

# Impact study report

For Cement concrete road intervention  
along with side pathways & streetlights

---

A Study for Atul Foundation

January 2024



Centre for Integrated Development

[www.cfid.org.in](http://www.cfid.org.in)

# Contents

---

<b>Acknowledgement</b>	<b>1</b>
<b>Abbreviations</b>	<b>2</b>
<b>List of Tables and Figures</b>	<b>3</b>
<b>Background</b>	<b>4</b>
<b>About the study</b>	<b>5</b>
<b>Key findings</b>	<b>6</b>

# Acknowledgement

We are grateful to Atul Ltd. and Atul Foundation for entrusting us with an impact study of Cement Concrete (C.C.) Road Project. We would especially like to thank the project team members for their continued support throughout the study.

We are grateful to all the community members and road users for providing their time and input during field level interactions.

Tapan Patel

Tanvi K Patel

Centre for Integrated Development, Ahmedabad

January 2024

## Abbreviations

C.C.	Cement Concrete
CSR	Corporate Social Responsibility
FGD	Focus Group Discussion
IM	Instrument Mechanic
KII	Key Informant Interviews
Km	Kilometer

# List of Tables & Figures

Table 1 Study sample and tools .....	5
Figure 1 Project location .....	4
Figure 2 Perceived benefits of improved roads .....	6
Figure 3 Use of walk way.....	6
Figure 4 Comfort of using walk way.....	6
Figure 5 Perceived impact of walk way.....	6
Figure 6 Status of commuting on road at night .....	6
Figure 7 Perceived benefits of street lights .....	6

# Background

## About Atul Group

Atul Ltd. was founded in 1947 after Indian independence by Late Shri Kasturbhai Lalbhai. The Company is a manifestation of his dream to generate large-scale employment, create wealth in rural India and make the country self-sufficient in its requirements of chemicals. At present, Atul Ltd is a chemical conglomerate specializing in the production of over 900 products. Atul is Headquartered in Valsad district of Gujarat and spread over 1,300 acres of land.



Atul Foundation was created as part of Corporate Social Responsibility (CSR) to bring all activities related to serving society under one umbrella. The Foundation undertakes projects and activities, broadly under six programs like Education, Empowerment, Health, Relief, Infrastructure and Conservation.

## Project Brief- C.C. Road Project

Atul Foundation undertook construction of a Cement Concrete (C.C.) road of 1.7 kilometers with walkway and streetlights starting from Parnera-1<sup>st</sup> gate to Atul village in year 2022-23. The road also provides access to Hariya and Bhagod villages. Prior to the project, a two-lane flexible pavement road (Bitumen) of 7 meters carriage way catered to huge traffic of trucks from Atul limited to National Highway 8. To strengthen the pavement, the road was topped with Cement Concrete Polymer based white topping (6-inch thickness and M30 Concrete Grade). R.C.C. Drainage on both sides of roads have been strengthened to channelize storm water and separate walkway cum cycling track has been constructed on each side of the road. Streetlights have also been installed for ease in commuting at night. This has enhanced safety and ease for commuters and users, benefiting thousands of Atul employees, school children and villagers.

