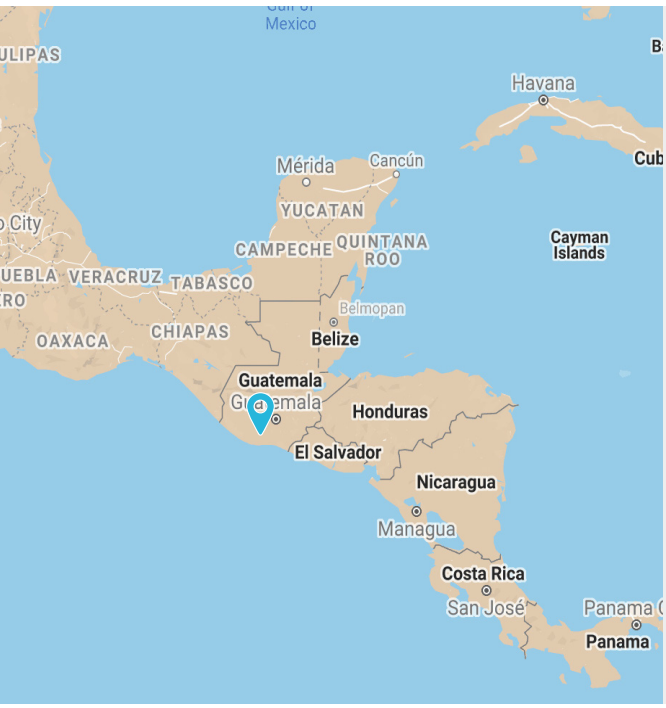
San Juan Comalapa, Guatemala

Partner city

Status of the project: **Completed pilot project / technical assistance**



Basic Information

Urban area: **76 km²**

Population: **48,597** | Growth rate: **2.4%**

GDP per capita: **USD 1,158**

Modal Share:

- **Formal public transport: 10%**
- **Tuk Tuks: 14%**
- **Walking: 42%**
- **Cycling: 12%**
- **Private cars: 7%**
- **Private motorbikes or 2-wheelers: 9%**
- **Other: 6%**

National GHG emissions per capita: **2.40 (tCO_2eq)**

Exposure to climate change: **MEDIUM**

Context

San Juan Comalapa is an administrative department of Chimaltenango, Guatemala, with 48,597 inhabitants. Most (94%) of the population belongs to the indigenous group of Kaqchikel Maya, with Kaqchikel as the official language. San Juan Comalapa is a rural and low-income area of Guatemala, and the municipality includes the city of San Juan Comalapa and 20 surrounding villages. On average, 639 people per km² inhabit the region. It is a compact municipality with many slopes; therefore, transport modes are frequently difficult to access, and tuk-tuks have emerged as a feasible transport solution for the community.

Traditionally, family roles are highly genderised; therefore, women mainly fulfil household and care activities. Gender role division implies different mobility solutions for women and men, as women take daily trips to complete various caretaking and housekeeping activities. For example, women travel significantly more often by tuk-tuk (25%) than men (6%). In contrast, men use bicycles for 20% of their trips. Moreover, 11% of the population has difficulties accessing urban mobility services.

The contracting agreement between tuk-tuk providers and the local authorities allows transport services in the municipality for a fare of GTQ 3.00 (~USD 0.39). Currently, 200 tuk-tuks are registered (each half of the tuk-tuk fleet operates every other day). Most of the fleet is in poor condition and has already exceeded its life cycle. Public transport works informally through tuk-tuks, providing services similar to taxis with no formal stops. Buses only exist in the outskirts of the municipality, and there is no existing transport authority or mobility secretariat in San Juan Comalapa.

The Electric Tricycle Pilot project, part of the EUROCLIMA+ programme, sought to introduce electric transport to boost the renewal of old petrol-powered tuk-tuks and increase the accessibility of public transportation.

In Guatemala, there are regulations regarding importing electric vehicles, and several incentives to reduce the cost of their implementation are in place. However, most of these incentives apply in only three regions in Guatemala. Two regulations in progress, the Law on Incentives for the Import of Non-Conventional Energy Automobiles, presented in 2018, and the Law on Electromobility, introduced in 2019, have not been approved yet.

In the municipal pilot project's first implementation phase, nine electric tricycles and their charging stations were introduced. Two units for public transport, four for waste collection, and three for social transport (transport of people with mobility limitations or disabled).

