



Report Number: ICRR0023041

## 1. Project Data

**Project ID**

P130339

**Project Name**

IN: Kerala State Transport Project II

**Country**

India

**Practice Area(Lead)**

Transport

**L/C/TF Number(s)**

IBRD-82540

**Closing Date (Original)**

30-Apr-2019

**Total Project Cost (USD)**

196,000,000.00

**Bank Approval Date**

14-May-2013

**Closing Date (Actual)**

30-Apr-2021

**IBRD/IDA (USD)**
**Grants (USD)**

Original Commitment

216,000,000.00

0.00

Revised Commitment

196,000,000.00

0.00

Actual

196,000,000.00

0.00

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## 2. Project Objectives and Components

### a. Objectives

The Project Development Objective (PDO) as stated in the Loan Agreement dated June 19, 2013 (Schedule 1, page 5) and in the Project Appraisal Document (PAD, page 5) was "**To improve condition, traffic flow and road safety with a focus on vulnerable road users in Kerala**".



The PDO was revised with the project restructuring in June 2019. The revised PDO was "**To improve condition, traffic flow and road safety with a focus on vulnerable road users in Kerala, and to enhance resilience to climate change and disaster risk**".

**b. Were the project objectives/key associated outcome targets revised during implementation?**

Yes

**Did the Board approve the revised objectives/key associated outcome targets?**

Yes

**Date of Board Approval**

19-Jun-2019

**c. Will a split evaluation be undertaken?**

No

**d. Components**

There were three components (PAD, pages 6-8).

**A. Road Network Upgrading and Safety Improvement** (appraisal cost was US\$413.0 million, actual cost was US\$270.0 million). This component planned to upgrade 363 kilometers (km) of strategically important state highways (including three priority corridors). There were two sub-components: (i) upgrading 281 km through input based contracts; and (ii) upgrading 82 km to two-lane standards through public-private partnership (PPP) arrangements using a modified annuity approach. According to the clarification provided by the team, a modified annuity approach refers to hybrid annuity (that is, annuity payment from public fund along with an upfront capital grant). The Government of Kerala's responsibility would be to pay the annuity during the ten year period, and in the case of the hybrid annuity, provide an upfront capital grant.

**B. Road Safety Management** (appraisal cost was US\$22.0 million, actual cost was US\$18.0 million). This component planned to finance road safety systems. There were three sub-components: (i) developing an 80 km safe corridor demonstration project (SCDP) with multi-sectoral interventions for demonstrating best road safety practices including through physical infrastructure investments and behavioral change interventions on a high-risk corridor (Kazhakkootam - Taikod-Kottarakkara-Adoor, 80 km); (ii) implementing a co-incentive program (the "Challenge Fund" ) for developing safe corridors through partnerships with district road safety councils; and (iii) strengthening the capacity for road safety management.

**C. Institutional Strengthening** (appraisal cost was US\$10.0 million, actual cost was US\$7.2 million). This component planned to finance activities aimed at institutional strengthening. Activities included: (i) strengthening the institutional and financial capacity of the Public Works Department (PWD) - the entity responsible for maintaining state highways - and the Road Safety Authority (RSA) cell of the PWD; and (ii) supporting the PWD's public outreach through local partnerships.

**Revised Components**. This component was added with the project restructuring on June 19, 2019.



**D. Climate and Disaster Resilience Enhancement.** (estimated cost US\$80.35 million, actual cost was US\$64.5 million). This component aimed to incorporate climate and disaster resilience enhancement measures on the PWD and Local Self Government Institution (LSGI) roads.

**e. Comments on Project Cost, Financing, Borrower Contribution, and Dates**

**Project cost.** The estimated cost at appraisal was US\$445.0 million. The actual cost was US\$359.7 million.

**Project financing.** This project was financed by an IBRD loan of US\$216.0 million. The amount disbursed was US\$196.0 million. US\$20.00 million of the loan was cancelled with the fourth project restructuring (discussed below).

**Borrower contribution.** The borrower contribution was planned at US\$229.0 at appraisal. Their actual contribution was US\$163.7 million.