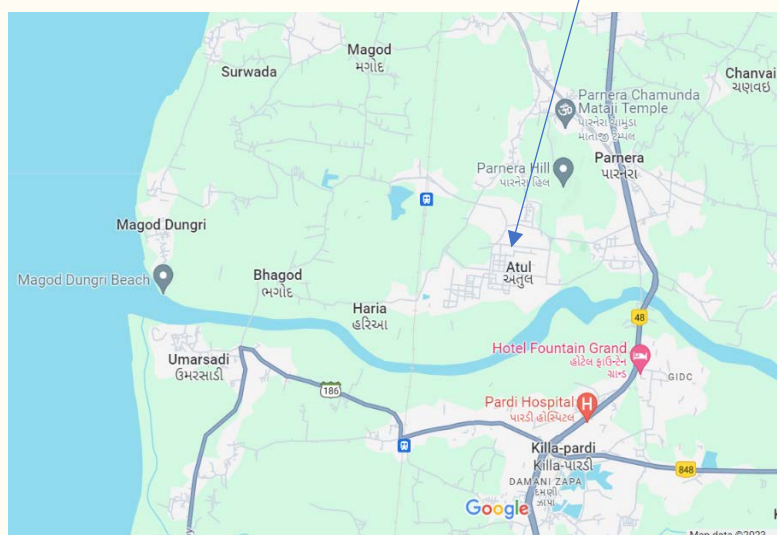


Figure 1 Project location



# About the Study

## Study Objectives

Impact assessment study is aimed at evaluating and attributing outcomes and impacts to the project interventions. Objective of Impact assessment study is to derive Impact of road construction on communities in adjacent villages, vehicle operators and Atul employees.

## Study Approach & Methodology

- The study adopts a mixed method approach involving qualitative as well as quantitative data.
- 53 people have been interviewed for the Cement Concrete Road Project.
- Computer Assisted Personal Interview (CAPI) is used for data collection, using KoboCollect app for personal interviews through structured questionnaire.
- Qualitative surveys have been done through Key Informant Interviews (KII) and Focus Group Discussion (FGD) with different stakeholders.

## Sampling

- **Students:** 15 students of different age groups and gender from 2 schools and 3 villages using the road have been covered through stratified random sampling based on varied age and gender.
- **Atul employees:** 18 Company employees using the road have been taken as sample through purposive sampling based on their availability during the survey.
- **School teachers:** 8 teachers from 2 schools have been taken as samples through purposive sampling based on their availability during the survey.
- **Vehicle users:** 12 vehicles users have been taken as sample through purposive sampling based on their availability during the survey and considering varied vehicle types (school bus/passenger bus/truck/auto rickshaw)
- **Project team:** Interaction has been done with Chief Engineer and Technical Head- Civil as well as Senior Manager & Lead CSR.
- **Village head:** Interaction has been done with Village Panchayat Head/Sarpanch of Atul Village.

## Study Sample and Tools

Table 1 Study sample and tools

Study Sample/Stakeholder	Tool	
15 Students from 2 schools	Structured CAPI based questionnaire	Personal Interview
8 teachers from 2 schools	Structured CAPI based questionnaire	Personal Interview
Panchayat body- 1 village	Semi Structured Questionnaire	Focus Group Discussion
18 company employees	Structured CAPI based questionnaire	Personal Interview
12 truck/bus drivers	Structured CAPI based questionnaire	Personal Interview
Project Team -3	Semi Structured Questionnaire	Key Informant Interview (KII)

## Key Findings

The development of rural infrastructure in general and rural connectivity in particular plays an important role in economic development and growth of the region. Rural connectivity ensures access to critical services, increased economic opportunities as well as employment generation through industrialization in rural areas.

Prior to the project, two lane flexible pavement road (Bitumen) of 7 meters carriage way catered to huge traffic of trucks from Atul to National Highway 8. There was lack of drainage, walkway and appropriate lighting. To provide better access to vehicular traffic as well as enhance safety and ease of movement for company employees and other commuters, Atul Foundation undertook construction of a Cement Concrete (CC) road of 1.7 kilometer with walkway and streetlights starting from Parnera first gate to Atul Village in year 2022-23. The road also provides access to villages like Hariya, Dived Bhagod etc. Further, a road drainage system has been constructed to remove storm water from the road and its surroundings. Additionally, a separate walkway cum cycling track have been constructed on each side of the road for safety and ease of use for Atul company employees and school children in adjacent villages. Further, streetlights have been installed for ease in commuting at night. Speed breakers and signages as well as night reflectors (cat eye) for night safety have also been installed.

### Glimpses of Road Improvement Project

- Total Length: 1.7 Km
- Specification: Cement Concrete Polymer based white topping (6 inch thickness and M30 Concrete Grade
- Road carriage width 7 meters
- Both sidewalk Way Width: 1.2 meters each side including drainage.
- Drainage: RCC “C” type
- Total streetlights: 15 meters interval LED
- Total Users: Approximate 716 commercial vehicles
- Design Life: 20 years with growth rate of 7.5%
- Villages Benefitted: 4 (Approximate. 6000 users including Atul employees)





To ascertain the impact of the road, interactions were done with road users including company employees of Atul Ltd., vehicle users (mainly bus/truck/rickshaw drivers), pedestrians and cycle user, school students and teachers. Panchayat members of Atul village were consulted for their perception on overall impact of roads on socio-economy of community.



