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Impact of road construction on the socio-economic condition of the communities in the hilly terrain of Lunglei district, Mizoram, India

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Abstract

Roads are the major means of transportation and communication. They play significant role in the development of the community or society. Major import and export of goods, general transportation and communication services within a community or between communities take place mostly through roads. The efficiency of such function is hugely dependent on the condition and quality of the road. With this view, the Mizoram state government made an effort towards the construction of roads from Buangpui to Lunglei. This study is directed towards the impact of roads and road construction on the socio-economic status of a community directly within the project site. Pre-construction and post-construction conditions of the community were studied and analyzed through collection of various parameters. The study revealed that the construction of roads not only improves the livelihood of the community but also increases the number of educational institutions and health centers as well. More people are also engaged in certain jobs such as carpentry and handloom as they can now easily import and export their goods due to better road condition.

Key words: Lunglei; road; post-construction; pre-construction; socio-economic condition.

Introduction

Mizoram is an industrially backward state in India with the vast majority of its people living below the poverty line. The state has good potential for economic growth in the areas of agriculture, horticulture, tourism, handicraft, etc. Universally, the development of infrastructure, particularly transport infrastructure, is a key prerequisite for economic development. However, in Mizoram, the lack of adequate transport infrastructure has been the major inhibiting factor on its economic growth and development.

Being a hilly state with difficult terrain and climatic conditions, transport infrastructure in Mizoram is essentially road-based for most community, business and personal purposes, as well as being the only principal means of communi-

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cation. A well layout and well maintained road network is essential for cost-effective movement of people and materials, without which trade and industry also cannot maintain a competitive edge.

Recognizing these factors, and to provide a strategic framework for the management of Mizoram's road network henceforth, the state government has established this "Road Development Policy", with special Government of India (GoI) and World Bank assistance, Government of Mizoram (GoM) has been preparing a major roads upgrade, rehabilitation and maintenance project, covering an upgrade of about 184 km of the state's road network.

The quality of life and socio-economic conditions of living of people may get significantly affected by the speed and ease with which they can move and carry their goods. Briefly, good transport system promotes access to markets, materials and opportunities by facilitating movements of persons and goods and improves earning and thereby level of living. This in turn enhances the demand for transport. Well designed, durable roads can greatly improve the conditions of rural populations.[1]

In developing countries, infrastructure represents, "[I]f not the engine, then the 'wheels' of economic activity."[2] Decreased transportation costs increases the use of agricultural inputs and can increase rural household incomes from access to agricultural markets.[3-9] Additionally, given the presence of agricultural productivity shocks, well-functioning roads reduce volatility in rural household consumption patterns.[10,11]

Materials and Method

Lunglei is a town, situated in the south-central part of Mizoram state, northeastern In-