**Dates.** The project was approved on May 14, 2013, became effective on September 6, 2013, and was scheduled to close on April 30, 2019. However, the project closed two years behind schedule on April 30, 2021.

**Other changes.** In 2018, from June to August Kerala was hit hard by unprecedented rains, which caused floods and landslides in all the fourteen districts of the state. The disaster changed the Government's priorities towards rehabilitating roads in a more resilient manner because of the growing impact of climate change. The project was restructured five times during implementation.

- The closing date was extended by two months from April 30, 2019 to June 30, 2019, **through the first restructuring on April 2019**, for preparing and disclosing a revised Resettlement Policy Framework (RPF) for carrying out the proposed works under the emergency response component.

The following main changes were made through **the second project restructuring on June 2019**.

- A new component "climate and disaster resilience enhancement" was added. This component aimed to reconstruct the PWD and the Local Self-Government Institution (LSGI) roads as per the state's Rebuild Kerala Development Program (2019). The PDO and the results indicators were modified, given the revised scope. The Local Self Government Department (LSGD) was added as an implementing agency for reconstructing the LSGD roads. With this activity, the safeguards on Physical Cultural Resources (OP/BP 4.11) and Indigenous Peoples (OP/BP 4.10) were triggered. About US\$45.00 million from the project were reallocated for funding this activity.
- The original design of upgrading 82 km of state highways through a PPP using a modified annuity concession mode was dropped due to the poor market response. The roads, hence, were to be rehabilitated using the traditional Engineering, Procurement and Construction (EPC) approach.
- The closing date was extended by 22 months from June 30, 2019 to April 30, 2021 for completing the newly added activities.

The main changes made through the **third project restructuring on August 27, 2020** were:

- The activity of reconstructing the LSGI roads was dropped at government request. With this change, the safeguards on physical cultural resources and indigenous people were revoked.



- The targets for some indicators were revised downwards.

The main change made through the **fourth project restructuring on November 8, 2020** was the cancellation of US\$20.0 million of the loan, taking into consideration the quantum of work that were likely to be completed by the closing date of April 30, 2021, in the context of restrictions due to the COVID-19 pandemic.

Funds were reallocated between disbursement categories **through the fifth project restructuring on April 20, 2021**.

**Split ratings.** Given that the PDO was modified to reflect the increase in project scope, this review is not based on a split rating of objectives.

### 3. Relevance of Objectives

#### Rationale

**Country and Sector context.** At appraisal, Kerala state was highly urbanized, with 48% of its population living in urban areas. Kerala's total road network was 152,000 kilometer (km). 70% were single-lane highways. Over half (54%) of these were in poor condition. Road safety was a concern, with the number of traffic fatalities in Kerala showing a 27% increase (from 3,200 to 4,100) between 2005 - 2011. Alongside this, a key challenge faced by the sector was an inadequate state-level framework for funding sector investments. Converting to two-lane state highways for improving traffic flows, improving road safety and providing a viable basis of sector funding (including through private sector financing) was important for the Government.

**Government strategy.** At the national level, the PDO was consistent with India's 12th Five-Year Plan (FYP) for 2013 - 2017 at appraisal. The plan called for "*faster, sustainable and more inclusive growth*". The Government's National Disaster Management Plan (2016) laid the framework and direction for disaster management and the National Action Plan on Climate Change (2008).

At the state level, the PDO was aligned with Kerala's Road Development Policy for 2009-2021. This policy proposed means for funding road development and maintenance *via* existing or proposed revenue-generating measures, and envisioned converting single-lane highways to two-lane carriage ways by 2021. The state government's 13th FYP for 2017 -2022 highlighted the need for improving/upgrading existing roads rather than building new ones, strengthening the institutional capacity for "*sustainable transport*", and addressing road safety issues. The PDO was aligned with the state's Rebuild Kerala Development Program (RKDP), a program aimed to address natural disasters and climate change and strengthen the state's preparedness for climate change impacts.

**Bank strategy.** The PDO were well-aligned with the Bank strategy. At appraisal, the first pillar of the Country Partnership Framework (CPF) for 2013 - 2017 articulated the need for "integration" through improving physical connectivity and improving road safety and facilitating private sector participation in the sector. The project was also fully aligned with the Bank's current CPF for 2018-2022. This CPF laid emphasis on deepening the ongoing support for climate resilience including through transport investments.