Following are key findings of the study:

### Profile of Study Participants:

#### School Students

- A total of 15 students from Atul Vidyalaya and Kalyani Shala, Atul Village covered. The students are from grade 8-12.
- 60% Respondents are female and 40% are male students.
- The students from Atul and adjacent villages like Parnera and Pardi are covered with distance of their home to school ranging from 1-10 kms.

#### School Teachers

- A total of 8 teachers from Atul Vidyalaya and Kalyani Shala, Atul Village have been covered.
- 62.5% Respondents are female and 37.5% are male teachers.
- The teachers from Atul and adjacent villages like Parnera and Pardi are covered with distance of their home to school ranging from 1-12 kms.

#### Drivers

- Total 12 male drivers have been covered for the study.
- Of them 25% are school bus drivers, 41.5% are truck drivers, 8.5% are auto rickshaw drivers and 25% are car drivers.

#### Company Employees

- Total 18 company employees (3 Women, 15 Men) of Atul Ltd are covered for study.
- The employees are staying in Atul Campus or nearby villages like Parnera and Pardi with average distance of 2-5 kms from their home to Atul Factory.
- All respondents travel in their own vehicles. 11% use a car, while 89% use two wheelers like scooters/bikes for daily commuting.

### Perception of Study Participants on Impact of Roads:

Increased safety, ease of movement for pedestrians/cyclists, reduced traffic jams and reduced accidents are the major impacts perceived the road users.

#### Perceived Benefits of New Road

- Major benefits of improved road as perceived by various categories of respondents are lowering of traffic jam reported by more than 85% respondents in each category as well as ease in commuting in monsoon due lowering of waterlogging.
- Further, due to separation of walkway/cycling track from main road, there has been increased safety of commuters. More than 80% of company employees reported to have enhanced safety post intervention.
- The addition of appropriate drainage on roads has been instrumental in reduction of water logging and increased ease in commuting in monsoon. Nearly 75% of bus/truck drivers, 86.7% students and 66.6% company employees reported ease in commuting during monsoon. (refer Figure 2)
- Further, more than 50% of students and 37.5% teachers reported to have increased frequency to school, specifically during monsoons.



Earlier there was no drains which led to water logging and pot holes. This created unsafe conditions for two wheel drivers as well as pedestrians, particularly during night hours. New roads including appropriate slopes and drainage as well as street lights has eliminated water logging and has led to good illumination, which has increased safety for users.