Support from the Partnership

Technical Assistance: Pilot Project development

Funded by: European Union

Funding amount:EUR 250,000

Implemented by: GIZ through the Program EUROCLIMA+ Programme

Local counterpart: Municipality of San Juan Comalapa, Commission for Urbanity, Security and Infrastructure

Supported activities:

- Implement two electric tuk-tuks to increase sustainable public transport options for the municipality
- Increase accessibility by implementing three tuk-tuks for people with mobility difficulties
- Provide rubbish collection in areas that are difficult to access by implementing four electric tricycles
- Empower women through their participation in tuk-tuk owners' meetings.
- Provide technical training on maintenance, operation and management of tuk-tuks.

Status of implementation

Project start: 2018 Q3

Project completion: 2022 Q3

Completed outputs:

- Base studies: Analysis of the current mobility situation, state-of-the-art and market survey
- Training strategy
- Communication and dissemination strategy
- Definition of technical specifications
- Management, business and operation model. Implementation Roadmap
- Implementation of the communication strategy and impact stories
- Procurement of units: launch of tender and procurement of nine electric tuk-tuks
- Implementation of the pilot project: nine electric tuk-tuks and the start of the project test phase

Core impact indicators baselines

The pilot project does not include a projection of future impact, and only baseline data are presented in the following table.

Indicator	Baseline - 2016
Total annual transport-related GHG emissions (Mt CO_2eq)	9,234.15 Kt CO_2 eq
Annual transport-related GHG emissions per capita (kg CO_2eq)	0.01191 kg CO_2eq / capita
Air pollution Mean urban air pollution of particulate matter (in µg $PM_{2.5}$) at road-based monitoring stations	36-43 µg/m³ of $PM_{2.5}$
Road safety Annual traffic fatalities in the urban area per 100,000 inhabitants	19 fatalities / 100,000 habs (data of 2013)

Insights from practice: key pilot project takeaways

The introduction of new technologies in the transport system requires a deep review of the institutional political context

Introducing electric tuk-tuks in San Juan Comalapa's transport system required a detailed review of the market's institutional political context where it intervenes. Local authorities faced operational barriers that were difficult to solve despite their good intentions, such as:

- The widespread rejection of unknown technologies, even in a pilot phase,
- The incorrect selection of the implementation strategy based on "giving away" units without solid award criteria, which was discouraged from the beginning by GIZ,
- The non-adherence of drivers in a local association reflected the political differences between the various stakeholders that make up the local transport system.
- Differences in criteria and objectives between federal and local authorities added complexity to the project.

While these barriers could have been identified in the early design stages, GIZ adopted various strategies to address them.

- Development of a communication and awareness strategy
- Development of a training strategy aimed at local administration personnel, drivers and mechanics
- Definition of the units' technical specifications to be incorporated with local actors to save mistakes from previous experience.
- Develop alternative management and operation models to empower local authorities and traditional tuk-tuk drivers (creating municipal management companies, public-private participation models, and introducing promotion models based on the result of financing, among others)

Electric mobility is a feasible solution for local transport systems.

The project aimed to promote sustainable urban mobility in San Juan Comalapa by introducing electric Tuc Tucs in the local transport system. The project's managers considered using this technology to provide social services such as daily transfers of older people and children with special needs to rehabilitation therapies and waste collection in difficult access areas.

The project integrated a gender perspective to empower women and ensure their participation

The project intends to address the greenhouse and local emissions in San Juan Comalapa coming from the operation of tuk-tuks powered by fossil fuels while empowering women and strengthening their participation in transport services. The inclusion of the gender component in the project seeks to improve the perception of security and safety among women when using the new electric units. The project also aims to increase women's influence in the city's decision-making processes, highlight the need to consider gender balance in any policy, programme, or project, and define its objectives and activities.

Early interinstitutional coordination and capacity development is crucial for project completion

Interinstitutional coordination needs to be enhanced when implementing this type of project, as many stakeholders are involved and do not necessarily have knowledge of mobility projects. Other dependencies of the municipality and the national government had to be involved in earlier stages of the project to obtain the required endorsements or approvals. Education, waste collection, and other sectors are linked to the project execution, which adds complexity to its management. Capacities in the management and execution of mobility projects enable the full involvement of some local authorities that might not have sufficient staff or experience.

Legal limitations were an opportunity to support national industry

The project only considered the purchase of vehicles manufactured in Guatemala to overcome regulatory limitations related to the importation of the tuk-tuk units, thus supporting the national industry and showcasing the multiple benefits of the project.

Results and perspectives for scaling

Other cities and manufacturers have expressed interest in replicating the experience

Although the project participants did not solve the definition of adequate operational management models for San Juan Comalapa, it was possible to generate interest from both federal and local authorities in other cities about the benefits of electromobility. Excellent results were also obtained, working hand in hand with local suppliers going through a market development phase, for which this experience provided visibility and concrete results. It was also possible to strengthen local consultants who accompanied this project and became true promoters of sustainable mobility.

Last update in December 2023