While the objective 1.5 of the CPF aimed to "improve disaster risk management", objective 2.3 aimed to "improve connectivity and logistics".

**Previous Bank experience.** This was the second road sector project in Kerala. This project sought to build on the experience of the first road project, while finding ways to address the issues that remained unresolved (such as alternate sources of funding for sector activities), road safety issues and strengthening the institutional capacity of the PWD and Road Safety Authority (RSA). The outputs of the project activities were likely to aid in realizing the intended outcomes of improving the quality of state highways, reducing travel time for road users, reducing the number of fatalities and injuries especially of vulnerable road users, and securing alternate sources of funding for the sector.

Although, the original project did not include measures to enhance resilience to climate change and disaster risk. Following unprecedented rain and flooding (the worst disaster to ravage Kerala in nearly one hundred years), activities were added to enhance the impact of the project. The activities added were likely to help in enhancing the resiliency of the road network to climate change conditions. Given that the PDO was highly relevant to the Government and the current Bank strategy, the relevance of the PDO is High.

## Rating

High

## 4. Achievement of Objectives (Efficacy)

### OBJECTIVE 1

#### Objective

To improve road condition with a focus on vulnerable road users in Kerala.

#### Rationale

**Theory of change.** The causal links between the project activities, outputs and outcomes were logical. The project included activities such as upgrading selected state highway segments together with institutional strengthening the Public Works Department (PWD) to manage the road network. These activities were expected to result in outputs such as improving the road network condition.

As outcomes, this was expected to improve the riding quality in the project areas for road users and especially vulnerable road users such as pedestrians, motor cyclists and riders of other two-wheel vehicles. The intended outcomes were contingent on the assumption that there is adequate capacity in PWD and that there are enough contractors in the state to execute the road works.

**Outputs** (ICR, pages 13 -14).

- 331 km of state highways were upgraded with sidewalks, pedestrian crossings and segregation of traffic for vulnerable road users (pedestrians and two wheelers) by April 2021, meeting the revised target of 331 km (original target 363). 30 km of the original target was dropped due to the land



acquisition delays and unsuccessful procurement in one package. Of this, 240 km were upgraded using input-based contracts as targeted, and 41 km under the traditional Engineering, Procurement, Construction (EPC) contracts, short of the revised target of 52 km (not under PPP as originally envisioned). The roads rehabilitated included 101 km of three priority corridors (Kasargod-Kanhangad, Pilathara-Pappiniseery, Thalassery - Valavupara).

- The Geographic - Information System (GIS) based climate asset management was operationalized as targeted.
- The Road Maintenance Management System (RMMS) was installed and a dedicated institutional governance structure for managing the RMMS. The first forward works program for 4,000 km of state highway networks was subsequently generated using RMMS. This program was used for informing the PWD budget for fiscal year 2022 - 2023.
- A seven-year program of Output and Performance-based Road Management Contracts for over 700 km of roads was rolled out as targeted.
- Regular road user surveys were undertaken on 239.2 km of roads. The final survey had not yet been conducted when the project closed.

### **Outcomes.**

The outputs described above improved the road condition and the riding quality of roads measured through the International Roughness Index (IRI).

- When the project closed 375 km of the state highway roads in the project-intervened areas had an IRI of less than four. This was short of the target of 408 km (the ICR notes that while one of the packages under EPC (22 km) had been substantially completed by project closure, the other package (30 km) had achieved a physical progress of only 93%).

### **Rating**

Substantial

## **OBJECTIVE 2**

### **Objective**

To improve traffic flows on selected roads in Kerala.

### **Rationale**

**Theory of change.** The activities described above were relevant to this objective. The project activities such as rehabilitating roads in the project-intervened areas were aimed at to improving the condition of the road network. Such roads were likely to lead to the outcome of improving traffic flows of road users in general and vulnerable road users such as pedestrians, motor cyclists and riders of other two-wheel vehicles. The causal links between the project activities, outputs and outcomes were logical. The underlying assumptions are that there is adequate capacity in the PWD and that there would be enough contractors in the state to execute the works.