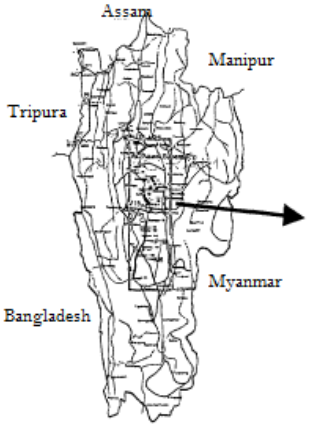

Fig 1. Map of Mizoram

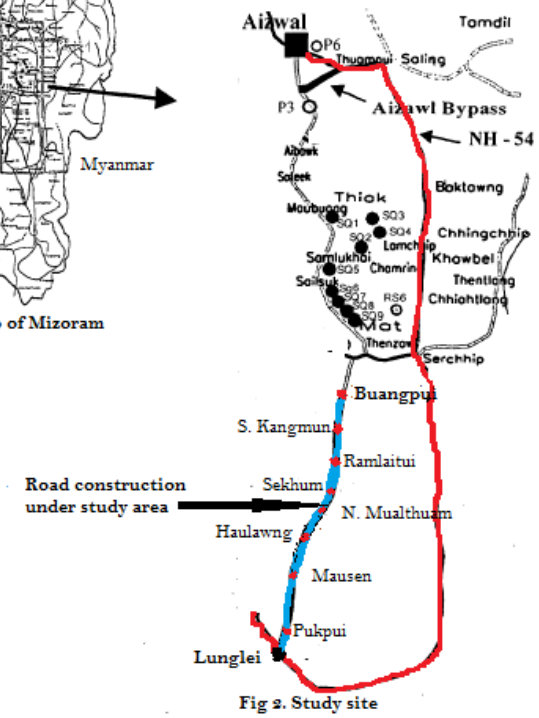

Fig 2. Study site

dia. Lunglei, sometimes spelled Lungleh, literally meaning "bridge of rock" got its name from a bridge like rock found in the riverine area around Nghasih - a small tributary of the longest river of Mizoram, river Tlawng. It is one of the most populous towns in the Mizo Hills, located 131 miles (235 km) south of the capital, Aizawl.

Lunglei district, the largest district in Mizoram is bounded on the north by Mamit and Serchhip districts, on the south by Lawngtlai and Saiha districts, on the east by Myanmar and on the west by Bangladesh. It has an area of 4,538 sq kms with a population of 1,37,155 (2001 census) and 186 villages. There are three civil sub-divisions namely – Lunglei sadar subdivision, Tlabung and Hnahthial civil subdivisions. The district is also divided into four rural development blocks – Lunglei, Hnahthial, Lungsen and Bunghmun.

The study area covers a length of 67.934 kms from Buangpui village to Lunglei. There are eight villages within the corridor of the study area, *viz*. Buangpui, South Kanghmun, Ramlaitui, Sekhum, N. Mualthuam, Haulawng, Mausen and Pukpui (Fig. 1 & 2).

Data has been collected through pre structured questionnaire during pre construction and post construction in the eight villages covered by the corridors of construction.

Result and Discussions

The study analyses the socio-economic conditions of the villagers along the road construction site. Data covering both pre- and post-construction conditions were collected to examine the changes in the socio-economic status of the villagers (Table 1 & 2). From the data collected, it was clearly seen that the socio-economic conditions of the people living along the road construction site was improved significantly. Haulawng village has the highest population (2730) followed by N. Mualthuam village (2013) while Sekhum village has the lowest population (320) followed by Buangpui village (428) (Fig. 3). Before the project was initiated, out of 1090 houses, only 3.48% were RCC, 79.26 % were tin roof and 17.26% were made of local materials. 81.74% of the houses has electricity and 48.8% have LPG connection. After completion of the project, out of 1424 houses, 8.72 % were RCC, 91.2% were tin roof and only 0.28% were made of local materials. 92.62% of the houses has electricity and 86.8% were having LPG connection (Fig. 4 & 5). In addition, before the start of the project, out of 1140 families, 81.57% were cultivators mainly dependent on jhumming, only 1.75% were government employees, 10.52 % were engaged in handloom and carpentry, while the remaining 2.98% were engaged in other business. When the project was finished, the socio-economic condition of the villagers were significantly upgraded with only 46.9% cultivators, 16.25% are government employees. The setting up of more government schools and offices at the villages being the major reason behind the same. 21.05% are doing family business of handloom and carpentry, since the selling of their products is much easier than before. 7.32% of the families are doing other business (Fig. 6 & 11). The road construction project accelerates development of trade and commerce which in turn leads to the overall increase in their standard of living (Fig. 9). More individual households are now able to open small roadside businesses such as roadside restaurants and vehicle repairing shops to increase their income. Before the project was started, there were 3 high schools, 5 middle schools, 6 primary schools and 6 anganwadi centers. After the project was finished, there are 6 high schools, 12 middle schools, 12 primary schools and 12 anganwadi centers (Fig. 7). This development also helped the community in their educational qualification level (Fig. 8). There were only 4 community health centers with 1 hospital at Haulawng before the road construction project, but when the project was finished, there are 7 community health centers with the hospital at Haulawng very much upgraded as compared to the previous one (Fig. 10).