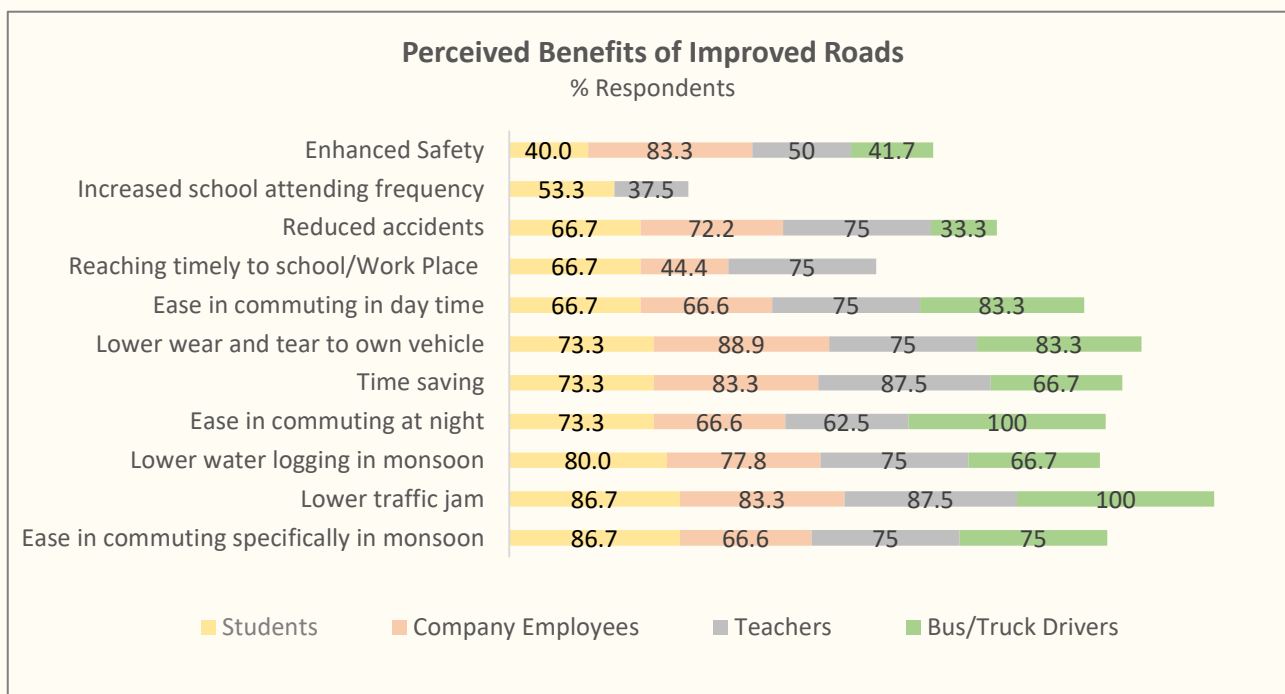


Figure 2 Perceived benefits of improved roads

**Perceived benefits of separate pathways**

- Separate both side pathways/walkway have been instrumental in increased safety of pedestrians and cyclists. Of those using the pathway, 100% of students and teachers and 94.4% company employees reported to have increased comfort for walking/cycling as compared to pre project. (refer Figure 4)
- Parents of 46% students surveyed accompanied children to school prior to road improvement and construction of sperate pathways. Due to increased safety, currently only 20% of parents accompany their children to school. This has reduced the burden on parents and time spent by parents.
- 100% of students and teachers using the walkway reported to have increased safety, while more than 85% of teachers and all students reported reduced travel time and more than 85% teachers and students reported reduction in accidents. (refer Figure 5)