**Outputs** (ICR, page 24).



In addition to the activities described above, the following outputs were relevant to this objective.

- A core road network (CRN) constituting 7,000 km of state highways and major district roads was established as targeted. This work included a scientific prioritization exercise that included information on climate risk, economic, environmental and social factors.
- An autonomous Road Sector Center of Excellence (COE) was established in the Kerala Highway Research Institute as targeted, to facilitate continual improvement of the road sector and bring in focus on sector competence, Research and Development (R&D) and innovation. The team clarified that COE was funded for the first five years by the Government of Kerala.

### **Outcomes.**

The outputs were expected to contribute to the intended outcome of reducing the time taken to travel on the three priority corridors (Kasargod- Kanhangad, Pilathara-Pappinseery, Thalassery - Valavupara).

- The time taken to travel on the Kasargod - Kanhangad corridor declined from 23 minutes at the baseline, exceeding the target of 25 minutes.
- On the Pilathara - Pappinseery corridor, it declined to 17.5 minutes, exceeding the target of 19 minutes.
- On the Thalassery - Valavupara. the travel time was 58 minutes when the project closed (as in the baseline). The ICR noted that approaches to two bridges on this corridor were yet to be completed and opened to traffic when the project closed.

### **Rating**

Substantial

## **OBJECTIVE 3**

### **Objective**

To improve road safety with a focus on vulnerable road users in Kerala.

### **Rationale**

**Theory of change.** The causal links between the project activities, outputs and outcomes were logical. The project included activities such as investments in road safety infrastructure (such as bus stops along the corridor), road safety interventions on a 80 km high-risk corridor (Kazhakkootam - Taikod - Kottarakkara - Adoor), capacity enhancements using "challenge funds" through local partnerships and strengthening the capacity of the Road Safety Authority (RSA) cell of the PWD.

The outputs of these activities, were aimed at improving road safety and thereby aid in reducing fatalities of the vulnerable road users. The intended outcomes are contingent on the assumptions that the RSA has adequate capacity to execute the project activities and that there is behavior change on the part of road users.

**Outputs** (ICR, paragraphs 25 and 26).





- This project built upon the road safety initiatives of the previous Bank-financed transport project and applied a bottom-up approach through involving the community for the Safe Corridor Demonstration Project (SCDP). The SCDP was the first of its kind in a peri-urban setting, as earlier Bank-financed SCDPs in Andhra Pradesh and Karnataka state in India were in urban settings. Consultations were held with vulnerable road users (such as drivers of three-wheel vehicles, pedestrians and bicyclists at 17 junctions along the corridor to help in project design). The National Transportation Planning and Research Center (NATPAC) formulated the design which included road safety features and bus stops along the corridor.
- The project aided in setting the "challenge fund" (CF), the first-of-its-kind activity in a state highway project in India. The CF sought to replicate the good practices and from the implementation of the Safe Corridor Demonstration Project in several districts for developing district-level road safety management capacity. However, no district-level road safety improvement schemes were implemented through the CF as compared to the original and revised targets of ten and five respectively.
- While the previous Bank-finance project aided in setting the Road Safety Authority (RSA) cell in the PWD, this project helped in operationalizing the RSA to manage all aspects of road safety. This project also helped in establishing a Technical Support Group (TSG) within the RSA for road safety management. The TSG supported implementation through: (i) vetting an enforcement action plan for SCDP; (ii) formulating templates for districts to submit their proposals with the CF; (iii) developing a monitoring and evaluation framework for the SCDP; and (iv) facilitating community consultations on road safety at several junctions and road stretches. The ICR observed that TSG continued to function after project closure, demonstrating the State Government's commitment to improved road safety arrangements.

### **Outcomes.**

The outputs of the activities described above were expected to reduce annual fatalities in total and of the vulnerable road users defined as pedestrians, cyclists and drivers of two-wheelers.

- The total number of fatalities in the demonstration corridor decreased by almost 50% from 80 at the baseline on April 17, 2013, to 43 when the project closed on August 30, 2021. This exceeded the specified target of 65. The team clarified that as compared to the number of fatalities on the demonstration corridor, the number of fatalities in the Kerala state went down by only 26% between 2014 and 2019 (from 4049 to 2979).
- The number of fatalities of the vulnerable road users decreased to 25 when the project closed, exceeding the target of 40.

