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Title: Rural electromobility: innovation for transportation in indigenous and rural communities

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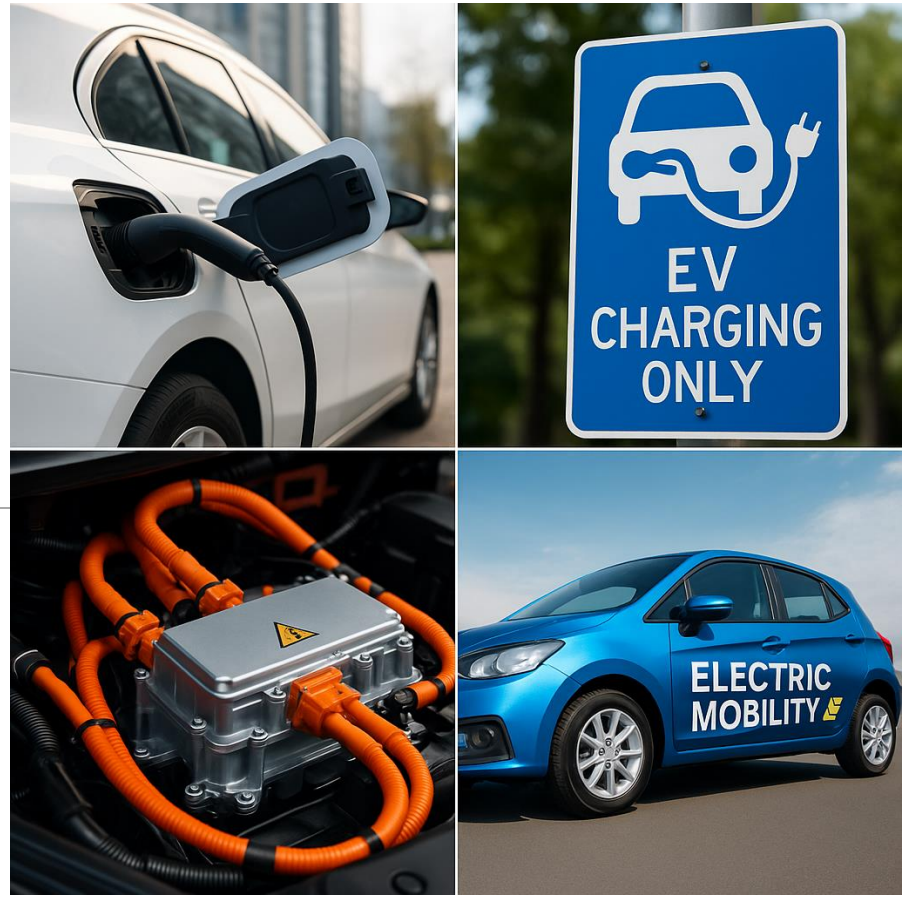
Introduction

La electromovilidad ha ganado una importancia strategic in the global context as a technological alternative that reduces polluting gas emissions, promotes the use of clean energy, and transforms the transport system towards sustainable models. www.gob.mx › semarnat (Ministry of the Environment and Natural Resources [SEMARNAT], 2022).



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Methodology

This research adopts a mixed approach combining qualitative methods and documentary analysis. The qualitative component involved semi-structured interviews with 15 key actors, including community leaders, municipal technicians, teachers from technological institutions, and representatives of grassroots organisations in rural communities in Tabasco, Chiapas, and Campeche. The interviews identified perceptions, needs, obstacles and expectations regarding the possible adoption of electromobility.

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Methodology

Technical analysis

The qualitative analysis was structured using thematic coding, with Atlas.ti software to organise and classify the information obtained in the interviews. Five central categories were identified: community perception, technical barriers, economic viability, social participation, and environmental sustainability. Each category allowed us to establish relationships between the different social, technical, and economic elements that influence the adoption of electromobility.

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For rural electromobility to become a viable reality, it is necessary to articulate multisectoral and inclusive strategies:

1. Participatory design: communities must be involved from the diagnosis to the operation of the systems, culturally validating the technologies.

2. Technical training: rural youth must be trained in the maintenance, installation and operation of electric vehicles through programmes coordinated by institutions such as the National Technological Institute of Mexico.

3. Inclusive financing: microcredit schemes, mobility cooperatives and subsidies targeting rural areas should be promoted to facilitate the acquisition of vehicles.

4. Charging infrastructure: It is proposed to install community solar stations that function as charging points and local energy management centres. Differentiated public policy: There is an urgent need to create a regulatory framework that includes rural areas in energy transition and electromobility plans.

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Conclusions

Rural electromobility represents a viable, sustainable and necessary alternative for improving the living conditions of indigenous and rural communities in southeastern Mexico. Its implementation requires comprehensive strategies that include the active participation of communities, the development of local technical capacities, the design of inclusive public policies and the establishment of accessible financing schemes.

The approach must be intercultural, territorial and sustainable, promoting innovation models that are built on local knowledge and respect cultural diversity. Rural electromobility is not only a technical solution, but also an opportunity to advance towards energy justice that integrates historically excluded territories into the national development agenda.

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