*	0.840*	0.952*
Fisheries	0.735*	0.851*	0.822*	0.913*
Mining & Quarrying	0.735*	0.877*	0.861*	0.908*
Manufacturing units	0.745*	0.808*	0.822*	0.902*
Electricity, Gas & Water Supply	0.718*	0.380	0.294	0.545
Construction	0.778*	0.849*	0.856*	0.916*
Hotel & Restaurant Trade	0.790*	0.861*	0.845*	0.919*
Storage	0.764*	0.831*	0.812*	0.915*
Communication	0.761*	0.859*	0.836*	0.914*
Banking & Insurance	0.747*	0.838*	0.804*	0.901*
Real Estate	0.752*	0.851*	0.824*	0.921*
Public Administration	0.726*	0.851*	0.845*	0.915*
Other Services	0.734*	0.890*	0.879*	0.910*
Total GSDP	0.758*	0.869*	0.863*	0.922*
Population	0.779*	0.877*	0.878*	0.919*
Consumer Price	0.549	0.917*	0.925*	0.916*

*N.B.:- GSDP – Gross State Domestic Product, * - Significant at 5% level (P<0.05)*
The correlation coefficients more than 0.71 are significant and have been marked with "*" [7].

FACTOR ANALYSIS.

Factor analysis is a method of data reduction. Factor analysis is used to find factors among observed variables. Factor analysis groups variables with similar characteristics together. With factor analysis you can produce a small number of factors from a large number of variables which is capable of explaining the observed variance in the larger number of variables. The reduced factors can also be used for further analysis. Here, Agriculture & Animal Husbandry, Forestry, Fisheries, Mining & Quarrying, Manufacturing units, Electricity; Gas & Water Supply, Construction, Hotel & Restaurant Trade, Transport, Storage, Communication, Banking & Insurance, Real Estate, Public Administration, Other Services, Total GSDP, Population, Consumer Price, Road Length, Amount spent in Road and No of Vehicles on Road [1] will be subjected to Factor Analysis by following Principal Component Analysis for extraction supplemented with varimax rotation method and Kaiser normalisation [2][3]. The results obtained in the process with interpretations have been presented in the following:

Table-3: The loadings of the 21 variables on the extracted factors after application of rotation.

	Component	
	1	**2**
Agriculture & Animal Husbandry	0.900	
Forestry	0.910	
Fisheries	0.972	
Mining & Quarrying	0.939	
Manufacturing units	0.895	
Electricity, Gas & Water Supply		0.949
Construction	0.939	
Hotel & Restaurant Trade	0.954	
Transport		0.577
Storage	0.977	
Communication	0.979	
Banking & Insurance	0.960	
Real Estate	0.971	
Public Administration	0.989	
Other Services	0.991	
Total GSDP	0.957	
Population	0.953	
Consumer Price	0.980	
Road Length	0.960	
Amount spent in Road	0.990	
No of Vehicles on Road	0.966	

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization [9].

It may be noted here that, the extracted two factors may not be of much importance for further analysis. This is because maximum variables report for Factor-1 where as a very few report for Factor-2. As almost all variables report for Factor -1, it may be concluded that there may not be much discrimination among them [4][5] . Hence they may not be treated as independent among themselves. Obviously, further analysis pertaining to these extracted factors may not bear much importance [6].

CONCLUSION

It is concluded from the correlation coefficient table 2 cited above that transport is significantly correlated with fisheries, mining, manufacture units, electricity, construction, hotel, storage, communications, banking, real estate, public administration, other services, total GSDP and population. Hence development of all above indicators will lead to development of transport sector and vice versa.

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