

EX-POST SOCIAL IMPACT ASSESSMENT OF ROAD INFRASTRUCTURE PROJECT IN CENTRAL AND SOUTH GUJARAT

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Abstract

Social impact assessment is used to predict the consequences of any development projects. As such impact assessment provides a rational approach to sustainable development. Social Impact Assessment (SIA) is defined as an effect (both positive and negative) on a social issue resulting from infrastructure development projects. It involves assessment of impacts on both communities and their environment. The concern for social economy phenomena and social outcomes of infrastructure is to analyzing the social distribution of the costs and benefits of infrastructure projects. The study carried out with to understand the impact (positive or negative) of the highway on the community residing adjacent to road. Study data information drawn from two data sources i.e. primary data and secondary data. Different data analysis techniques like percentage, ratio and weighted stratified index have been used for analysis of the data to draw social impact assessment.

Keywords: *Social Impact Assessment, Highway Infrastructure Project, Cost Assessment.*

Introduction

Good physical connectivity to urban and rural area is one of the main drivers for economic growth. Since early 1990s, India's growing economy has witnessed rising demand for transport infrastructure and service. The transport sector in the country is very large and diverse. It caters to the needs of almost 1.3 billion people. In 2016-17, the sector contributed about 5 percent to the nation's GDP, in which road transportation contributes the lion's share.¹

The present research is aimed at assessing social impact of the Gujarat state highway no. 5. This state highway covers the area of Umargam, Vapi, Dharampur, Vansda, Buhari(Valod), Netrang, Rajpipla, Bodeli, Halol, Godhra, Lunawada, Malpur, Modasa, Titoi to Shamlaji road. The highway covers ten districts of Gujarat namely, Aravali, Panchmahal, Mahisagar, Chhota Udaipur, Narmada, Bharuch, Surat, Tapi, Navsari and Valsad. The distance of the highway is about 526 Kms. The commercial operations of the project started in April, 2012.

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¹ National Accounts Statistics (2018), Central Statistics Office, Ministry Of Statistics & Programme Implementation, Government Of India

While the highway under study is passing through majority of the districts belonging to Central and Southern parts of the state, all the above districts barring Aravali were divided into two broad zones viz., Central and South for analysis. The Central zone covers the districts of Mahisagar, Panchmahal, Chhota Udaipur, and Narmada district and Southern zone covers Bharuch, Surat, Tapi, Navsari and Valsad districts. According to the Census of India (2011), the districts belonging to the Central zone are predominantly rural in nature as compared to districts falling in Southern zone. On the other hand, the households belonging to Scheduled Caste and Scheduled Tribe are relatively higher in Southern zone as compared to Central zone.

It is essential that all the developmental project especially infrastructure development projects need to assess its social, economic and environmental impact on the society. According to UNESCAP (2001), social impact assessment ensures the potential problems are foreseen and addressed at an early stage in the projects planning and design. Social impact assessment is used to predict the consequences of any development projects. As such impact assessment provides a rational approach to sustainable development¹. Social Impact Assessment (SIA) is defined as an effect (both positive and negative) on a social issue resulting from infrastructure development projects. It involves assessment of impacts on both communities and their environment. The concern for social economy phenomena and social outcomes of infrastructure is to analyzing the social distribution of the costs and benefits of infrastructure projects. Social impact is considered as an outcome or effect of decisions or intervention undertaken which leads to development of infrastructure. It can also be measured the social impacts of development or the issues that directly or indirectly affect people. The biggest problem of social costs and benefits assessment is that the impact is difficult to quantify and predict, so, it can be difficult for authorities, decision makers and project developers to taken into account.²

In the present paper, ex-post social assessment is carried out with an objective to understand the impact (positive or negative) of the highway on the community residing adjacent to road.

Data Source and Research Methodology

To achieve the objective, the study draws information from two data sources i.e. primary data and secondary data. Collection of primary data was divided into two parts, viz. households and Sarpanchs / Talatis of villages. A structured questionnaire was administered to the respondents residing in one km distance on either side of the highway in these districts. The respondents in each district were ascertained on the basis of the length of the highway in a given district. In all, the data were obtained from 956 respondents. Different data analysis techniques like percentage, ratio, weighted stratified index been used for analysis of the data to draw meaningful interpretation.

¹ <https://pdfs.semanticscholar.org/194c/32f800771ab9139fd948f6b12b5284d536af.pdf>

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Data Analysis

• Zone-wise Sample Households and Population

At the aggregate level, there were about 750 households per village and per village human population worked out to be about 3,500 persons. However, across the zones, variation is witnessed in the above parameters. The villages in Southern zone have relatively higher households per village and so are per village population in comparison to villages of Central zone.

