

A MULTIPLE-REGRESSION AND MULTI-VARIATE ANALYSIS ON ORGANIZATION'S CONTRIBUTION IN *CLEAN INDIA MISSION* AND ITS INFLUENCE ON ORGANIZATION'S ECONOMIC GROWTH

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Abstract:

In this era of global warming and climate change, everyone is striving towards a clean and safe India. Clean India Mission or Swachh Bharat Abhiyan (SBA) or Swachh Bharat Mission (SBM) is a revolutionary step towards the universal sanitation coverage and to focus on safe sanitation. It is the biggest cleanliness drive in the country. Considering the importance of economic development associated with Clean India Mission, this research drives is to understand the organization's contribution in Clean India Mission and its influence on organization's economic growth. The research is based on primary data and the hypothesis is tested using analysis using multiple-regression and multi-variate analysis.

Key Words: Clean India Mission, Swachh Bharat Abhiyan, Social Research, Multiple Regression, Multi Variate analysis

Introduction

In this era of global warming and climate change, everyone is striving towards a clean and safe India. Clean India Mission or Swachh Bharat Abhiyan (SBA) or Swachh Bharat Mission (SBM) is a revolutionary step towards the universal sanitation coverage and to focus on safe sanitation. It is the biggest cleanliness drive in the country.

The study of Chaudhary Alka (2017) on, "Swachh Bharat Mission- Need, Objective and Impact", attempted to find out the need, objectives and impact of Swachh Bharat Mission on overall economic development of India. The study is based on secondary sources of data or information. The study find out that SBM campaign has a positive impact on overall growth of India. Swachh Bharat Mission was mentioned as one of the critical link towards economic success of India.

The article of Reddy M. Jayarama (2018) on, "Swachh Bharat Mission- Need, Objective and Impact", aimed to study the need and objective of Swachh Bharat Mission and to study its impact. The study was based on descriptive analysis examined the need, objective and impact of Swachh Bharat Mission on Indians overall economic development. The study find out that this campaign has a positive impact on overall growth of India. Swachh Bharat Mission is one of the critical links towards economic success of India.

Harish Kumar (2012) in his research article entitled "CSR Revisited" has thrown lights on four different approaches of companies towards CSR viz; Good Governance, Ruinous CSR, discretionary CSR, and Illusion CSR. The researcher found eight factors that drive CSR initiatives. They are Philanthropic Attitude, Governmental Actions, Environmental Concern, Ethical Consumerism, Crises and Calamities, Globalisation and Market force, Social Awareness and Education, and Social Expectation. It was understood that Government plans to change the sanitation face of India cannot be thought of without active participation of private sectors, stakeholders, and community. The study focused on the role of private companies and PSUs in understanding the social gaps and participating in government intent to change society.

Considering the importance of economic development associated with Clean India Mission, this research drives is to understand the organization's contribution in Clean India Mission and its influence on organization's economic growth.

Research Methodology:

The research design of the present study is descriptive. This research is based upon both the secondary as well as primary research. The major focus is on primary research conducted through

survey. Managers or senior officials of firms, companies, organizations and institutions in an urban area of Gujarat were respondents who were approached using a structure questionnaire. Total 81 respondents were part of survey and were approached using convenient sampling method. This paper presents data analysis of the data collected from total 81 urban respondents, working either as owners or operational executives or senior executive/manager or assistant manager or as academicians in various companies or organizations of urban Ahmadabad.

Profile of the organizations

Table-1 reveals the profile of the companies/organisations as informed by the respondents working in the companies/organisations. The type of business of more than half of the companies/organizations are small or medium scale business 46 (56.8 percent) and 35 (43.2 percent) are large scale business.

The form of business of the company/organization of 27.2 percent is registered. Registration of companies engaged in large scale business (37.1 percent) is higher than that of small or medium scale business companies (19.6 percent). The other forms of business of the company/organization are sole-proprietorship (19.8 percent), government sector (18.5 percent), partnership firm (11.1 percent), non-government organizations (NGO) (9.9 percent and only other like charitable / educational trust. All the companies engaged in small or medium scale business are sole proprietorship firms (Table-1).