**Rating**  
Substantial

## **OBJECTIVE 4**

### **Objective**

To enhance resilience to climate change and disaster risk.





## Rationale

**Theory of change.** The causal links between the project activities, outputs and outcomes were logical. The project included activities such as developing a climate-resilient road rehabilitation work program and framework for rehabilitating/reconstructing roads that are resilient to disaster and climate change activities. These activities were expected to result in outputs of roads that are resilient to climate change factors.

The outputs discussed above were likely to enhance the resiliency of roads to climate change and disaster risk. The outcome is contingent on the assumption that PWD has the required capacity to construct roads that are resilient to climate change factors.

**Outputs** (ICR, paragraphs 27 - 29).

- The project aided in conducting a techno-economic prioritization exercise to identify the flood prone road sections. This exercise identified 61 sections (1,632 km). Climate resilient designs were formulated for 676 km of these road sections.
- A dedicated "climate cell" was established at the Kerala Highway Research Institute (KHRI). The cell was tasked with the responsibility of developing a comprehensive climate resilient road infrastructure development strategy for the state. A "climate and disaster risk" module was incorporated as part of asset management that had the functionality to capture historical climate risks and hazard information.

## Outcomes.

The outputs described above were aimed to incorporate climate change and disaster resilience vulnerability assessments in detailed project reports.

- Climate change and disaster-resilience vulnerability were undertaken and incorporated in all designs for new project corridors under the State Governments Rebuild Kerala Initiative (RKI) issued in 2019.
- A total of 17.3 million benefitted from project activities, exceeding the target of 14.8 million. Of this, nine million female beneficiaries, exceeding the target of 7.7 million.

## Rating

Substantial

## OVERALL EFFICACY

### Rationale

Overall efficacy is substantial, given that the revised targets were met for the most part.

### Overall Efficacy Rating



Substantial

## 5. Efficiency

**Economic analysis.** An economic analysis was conducted for activities associated with upgrading five road sections using the Highway Development and Management Model (HDM - 4). The activities accounted for about 93% of the appraisal estimate and 75% of actual cost. The methodology entailed comparing the economic benefits "with the project" and "without the project. The main benefits were to come from: (i) savings in vehicle operating cost; (ii) savings in journey time; (iii) savings in accident costs; and (iv) savings in carbon emission. The average ex post Economic Internal Rate of Return (EIRR) was 22.7%, as compared to the average ex-ante EIRR of 43%. For all the five road sections, the ex-post EIRR was lower than estimated at appraisal, due to the higher than expected construction periods which reduced the operation period and the associated project benefit streams.

**Administrative and operational shortcomings.** The Project Management Unit (PMU) was inadequately staffed and key positions such as the project director, environmental and social specialists remained vacant for almost three years. This led to delays in implementing some institutional strengthening activities. The delays were exacerbated by procurement delays (due to inadequate capacity in Kerala's construction industry) and land acquisition delays. These factors contributed to the reduction in targets for rehabilitating roads. The delays were compounded by adverse external factors over which the project had no control, such as natural disasters (heavy floods in 2018) and the restrictions following the COVID-19 pandemic. The delays during implementation contributed to dropping some activities (such as the originally envisaged Strategic Road Network Program). The Challenge Fund activity was not as successful as expected due to the lack of capacity in districts to formulate proposals and the lack of success of capacity building initiatives. US\$20.00 million of the loan was cancelled and the project closed two years behind schedule.

In sum, efficiency is **modest**.

## Efficiency Rating

Modest

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal	✓	43.00	93.00 <input type="checkbox"/> Not Applicable
ICR Estimate	✓	22.70	75.00 <input type="checkbox"/> Not Applicable

\* Refers to percent of total project cost for which ERR/FRR was calculated.



## 6. Outcome

The PDO is highly relevant to the Government and the current Bank strategy for India. Overall efficacy is substantial, as the revised key outcomes were realized for the most part. Efficiency is modest. Taking these ratings into account, overall outcome is moderately satisfactory.

