System transformation areas: Sustainable Mobility

LACCW NDE FORUM
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Relevance of Sustainable Mobility
In 2021, CO₂ emissions from the transport sector accounted for 36% with an annual increase of 8% to nearly 7.7 Gt CO₂, having the highest reliance on fossil fuel.

Reducing GHG emissions and transiting towards net-zero mobility is essential to combat climate change, presenting both a significant challenge but also a great opportunity for a comprehensive innovation-driven transformation throughout the entire value chain but also in policy and R&D.

The transport sector represents the fastest innovation opportunity enabled by digitalization and national systems of innovations, requiring a comprehensive long term innovation plan and adequate policies and investments impacting business and society alike.
CTCN and Sustainable Mobility
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Activities in Numbers

Since its creation, the CTCN has achieved the following results on sustainable mobility at global level:

- **15 technical assistance** projects totaling **3M USD**
- **18 developing countries** supported, **1 multi-country** projects
- 2 on Digitalization and 13 on National Systems of Innovations
- **Thousands** of stakeholders participated in capacity-building
- **1 Green Climate Fund concept notes** developed
By facilitating and strengthening the flow of know-how, experience, and solutions for sustainable mobility, CTCN has delivered tangible changes in achieving national policy targets and plans, as well as in fostering the uptake of low-carbon technology options.

<table>
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<tr>
<th>Countries</th>
<th>Examples of the CTCN Technical Assistance</th>
<th>Status</th>
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<tbody>
<tr>
<td>Panama</td>
<td>Accelerating the transition to sustainable mobility and low carbon emissions in Panama City</td>
<td>Completed</td>
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CTCN and Sustainable Mobility
Examples of Future Technical Assistances

- Use of digitalization and AI for smart monitoring systems for traffic management (ex. Bus Rapid Transit system)
- Electric Vehicle Charging Infrastructure / Smart Grid Integration
- Electrification of medium to heavy-duty vehicles using low-emission fuels
- Innovative and efficient battery chemicals, Energy Storage Systems (ESS) and its end-of-life management
- Bi-directional charging, and optimization of EV charging infrastructure in countries
- Switch to fuel substitution through alternative energy carriers such as green hydrogen, bioenergy, and ammonia as substitutes
3 TEC and Sustainable Mobility
As part of its work under the theme of ‘enabling environment and capacity-building’ of the technology framework, the TEC has addressed the topic of sustainable mobility, including through:

**Technical paper**
- Deep decarbonization technologies for sustainable road mobility (2022)

**Thematic dialogue**
- The future of mobility: Advancing resilient, intelligent, sustainable and equitable mobility systems towards the implementation of the Paris Agreement (2022)

**Policy recommendations**
- Technologies for sustainable road mobility (TEC annual report 2022)
  - > highlights in the next slides

**TEC Brief**
- Gender-responsive technology and infrastructure for sustainable urban mobility (forthcoming, 2024)
Key insights
from the work on the development, diffusion and impacts of advanced decarbonization technologies for road transport:

1. Deployment of zero-emission electric vehicles aligned with support for low-carbon fuels that do not threaten food security;
2. Plug-in electric vehicles offer the highest technology readiness and low-carbon potential for applications;
3. Hydrogen and advanced biofuels have lower technology readiness and higher adoption barriers than electrification;
4. More research and policy efforts are needed to improve the sustainability impacts of zero-emission electric vehicle manufacturing, operation and disposal;
5. Shared mobility is likely to play a minor role in deep decarbonization and may be more effective to improve public transit services and uptake;
6. Full vehicle automation involves a highly uncertain set of technologies that could increase or decrease greenhouse gas emissions.
Recommendations (select)

Parties and stakeholders seeking to achieve deep decarbonization by accelerating the uptake of technologies for sustainable road mobility may consider, at the regional, national or subnational level, as appropriate:

1. Planning a mix of policies that can offer different and complementary benefits to induce further emission reductions while improving or achieving policy cost-effectiveness or efficiency, equity, political acceptability or transformative signal, and addressing technical and social barriers;

2. Complementary policies, namely a low-carbon fuel standard, carbon or road pricing, support for charging and fuelling stations, building standards that require charging infrastructure, financial incentives for infrastructure installation and phasing down subsidies and exemptions that benefit fossil fuel powered technologies with their associated emissions;

3. Ensuring institutional capacity, including for understanding potential uptake of technologies for sustainable road mobility and developing research-oriented institutions that track the development of low-carbon technologies, progress in overcoming social and technical barriers, and lessons learned for designing a climate policy mix.