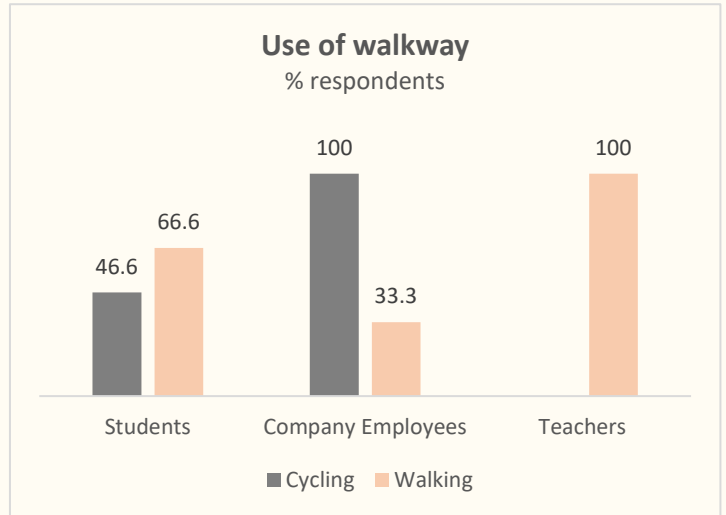


Figure 3 Use of walk way

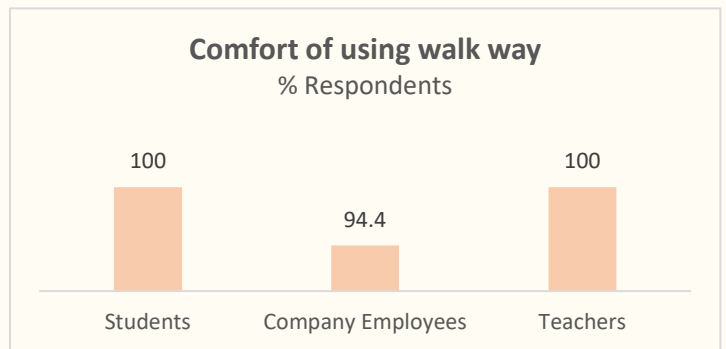


Figure 4 Comfort of using walk way

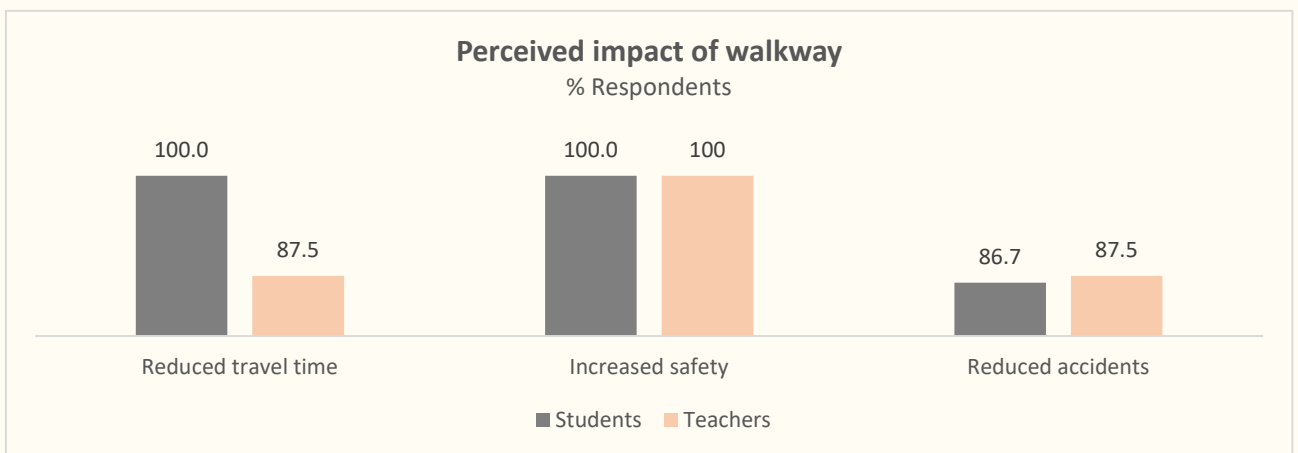


Figure 5 Perceived impact of walk way

### Perceived Benefits of Street Lights

- Installation of streetlights have been instrumental in increased safety for commuting at night.
- This has increased the number of people using the road during the late evening or night. 100% of company employees reported to have been using the road during night hours now as compared to only 80% prior to the project. Similarly there is significant rise in students and teachers commuting in late evening or night (refer Figure 6).

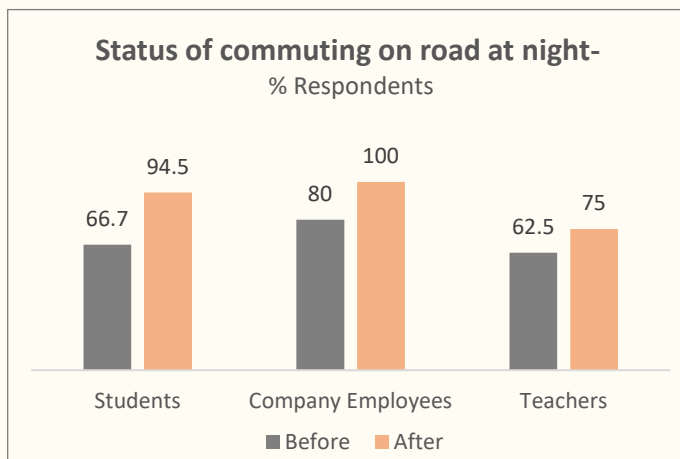


Figure 6 Status of commuting on road at night

- The major perceived benefits of streetlights are feeling of safety and ease in travel during night, lower incidence of nuisance at night and reduced accidents. (refer Figure 7).
- Few respondents reported dramatic reduction in incidence of chain snatching.