The most studied effect of road construction is hydrogeologic degradation, in the form of soil erosion, mass movement, sedimentation and

Table 1. Socio-economic status of villages along Buangpui-Lunglei road (pre-construction)

				No. Of Houses			Occupation Data				Educational Level					Local Institutions				Standard of Living			Social Welfare Services				Animal Husbandry		
Sl.No.	Name of Village	Population	No. Of Family	RCC	Tin Roof	Local Materials	Cultivators (Family)	Govt.Servant	Handloom/Carpentry	Bussiness	Post Graduate	Graduate	Higher Secondary	Matric	Under Matric	High School	Middle School	Primary School	Anganwadi	Houses Electrified	LPG Connection	Telephone Connection	Public Water Point	Health Centre/Hospital	Community Hall	Govt.Rest House/Office	Cattle rearing	Piggery	Poultry
1	Buangpui	241	60	Nil	28	32	50	Nil	5	1	Nil	Nil	Nil	2	239	Nil	Nil	Nil	Nil	16	2	Nil	1	1	Nil	Nil	Nil	10	21
2	S.Kanghmun	412	90	2	72	36	82	10	9	1	Nil	5	7	15	385	Nil	1	1	1	54	12	Nil	1	Nil	Nil	Nil	1	42	71
3	Ramlaitui	379	79	1	50	24	60	7	5	1	Nil	3	6	15	355	Nil	1	1	1	45	5	Nil	1	Nil	1	Nil	1	22	30
4	Sekhum	201	52	Nil	35	19	50	Nil	3	1	Nil	Nil	Nil	4	197	Nil	Nil	1	1	14	6	Nil	1	1	1	Nil	Nil	5	18
5	N.Mualthuam	1705	260	10	210	26	200	30	10	8	2	15	18	98	1572	1	1	1	1	250	73	2	3	1	1	4	3	45	67
6	Haulawng	2102	421	13	392	12	341	38	18	12	10	59	120	289	1624	1	1	1	1	417	357	5	3	2	2	3	3	45	80
7	Mausen	252	50	Nil	18	26	43	Nil	Nil	2	Nil	Nil	Nil	5	247	Nil	Nil	Nil	Nil	8	8	Nil	1	Nil	1	Nil	Nil	15	22
8	Pukpui	552	128	12	87	13	104	35	Nil	8	Nil	3	21	111	417	1	1	1	1	87	69	2	1	Nil	1	Nil	Nil	29	40
	Total	**5844**	**1140**	**38**	**864**	**188**	**930**	**120**	**50**	**34**	**12**	**85**	**164**	**2**	**5036**	**3**	**5**	**6**	**6**	**891**	**532**	**9**	**12**	**5**	**7**	**7**	**8**	**213**	**349**

Table 2. Socio-economic status of villages along Buangpui-Lunglei road (post-construction)

				No. of Houses			Occupation Data				Educational Level					Local Institutions				Standard of Living			Social Welfare Services				Animal Husbandry		
Sl.No.	Name of Village	Population	No. Of Family	RCC	Tin Roof	Local Materials	Cultivators (Family)	Govt.Servant	Handloom/Carpentry	Bussiness	Post Graduate	Graduate	Higher Secondary	Matric	Under Matric	High School	Middle School	Primary School	Anganwadi	Houses Electrified	LPG Connection	Telephone Connection	Public Water Point	Health Centre/Hospital	Community Hall	Govt.Rest House/Office	Cattle rearing	Piggery	Poultry
1	Buangpui	428	95	1	80	1	49	10	40	2	Nil	4	3	20	401	Nil	1	1	1	72	80	Nil	1	1	1	Nil	Nil	35	50
2	S.Kanghmun	630	122	5	103	Nil	66	24	30	1	Nil	12	15	30	573	1	1	1	1	98	100	Nil	2	1	1	Nil	2	50	63
3	Ramlaitui	534	110	6	95	1	60	13	45	3	1	15	20	22	515	1	2	1	1	110	102	Nil	2	1	1	Nil	Nil	45	60
4	Sekhum	320	70	3	60	Nil	40	10	36	2	Nil	5	10	12	293	Nil	1	1	1	45	60	Nil	1	1	1	Nil	Nil	23	30
5	N.Mualthuam	2103	360	30	290	1	165	54	105	14	15	56	82	106	1844	1	2	2	3	320	300	3	5	1	1	4	5	78	120
6	Haulawng	2730	515	45	584	Nil	214	73	60	75	30	89	143	459	2009	2	3	3	3	468	462	10	12	2	2	8	6	152	141
7	Mausen	323	71	Nil	62	1	68	2	Nil	3	Nil	2	Nil	8	313	Nil	1	1	1	70	65	Nil	1	Nil	1	Nil	Nil	20	31
8	Pukpui	789	158	34	102	Nil	42	58	Nil	10	2	20	32	161	574	1	1	2	1	136	134	Nil	2	1	1	2	2	21	56
	Total	**7857**	**1501**	**124**	**1296**	**4**	**704**	**244**	**316**	**110**	**48**	**203**	**305**	**818**	**6522**	**6**	**12**	**12**	**12**	**1319**	**1303**	**13**	**26**	**8**	**9**	**14**	**15**	**424**	**551**