### a. Outcome Rating

Moderately Satisfactory

## 7. Risk to Development Outcome

**Institutional risk.** There is substantial risk that adequate resources may not be available for the PWD for maintaining the road assets created under this project. The PAD noted that a key challenge faced by the road sector in Kerala was an inadequate state-level framework for funding sector investments. Further, the Borrower's comments (page 49) specifically mentions that activities in this project did not include planning for maintenance of the roads.

**Government commitment.** The risk to development from Government commitment to sustaining the Road Maintenance Management System (RMMS) and institutions like the Center of Excellence (COE) in the Kerala Highway Research Institute (KHRI) is low. The ICR (paragraph 66) notes that the RMMS is well aligned with the State Government's 2019 *Rebuild Kerala Better initiative* (RBI). The ICR notes that COE is also a high priority for the state, and is considered an important step to ensuring a resilient road infrastructure. The setting of a "climate cell" within the COE is also likely to help in coordinating and building a comprehensive climate-resilient road infrastructure development strategy for the state.

## 8. Assessment of Bank Performance

### a. Quality-at-Entry

The Bank prepared this project based on the experience from the previous Bank financed Kerala State Transport Project (KSTP 1). Lessons incorporated at design included: (i) seeking to modernize PWD through focusing on capacity building, awareness raising, and e-governance; (ii) supporting the RSA in mainstreaming road safety issues with a focus on vulnerable road users; and (iii) starting the land acquisition process early given the significant delays associated with land acquisition in KSTP 1.

The implementation arrangements made at appraisal proved to be appropriate. This included: (i) the Public Works Department (PWD) - in charge of overall implementation; (ii) the Road Safety Authority (RSA) cell of the PWD - in charge of the road safety component; and (iii) the office of the Kerala State Transport Project (KSTP) - in charge of day-to-day implementation. The KSTP had executed the previous Bank-financed KSTP 1 project and was familiar with Bank policies (PAD, paragraphs 29 - 31).



The preparation team identified several risks at appraisal. This included substantial risks with governance and political interference during implementation, implementation delays due to the constant turnover of staff at the PWD, and design risks (given that PPP arrangements were relatively new in Kerala). Mitigation measures included: support to expanding the existing complaint handling system, adopting a Governance and Accountability Plan, and technical assistance for the PPP arrangement. Even with mitigation measures, the overall risk was rated as substantial at appraisal (PAD, page 39). The arrangements made at appraisal for safeguards and fiduciary compliance were appropriate (discussed in section 10).

There were moderate shortcomings at Quality-at-Entry. The mitigation measures for some risks were inadequate. This led to the dropping of the planned PPP concession and implementation delays due to the staffing issues at the PWD. The design also underestimated the risks associated with sub-optimal capacity of the local contractors. The envisaged project period of six years was insufficient, and the project closing date had to be extended to two more years. There were shortcomings in M&E design (discussed in section 9). Overall, the quality-at-entry was **moderately satisfactory**.

### **Quality-at-Entry Rating**

Moderately Satisfactory

### **b. Quality of supervision**

There were fourteen supervision missions during the project lifetime of nine years (implying twice a year missions) for most of the project lifetime. Supervision missions in the last year were conducted remotely due to the COVID - 19 pandemic. The support provided by the supervision team aided in safeguards and fiduciary compliance and in the progress of carrying out the innovative institutional strengthening road safety components of the project. Following the devastating floods in 2018, the project team worked with the state Government on reallocating US\$45.00 million.

Although there were four task team leaders (TTL) during the project lifetime, two of the TTLs were prior co-TTLs. Three of the TTLs, based at headquarters travelled frequently to Kerala on supervision missions and technical visits. The team clarified that there was continuity of leadership.

In sum, overall bank performance is rated moderately satisfactory, given the moderate shortcomings in Quality-at-Entry.

### **Quality of Supervision Rating**

Satisfactory

### **Overall Bank Performance Rating**

Moderately Satisfactory

## **9. M&E Design, Implementation, & Utilization**



### **a. M&E Design**

The key outcome indicators for monitoring performance - reduction in travelling time, improving the quality of the road network, reduction in the number of fatalities for all as well as vulnerable road users, and the number of direct project beneficiaries - were for the most part adequate for monitoring project performance. The design also stipulated conducting a road user satisfaction survey every two years.