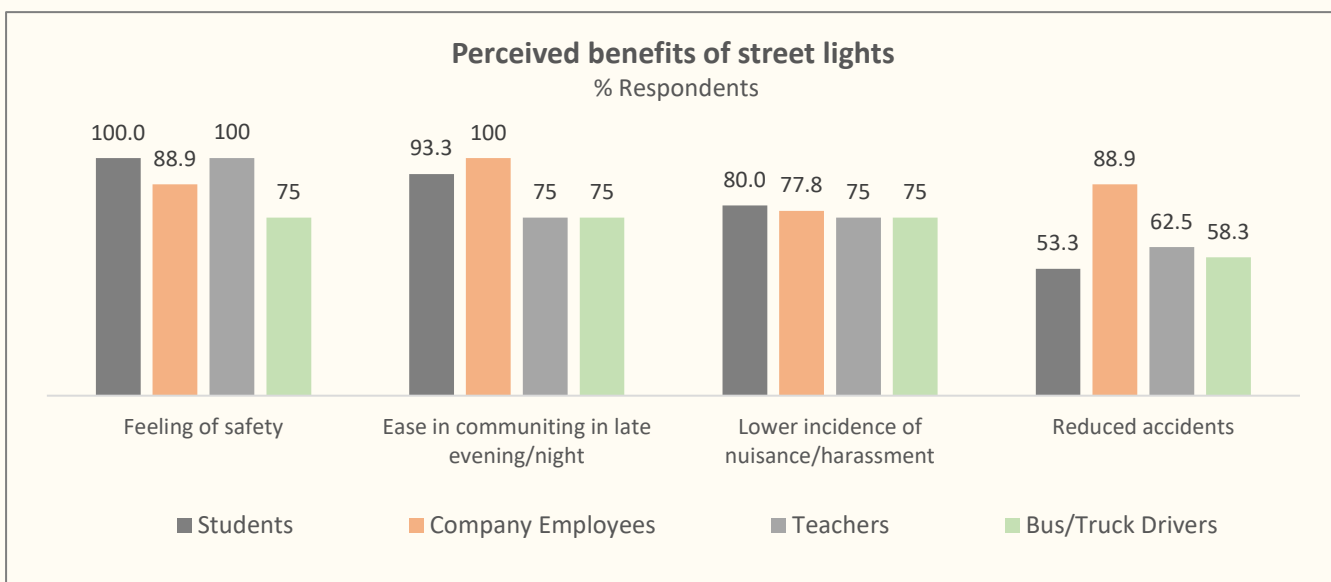


Figure 7 Perceived benefits of street lights

### Perception of Gram Panchayat

Interaction with Panchayati Raj Institution members/Sarpanch of Atul Village, indicate that improved road has benefitted in terms of increase in road safety and reduction of accidents. Further streetlights have eased movement of pedestrians and cyclists and even those using motorized two wheeler due to better visibility and increased senses of security in late evening or night. Drainage system on road has made commuting much easier in monsoon due to minimal water logging now. Further, there is ease in movement of essential services vehicles like ambulances, resulting in quick medical services in more than 10 villages nearby.

### **Sense of security and independence**

#### **Impact of road improvement on students**

Shifa Faiz Sheikh is a grade 9 student at Kalyani High School in Atul Campus. She stays with her family in Atul village. Prior to road improvement project, she was accompanied by her father to school. Her father owns a bag shop and has to spend more than 1 hour every day for drop and pick up from school. Due to separate walkway, she now goes to school independently through cycle. New road has given a sense of safety and comfort. She further adds that improved road along with speed breakers have controlled vehicle speed and she has noticed reduction in accidents on the road. Road improvement has been a boon for students and community in nearby villages.



#### **Quality of Interventions:**

Cement Concrete Polymer based White topping (6 inch thickness and M30 Concrete Grade) has been used on the road. The road technology has been developed by Ultratech Cement Company and construction is done by the company's certified contractor with 15 years warranty. The features includes integrated groove cutting with no expansion joints throughout the road. The camber (slope) is set mechanically. Hume pipe culverts were placed for crossroad drainage of storm water. Paving has been done at night to control concrete temperature. Project was completed in 45 days. The major achievement in the process has been retention of all the existing trees .

#### **Way Forward**

- Installation of cameras can be done for monitoring.
- Speed Breaker width can be increased (making it less bumpy) for ease in riding vehicle and to avoid slipping in monsoon.