Table-1: Profile of the organizations

Profile of organisation	Small or medium scale business	Large scale business	Total
	Number	Number	Number
Sole Proprietorship Firm	16	0	16
Partnership Firm	7	2	9
Registered Company	9	13	22
Government Sector	0	15	15
NGO	8	0	8
Others (Charitable / Educational trust)	6	5	11
No of Organization interviewed	46	35	81

Profile of the respondents representing the organizations

The analysis of general profile of the respondents working in various companies and organizations will help in understanding the background characteristics of the respondents. Table-2 shows the profile of the respondents.

Gender: Both males and females are the respondents. Table-2 shows that 66.7 percent of the respondents are males and 33.3 percent are females.

Age: Table-2 shows that highest percentage of the respondents interviewed belonged to the age group 31-40 years (27.2 percent), followed by 25.9 percent belonging to the age group of 41-50 years, 24.7 percent are in the age group 20-30 years, 14.8 percent of the respondents belonged to the age group 51-60 years and only 7.4 percent belonged to the age group of 61 years and above.

Education: Majority of the respondents is post graduate and above (70.4 percent), 27.2 percent of the respondents are graduates and the qualification of 2.5 percent is class 10-12.

Professional and occupational status: Occupational profiles, such as professional status and occupational status are also presented in Table-2. Majority of the respondents (81.5 percent) mentioned to work in private companies or organisations and rest of them (18.5 percent) are government employees. The occupational status of 32.1 percent are Owners, followed by 17.3 percent are Academicians, such as Assistant Professor, Associate Professor or Head of the Departments. The

occupational status of other respondents are Senior Executives (16.0 percent), Operational executive and Assistant manager / Team leader (13.6 percent each) and Senior / Middle manager (7.4 percent).

Year of working in current position: This is an important determinant of an employee towards, leadership and organisational parameters. The highest percentage of the respondents (44.4 percent) mentioned to be associated in the current position for more than 10 years. The year of work experience in the current position for 34.6 percent is 1-5 years, 16.0 percent are 6-10 years and 4.9 percent has been working as current position for less than one year.

Table-2: Profile of respondents

Profile	Number
Gender	
Male	54
Female	27
Age	
20-30 years	20
31-40 years	22
41-50 years	21
51-60 years	12
61 years and above	6
Education	
Class 10-12	2
Graduate	22
Post graduate and above	57
Professional status	
Private (owner, employee, professionals)	66
Government employee	15
Occupational status	
Owner	26
Operational executive	11
Senior executive	13
Senior / Middle manager	6
Assistant manager / Team leader	11
Academicians (Assistant/Associate/HoD)	14
Year of working in current position	
Less than one year	4
1-5 years	28
6-10 years	13
More than 10 years	36
No of Organization interviewed	81

Involvement of Organization in Clean India Mission

Table-3 shows that more than half of the organizations (61.8 percent) are either involved in the SBA mission individually (42.0 percent) or are working in collaboration with the Government (19.8 percent). Another 19.8 percent of the companies/organizations are working in the mission in collaboration with NGOs and 8.6 percent of the companies/organizations are working in collaboration with Universities / academic institutes. However, 21.0 percent of the companies/organizations have been found not involved in the scheme.

Table-3: Involvement of Organization in Clean India Mission

Organization's involvement	Number
Yes, working individually	34
Yes, working in collaboration with Government	16
Yes, working in collaboration with Universities / academic institutes	7
Yes, working in collaboration with NGOs	16
Not involved in the scheme	17
Number of Organisations	81

Contribution of Organisation in Clean India Mission

A five-point Likert-type scale was used in the questionnaire to measure each parameter of organization's contribution in SBA contained within the composite variables, with 1 representing 'strongly disagree' and 5 representing 'strongly agree'.