There were some shortcomings in M&E design. There were no key outcome indicators for monitoring the institutional strengthening components of the project. The ICR (paragraph 48) acknowledges that a more meaningful indicator on women (rather than the number of female beneficiaries) could have been included, given the high percentage of women engineers in the state and on the project.

During the restructuring of the project in June 2019, an outcome indicator to measure the PDO objective relating to enhancing resilience to climate change and disaster risk was appropriately included.

### **b. M&E Implementation**

The ICR (paragraph 49) notes that M&E system was implemented as designed. However, there were delays in the submission of quarterly progress reports. Progress on civil works under component one activities were reported regularly through monthly and quarterly progress reports. Monitoring and coordination for the road safety component was regularly undertaken by the RSA. However, reporting on component d activities was inconsistent. The stipulated two-year interval for the road user satisfaction survey was not adhered to and only two road surveys were conducted during the project lifetime.

### **c. M&E Utilization**

The M&E information highlighted lagging areas of project implementation and contributed to the timely decisions on restructurings and cancellation. The ICR (paragraph 50) observed that the fully functional Road Maintenance Management System (RMMS) now contains the inventory and condition database of the entire 7,000 km road network and had started generating a Forward Works Program. The ICR also notes that the RMMS is likely to be sustained after project closure and that it will be an important addition to monitoring for climate and disaster resilient roads, given its functionality to capture historical climate risks and hazards information.

In sum, M&E is rated as modest, in view of the shortcomings in M&E design and M&E implementation.

### **M&E Quality Rating**

Modest

## **10. Other Issues**

### **a. Safeguards**



The project was classified as a Category A (full assessment) project under the World Bank safeguard policies. Two safeguard policies were triggered at appraisal: Environmental Assessment (OP/BP 4.01); and Involuntary Resettlement (OP/BP 4.12).

The safeguards on Physical Cultural Resources (OP/BP 4.11) and Indigenous People (OP/BP 4.10) were triggered following the project restructuring on June 2019. However, these safeguards were revoked following the removal of the Local Self Government Institution (LSGI) activity from the project through the third restructuring on August 27, 2020.

**Environmental Assessment.** The possible physical environment impacts were related to construction-related activities such as drainage issues, impacts on mangroves, impacts on rivers/streams due to the construction of the new bridge and environmental and health safety impacts, including work zone safety issues. The Environmental Assessment (EA) done for the earlier project was updated and an Environmental Management Plan (EMP) was prepared and publicly disclosed at appraisal (PAD, paragraphs 31 and 33).

The Environmental Safeguards performance at project closure was rated as moderately satisfactory (ICR, paragraph 52). There were two work site accidents, each of which resulted in a fatality in 2017: the toppling of the mast of a church flagpole due to the excavation of a nearby retaining wall; and an incident with a water tanker. Both accidents were resolved, and compensation payments were made to the families. The ICR notes that since these incidents, the project has largely adhered to the environment methodology and adopted good work zone practices.

**Involuntary Resettlement.** An updated Resettlement Action Plan (RAP) was prepared and disclosed, to address land acquisition and resettlement issues (PAD, paragraph 36). The Grievance Redressal Mechanism (GRM) set up for the prior project was continued for this project (PAD, paragraph 60).

The ICR (paragraph 54) notes that social safeguards performance was rated as highly satisfactory at project closure. The ICR notes that although there were delays in the land acquisition process initially, these issues were resolved. The project appropriately compensated all Project Affected Persons (PAPs). Some of the key project achievements, included formation of District Level Purchase Committees for negotiated purchase of land in a transparent manner, engagement of Non-Governmental Organizations (NGOs) in implementing RAPs, setting an Internal Complaints Committee in each civil works contract for addressing sexual harassment of women at workplace and programs on awareness following the COVID-19.