Zone	Villages	Households	Population	Households per village	Population per village
Central	10	6,327	31,634	633	3,163
South	11	9,458	47,290	860	4,299
Both	21	15,785	78,924	752	3,758

Source: Census of India, 2011

• Zone wise Types of Households

Fifty eight percent of total respondents were found to have pucca house, followed by kutcha houses (36 percent). The incidence of slum house ownership is negligible in the sample households. Across the zone, the incidence of pucca houses was higher in central zone (69%), whereas in Southern zone, almost half of the sample households reported having pucca and kutcha houses in each case.

Zones	Pucca House	%	Kutcha House	%	Slum House	%	Total
Central	301	69	110	25	27	6	438
South	230	48	221	46	25	5	476
Total	531	58	331	36	52	6	914

Source: Sample survey covering respondents who have replied to this question

• Types of Transportation in the Zones

Among the types of transportation at present, the most preferred source was found to be "public transport (89 percent)", followed by "chhakadas (68 percent)". About 4 out of 10 villages mentioned use of "tractor" and "auto rickshaw" as mode of transportation.

Among the types of transportation, there was a shuttle difference across the zones. The incidence of use of "Chhakadas", "Jeep" and "Private buses" was almost double in Central zone, whereas the prevalence of "Animal carts" was higher in Southern zone.

Zones	Villages	Public transport	Private buses	Chhakadas	Jeep	Tractor	Auto Rickshaws	Animal carts
Nos.								
Central	10	8	3	8	4	4	4	1
South	11	9	2	5	2	4	4	3
Both	19	17	5	13	6	8	8	4
%								
Central		80	30	80	40	40	40	10
South		82	18	45	18	36	36	27
Both		89	26	68	32	42	42	21

- **Zone wise Condition of Roads**

In both the zones, about 70% of roads were paved/ RCC roads. The prevalence of paved/ RCC roads was found to be higher in Cenral zone as against Southern zone. Further, the road conditions with respect to main road, service road and village approach road before the and after the construction of highway were assessed.

The village-wise qualitative response about the conditions of main, service and approach roads were asked to be rated on 5 point Likert scale, where “Very Bad”=1, “Bad”=2, “Fair”=3, “Good”=4 and “Very Good”=5.

To assess the combined impact, percentage of weight was given to each road type considering the importance of each in the rural milieu and a composite rating was deduced for both “before intervention” and “current situation”.

Type of Road	Weight (%)
Main Road	40
Service Road	30
Approach Road	30

It may be observed that the conditions of main, service and village approach roads have improved after construction of highway in both the zones, albeit with varying magnitude. The overall improvement in road conditions was estimated at 50% at the aggregate level. However, the improvement reported in the villages of southern districts was almost double than that of Central zone. This may be partially attributed to the conditions of roads before construction of the highway. For instance, the conditions of all types of roads in Central zone was relatively better than that of southern zone and hence, the change factor in case of Central zone is not as high as southern zone.

Zone	Main Road		Service road		Village approach road		All roads		% Change
	Before intervention	Current situation	Before intervention	Current situation	Before intervention	Current situation	Before intervention	Current situation	
Central	2.5	3.6	3.0	3.6	2.5	3.7	2.7	3.6	37%
South	2.0	3.5	2.2	3.7	2.3	3.5	2.1	3.5	66%
Both	2.2	3.5	2.6	3.7	2.4	3.6	2.4	3.6	50%

Social Impacts to Community Due to the Highway

This section discusses about the impact of highway on different social indicators. For these following six sectors were taken for analysis viz., (i) Health, (ii) Education, (iii) Employment, (iv) Market, (v) Social network and (vi) Transportation Pattern. This analysis is based on the respondents’ perception about the change in these indicators that can be attributed to newly constructed highway. At the overall level, the respondents felt that there was an improvement across all the sectors due to construction of highway. The highest improvement was perceived in “Education”, followed by “health”. Across the zones, while there was little variation in improvement index in case of Health, Employment and Social sectors, the Southern zone reported relatively higher improvement in Education, Market and transportation sectors. These sectors are highly related with the transportation system. As seen earlier, the central zone was found to be relatively better off in terms of road infrastructure before construction of highway and hence, road connectivity that is crucial for education, market access and transportation did not report so high improvement the way it was seen in southern zone.

Sectors	Before			After			% Change		
	Central	South	Both	Central	South	Both	Central	South	Both
Health	1.97	2.03	2.00	3.55	3.66	3.61	80%	80%	80%
Education	2.12	1.85	1.99	3.76	3.80	3.78	77%	106%	90%
Employment	2.33	2.14	2.24	3.99	3.65	3.82	71%	71%	71%
Market	2.43	1.89	2.16	3.75	3.66	3.71	54%	94%	72%
Social	2.23	2.29	2.26	3.61	3.82	3.71	62%	67%	65%
Transportation	2.35	2.03	2.19	3.97	3.72	3.84	69%	84%	76%

Conclusion

It has been seen that the construction of highway has a positively impact on the community in both central and southern zone of the state. The extent of social impact is largely dependent upon the then prevailing baseline conditions before the highway construction and hence, the social impact across all the sectors was much higher in southern zone as compared to Central zone.

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