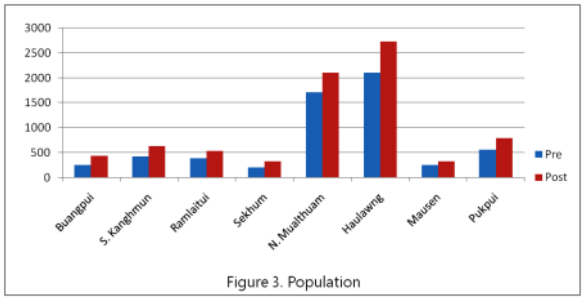

Figure 3. Population

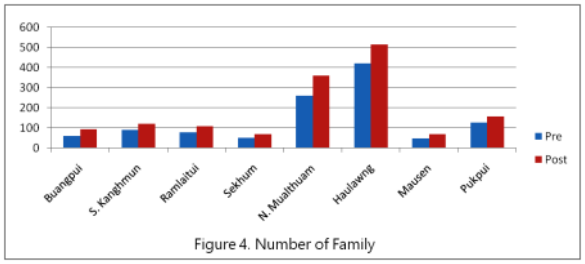

Figure 4. Number of Family

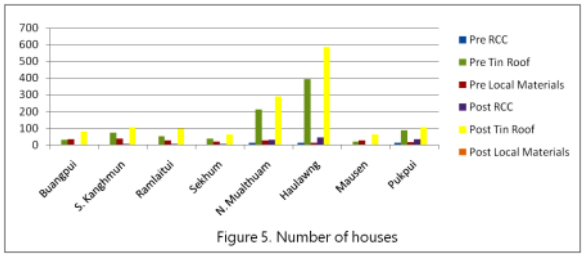

Figure 5. Number of houses

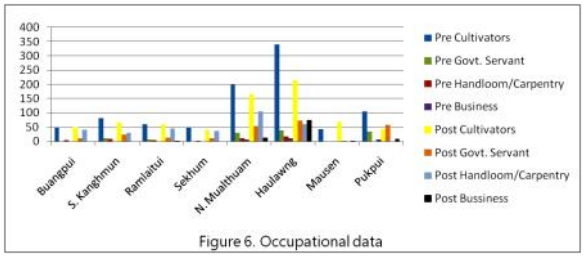

Figure 6. Occupational data

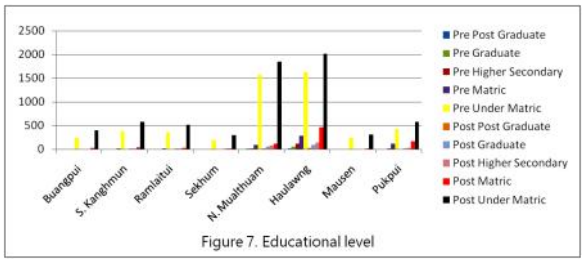

Figure 7. Educational level

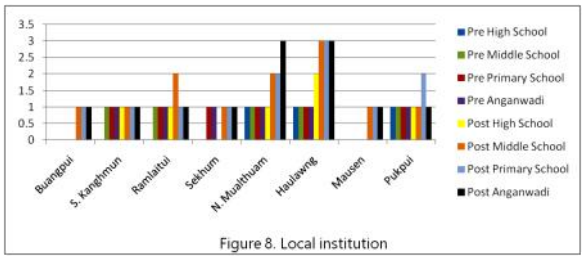

Figure 8. Local institution

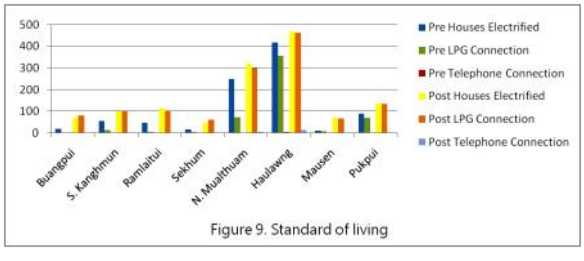

Figure 9. Standard of living

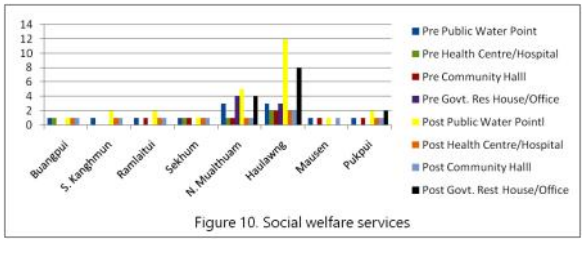

Figure 10. Social welfare services

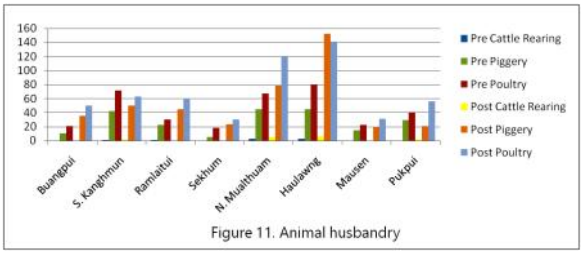

Figure 11. Animal husbandry

altered stream flow. The reasons why road construction often results in accelerated soil erosion are the removal of vegetation cover, the loosening of soil and the creation of preferential routes to concentrated water run-off.[12] Road construction can trigger the mass movement of unstable slopes.[13,14] Once started, this process is very difficult to stop, and even reforestation does not guarantee its effective control.[15,16] Prevention remains the best policy; careful planning and construction are crucial to successful road building. Indeed, road location and design play a major role in the occurrence of mass wasting phenomena, which are most likely to happen when the road is located on slopes steeper than 60 percent.[17-19] A substantial increment in sediment production is often associated with road building[20,21] as a direct consequence of soil erosion and, especially, mass movements.[22] Traffic intensity and road maintenance have the highest impact on sediment production.[21] In general, road construction reduces soil infiltration capacity, increases water run-off and blocks natural drainage systems.[22]

Besides hydrogeologic degradation, road construction can produce other detrimental effects, especially on landscape and wildlife.[23,24] Different impacts are often connected; sedimentation, for instance, creates unfavourable conditions to fish survival and reproduction and, therefore, increased erosion is generally associated with a decline of aquatic fauna.[25-27]

CONCLUSION

The impact of good network of roads improves the socio-economic conditions of the villagers significantly. The positive impact of the construction of roads by the state government through the villages improves the livelihood of the people greatly. The construction of proper road channels increases the efficiency of import and export of goods and services to a great extend. As products can now be imported easily, this reduces the price of goods as well. People can now easily transport their products to other places which enhances their production rates significantly. The increased in number of educational institutions as a result of this project also improves the literacy of the villagers. In addition, the improvements made towards medical centers after the project greatly improves the well-being of the villagers.

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