The contribution of Organisation in *Clean India Mission* has been analysed through percentage and weighted mean (Table-4). *The table reveals the weighted mean of the Likert scale shows* that the companies/organizations are mainly contributing in waste disposal management once or twice in a year with weighted mean of 2.8 for involvement in proper waste disposal management, 2.4 for involvement in recycling and reusing waste materials in proper scientific manner and 2.1 in providing cleaning equipment consumables to those involved in cleaning process. The companies/organizations are also contributing in cleaning process and tree plantation like contributing in cleaning process in surrounding areas like garden, private society, etc. (weighted mean 2.4) and contributing in planting trees in cities (weighted mean 2.1) once in a year. To some extent, the companies/organizations are also contributing in awareness campaign once in a year with weighted mean of 1.6 to 2.1 and imparting trainings to community workers on solid and liquid waste management, water hygiene and sanitation activities (weighted mean 1.8). The companies/organizations are also monitoring the work of SBA, only once in a year like monitoring the cleaning process (weighted mean 2.2), monitoring the tree plantation (weighted mean 2.1) and monitoring the awareness campaign of SBA (weighted mean 1.9). The table-4 reveals that the companies/organizations are not much involved in the construction process of the scheme, though 46.9 percent has contributed in SBA construction through financial help either once (44.4 percent) or twice in a year (2.5 percent).

Table-4: Contribution of Organisation in Clean India Mission

Organizations' contribution	Weighted mean
Awareness Campaign	
Organising workshops/seminars on behavioural changes, waste management, and water hygiene and sanitation activities	2.1
Organising community awareness programme on cleanliness and sanitation in urban areas	1.6
Organising community awareness programme on cleanliness and sanitation in rural areas	1.8
Helping in designing IEC materials for awareness campaign	1.8
Inviting celebrities to participate in SBA	1.1
Training	
Imparting trainings to community workers on solid and liquid waste management, water hygiene & sanitation activities	1.8
Construction	
Construction of toilets in schools in urban areas	1.1
Construction of toilets in schools in rural areas	1.2

Construction of toilets in public places in urban areas	1
Construction of toilets in public places in rural areas	1
Contributed in SBA through financial help	1.4
Cleaning Process and Tree plantation	
Contributing in cleaning process in surrounding areas like garden, private society, etc.	2.4
Contributing in cleaning process in public places like railways, heritage sites, etc.	1.4
Contributing in cleaning process of Water Contamination, River cleaning	1.1
Contributing in planting trees in cities	2.1
Waste Disposal Management	
Involve in proper waste disposal management	2.8
Involved in Recycling and Reusing waste materials in proper scientific manner	2.4
Providing Cleaning Equipment Consumables to those involved in cleaning process	2.1
Monitoring	
Monitoring the awareness campaign of SBA	1.9
Monitoring the cleaning process	2.2
Monitoring toilet constructions	1.2
Monitoring proper functioning of toilet	1.4
Monitoring the tree plantation	2.1

Organisational contribution in SBA leading to economic growth of company/organization

Table-5 presents the managerial/official perspectives of organisational contribution in SBA leading to economic growth of company/organization. The table reveals that it seems that managers/officials of the companies/organizations are not sure whether the contribution in SBA leads to the economic growth of their companies/organizations, as the weighted means (2.6 to 2.9) are indicating that neither agree nor disagree with the statements of economic growth. Both the weighted mean and mode value shows that the respondents disagree that with the statement that “due to contribution in SBA, foreign investors are supporting in business development process” (weighted mean -2.3 and mode value – 2). However, regarding the statements such as, “It has created new employment opportunities in our company/ organization”, “Contribution in SBA has enhanced economic growth of company/organization” and “Contribution in SBA has enhanced goodwill in the market / improved brand image”, highest percentages of the respondents (38.3 percent, 25.9 percent and 33.3 percent respectively) agreed (mode value of each is 4).

Table-5: Organisational contribution in SBA leading to economic growth of company/organization

Economic growth	Weighted Mean Value	Mode Value
SBA has increased economic activities of our company/ organization	2.8	3
It has created new employment opportunities in our company/ organization	2.9	4
Due to contribution in SBA, we are getting support from the Government in development process	2.8	3
Due to contribution in SBA, foreign investors are supporting in business development process	2.3	2
Contribution in SBA has enhanced economic growth of our company/organization	2.6	4

Contribution in <i>SBA</i> has enhanced our goodwill in the market / improved brand image	3.4	4
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Statistical Analysis for testing first null hypothesis

Both multiple regression analysis and multivariate analysis of variance have been used to test the following null hypotheses.