## **b. Fiduciary Compliance**

**Financial management.** The Kerala Transport Sector Project (KSTP) office was in charge of financial management. The KSTP had executed the previous Bank-financed project. The Bank conducted an assessment of the financial arrangements of KSTP at appraisal. The assessment concluded that the financial arrangements of KSTP were adequate (PAD, paragraph 50).

The ICR (paragraph 56) notes that the project's financial management arrangement was rated as moderately satisfactory. There were delays in submission of internal and external audit reports. According to the clarifications provided by the team, the audit opinions were a mix of unqualified and qualified. The



Bank team also clarified that in instances where the audits were qualified, the Bank team determined that audit issues were not serious in terms of financial management and accountability issues.

**Procurement.** The Bank conducted a procurement assessment of KSTP at appraisal. Although there were no cases of fraud and corruption in the previous Bank-financed project, there were considerable delays in completing contracts and disputes in matters relating to land acquisition and resettlement. The mitigation measures adopted, included hiring additional staff and using the PWD's e-procurement system. With these measures, the procurement risk was rated as moderate at appraisal (PAD, page 35).

The ICR (paragraph 57) notes that project's procurement arrangements were rated as moderately satisfactory overall. The project faced procurement issues in the initial years due to the lack of adequate capacity. These issues were resolved with hiring additional staff. The ICR also notes that the project faced challenges associated with availability of contractors, given the challenges of artificial barriers for out of state contractors and the sub-optimal capacity of local contractors in Kerala. The ICR does not report any case of mis procurement.

#### c. Unintended impacts (Positive or Negative)

The ICR does not report of any unintended impact.

#### d. Other

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### 11. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Moderately Satisfactory	Moderately Satisfactory	
Bank Performance	Moderately Satisfactory	Moderately Satisfactory	
Quality of M&E	Modest	Modest	
Quality of ICR	---	Substantial	

### 12. Lessons

The ICR draws the following main lessons from the experience of implementing this project, with some adaptation of language.

**1. Community engagement and a bottom up approach may be useful in designing effective road safety initiatives.** This project addressed road safety issues through physical infrastructure and behavioral change interventions on a high risk corridor. The activities were designed based on community engagement and involvement of village, school faculty and students, as well as





community monitoring at 17 locations on the demonstration corridor. This decision to involve the local planning agency and the think tank National Transportation Planning and Research Center (NATPAC) helped in developing evidence-based road safety interventions and customizing road safety standards to local requirements for the vulnerable road users.

**2. Systematic capacity building and training in road safety can help in designing road safety initiatives at the sub-national level.** The Challenge Fund in this project aimed at introducing road safety practices at the sub-national level. However, in this instance, the limited progress made towards this end was largely due to the inadequate capacity in the districts to formulate policies.

**3. Steps taken early during preparation can help in addressing the issue of inadequate contractors.** This project faced the dual challenges of attracting out-of-state contractors due to the artificial entry barriers and sub-optimal capacity of the local contractors. The lesson was that lowering entry barriers, helping build capacity in the contracting industry can help in building a strong and vibrant contracting industry.

**4. Well-designed project components can help in supporting comprehensive institutional development, even if not explicitly included in project design.** The components supported not only road rehabilitation and road safety at design, but subsequently introduced climate and disaster resilience aspects. This helped in better mainstreaming climate and disaster screening activities (although they were not initially included in the original design).

The borrower's comments in Annex five draws a further lesson.

**Given that natural disasters can very quickly damage the assets, it would help to anticipate and design more fail proof roads.** Although this may incur higher initial investment costs, the Government may accept cost, considering the heavy losses incurred when the roads are damaged because of disasters.

### 13. Assessment Recommended?

No

### 14. Comments on Quality of ICR

The ICR is well-written. The theory of change provided in the text clearly articulates the links between project activities, outputs and outcomes. The ICR candidly acknowledges the issues with the shortage of contractors and lack of market demand which undermined the envisioned private sector participation in the sector. The evidence provided in the text is adequate for assessing outcomes. The photos provided in pages 20 and 51 enables the reader to get a better picture of the project's achievements. The ICR draws good lessons from the experience of implementing the project. The Borrower comments provided in Annex five provides useful information.

One minor issue is the ICR provides little information on the continuity of team leadership.



**a. Quality of ICR Rating**  
Substantial