H01 Overall contribution of organisation in *Clean India Mission* scheme has no impact on economic growth of the organization.

H01.1 Contribution of organisation in awareness campaign of *SBA* has no impact on economic growth of the organization.

H01.2 Contribution of organisation in training of *SBA* has no impact on economic growth of the organization.

H01.3 Contribution of organisation in construction of *SBA* has no impact on economic growth of the organization.

H01.4 Contribution of organisation in cleaning process and tree plantation of *SBA* has no impact on economic growth of the organization.

H01.5 Contribution of organisation in waste disposal management of *SBA* has no impact on economic growth of the organization.

H01.6 Contribution of organisation in monitoring of *SBA* has no impact on economic growth of the organization.

Summarized multiple regression analysis:

Multiple regression analysis has been used to analyse the relationship between the contribution of organisation in *SBA* and economic growth of organization. Multiple regression analysis is a statistical tool used to determine the coefficients of the two or more independent variables involved in estimating the amount of the dependent variable. The analysis is useful to predict the impact of individual independent variables on the desired outcome. Table-6 shows that the results of the analysis of six *SBA* contribution factors together accounted for 18.1 percent ($R^2 = .181$) of the variance in the importance economic growth of the organisation. The overall regression is statistically significant ($F=3.324$, $P < .05$). This shows that the first null hypothesis has been rejected indicating that overall contribution of organisation in *Clean India Mission* scheme has impact on economic growth of the organization. Among the six factors, two factors, namely, waste disposal management ($B = 0.205$, $P < .05$) and monitoring ($B = 2.769$, $P < .05$) have been found to have a significant influence on the economic growth of the organization. Therefore, this study rejected the null hypothesis 01 and sub-null hypotheses H01.5 and H01.6. This indicates that waste disposal management and monitoring have positive impact on economic growth of the organization.

Table-6: summarized multiple regression of contribution of organisation in *SBA* and economic growth of organisation

	Sum of Squares	DF	Mean Square	F	Significance
Regression	51.101	5	10.220	3.324	.009 ^b
Residual	230.627	75	3.075		
Total	281.728	80			
Variables	B	SE	Beta	t	Significance
(constant)	2.769	.397		6.974	.000
Awareness Campaign	-.764	.489	-.193	-1.563	.122
Training	.382	.225	.202	1.699	.094
Construction	.114	.162	.091	.706	.482

Cleaning Process and Tree plantation	.085	.157	.060	.543	.589
Waste Disposal Management	.205	.089	.274	2.300	.024
Monitoring	2.769	.397		6.974	.000

$R^2 = .181$, adjusted $R^2 = .127$

Multivariate analysis of variance:

In multivariate analysis of variance, the General Linear Model procedure allows for the analysis of variance for multiple dependent variables (Norusis 2005). Multivariate analysis of variance has been used to test the significance of independent variable on the dependent variable. Present model designed to determine the effect of six dependent variable (factors) such as, awareness campaign, training, construction, cleaning process and tree plantation, waste disposal management and monitoring of SBA upon economic growth of the organizations (independent variable). The multivariate analysis has been done for individual items of each of the six factors.

The results in **Table-7** show the multivariate analysis for each factor of organizational contribution in SBA and economic growth of organisation. P value gives the probability of observing the test result. Statistically significant at $p < 0.05$ means 5 percent chance of the null hypothesis is true. The table reveals that the variables “organising community awareness programme in rural areas” and “helping in designing IEC” of awareness campaign, “imparting trainings”, “toilet construction in urban public places” under construction, “providing cleaning equipment and consumables” under the factor waste disposal management and “monitoring proper functioning of toilet” under the monitoring factor are statistically significant at 0.05 level. Rest of the variables of factors 1, 3, 5 and 6 are found to be insignificant at 0.05 level. Also, all the variable of factor 4, i.e., cleaning process and tree plantation are insignificant. This indicates that the null hypotheses, $H_{01.2}$ is rejected, $H_{01.1}$ is partially rejected and null hypotheses $H_{01.3}$ is accepted except, “Toilet construction in urban public places”, null hypotheses $H_{01.5}$ and $H_{01.6}$ are accepted except one variable each. The null hypothesis $H_{01.4}$ is completely accepted. Thus, it is concluded that organising community awareness programme in rural and urban areas, imparting trainings, toilet construction in urban public places, providing cleaning equipment and consumables and monitoring proper functioning of toilet have impact on economic growth of the organization from the managerial/official perspectives.

Table-7: Multivariate Analysis of contribution of organisation in SBA and economic growth of organisation

Contribution of organisations	Economic growth			
	Mean	SD	F value	P level
Awareness Campaign (Fact 1)				
Organising workshops /seminars	2.10	1.411	1.363	.247
Organising community awareness programme in urban areas	1.56	.894	.010	.920
Organising community awareness programme in rural areas	1.81	1.246	9.359	*.003
Helping in designing IEC	1.80	1.317	7.362	*.008
Inviting celebrities	1.15	.573	.079	.779
Training (Fact 2)				
Imparting trainings	1.80	1.239	14.683	*.000

Construction (Fact 3)				
Toilet construction in urban schools	1.14	.628	.657	.420
Toilet construction in rural schools	1.19	.654	2.639	.108
Toilet construction in urban public places	1.00	.387	9.404	*.003
Toilet construction in rural public places	1.04	.459	1.828	.180
Contributed in SBA through financial help	1.42	.668	.061	.805
Cleaning Process and Tree plantation (Fact 4)				
Contributing in cleaning process in surrounding areas	2.40	1.411	.873	.353
Contributing in cleaning process in public places	1.38	.830	1.370	.245
Contributing in cleaning process of Water Contamination	1.11	.652	1.677	.199
Contributing in planting trees in cities	2.07	1.282	2.901	.092
Waste Disposal Management (Fact 5)				
Involve in proper waste disposal management	2.78	1.768	.706	.403
Involved in Recycling and Reusing waste materials	2.37	1.528	.334	.565
Providing Cleaning Equipment and Consumables	2.07	1.634	4.926	*.029
Monitoring (Fact 6)				
Monitoring awareness campaign of SBA	1.91	1.535	1.166	.284
Monitoring the cleaning process	2.16	1.639	.663	.418
Monitoring toilet constructions	1.21	.786	.026	.873
Monitoring proper functioning of toilet	1.44	1.107	9.676	*.003
Monitoring tree plantation	2.12	1.520	3.836	.054

**Statistically significant- significance value less than 0.05*

Findings and Conclusion

More than half of the organizations (61.8 percent) are either involved in the *SBA* mission individually (42.0 percent) or are working in collaboration with the Government (19.8 percent). The companies/organizations are mainly contributing in waste disposal management once or twice in a year. The companies/organizations are also contributing in cleaning process and tree plantation, once in a year. To some extent, they are also contributing in awareness campaign and monitoring the work of *SBA* once in a year. However, the companies/organizations are much involved in the construction process of the scheme.

It seems that managers/officials of the companies/organizations are not sure whether the contribution in SBA leads to the economic growth of their companies/organizations, as the weighted means (2.6 to 2.9) are indicating that neither agree nor disagree with the statements of economic growth.

Both multiple regression analysis and multivariate analysis of variance have been used to test the first null hypothesis and the sub-hypothesis. The multiple regression test shows that the first null hypothesis has been rejected indicating that overall contribution of organisation in *Clean India Mission* scheme has impact on economic growth of the organization. This test result also reveals that among the six factors, two factors, namely, waste disposal management and monitoring have been found to have a significant influence on the economic growth of the organization. The multivariate analysis has been done for individual items of each of the six factors of overall contribution of organizations/companies in *Clean India Mission* scheme. The result concluded that organising community awareness programme in rural and urban areas, imparting trainings, toilet construction in urban public places, providing cleaning equipment and consumables and monitoring proper functioning of toilet have impact on economic growth of the organization from the managerial/official perspectives.

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