



3.1.6. Advancing low-emission mobility solutions in Cambodia

Participating country: Cambodia

Partners: CTCN, GGGI, Envelops Company Ltd.

Start of technology uptake process: 2019

Climate technology: Electric motorcycles

Contribution to NDC implementation: Reduction in transport sector emissions through the promotion of low-emission transport modes

Further information:

CTCN technical assistance: <https://www.ctc-n.org/technical-assistance/projects/development-low-emission-mobility-policies-and-financing-proposal>.

GGGI awareness-raising campaign: <https://gggi.org/gggi-promote-sustainable-e-mobility-in-cambodia-through-an-exciting-one-month-campaign/>.

Climate technology: Electric motorcycles and a network of charging and maintenance stations.

Uptake of the climate technology: Cambodia's road transport system mainly relies on fossil fuel vehicles. Increasing transport needs coupled with the country's economic growth has been the main driver of rising GHG emissions from the transport sector and worsening air quality in urban areas.

Cambodia identified the following limitations as key barriers to the uptake of low-emission mobility in the country: information on to the economic, social and environmental benefits of low-emission mobility; policymaking and planning for incentivizing the uptake of electric vehicles and removing incentives for fossil fuel vehicles; institutional technical expertise to develop national low-emission projects and coordinate and engage stakeholders in the planning and realization of such projects; and commercial markets.

Cambodia sought technical assistance from the CTCN and the GGGI to accelerate the transition to low-emission mobility by addressing the key barriers identified. In cooperation with Envelops Company Ltd., which carried out the CTCN technical assistance, a policy action plan was developed that focused on introducing electric motorcycles given that two- and three-wheeled vehicles are a common mode of transport in Cambodia. An in-depth assessment of Cambodia's electric vehicle market revealed the lack of awareness and trust in electric vehicle technology as a reason for the low uptake of electric mobility in the country. Cambodia, in partnership with the GGGI, delivered a broad awareness-raising campaign that resulted in a greater social acceptance of electric motorcycles and recognition of their economic benefits.



Gender-responsiveness: Fostering the uptake of electric vehicles will contribute to lower costs of transport in the long term. Women in particular, and particularly those in suburban areas, who have significantly lower incomes than men and poor access to the labour market, will benefit from lower mobility costs in terms of increased access to employment, markets, education and health services, but also in terms of their caregiving and household responsibilities, which the majority of women hold.

Financing: An incentive programme for purchasing electric motorcycles was developed, including grants, subsidized loans and tax incentives. As part of the CTCN technical assistance, a GCF project proposal was prepared to support the incentive programme and the roll-out of 1,000 electric motorcycles in 2022. In addition, the Government, with support from the GGGI, developed a national investment plan, which has the aim of introducing an electric bus system in Siem Reap at a cost of USD 16 million from 2022 to 2024.

Contribution to NDC implementation: The uptake of electric motorcycles is contributing to Cambodia's NDC (submitted in 2020) mitigation target of reducing transport sector emissions through the promotion of low-emission transport modes.

Other benefits of the technology uptake include a reduction in air pollution, especially in urban areas, and economic benefits for the technology users. A comparison of operating costs showed that driving 100 km on an electric motorcycle costs 8 to 10 times less than on a combustion engine 100 or 125 cubic capacity motorcycle.

Challenges and lessons learned: A reliable supply of electricity is not available throughout the country. Therefore, electric motorcycles need to be introduced together with stand-alone charging stations that have a battery swapping system in place for efficient servicing. The size of the charging stations is of key importance to striking a balance between local demand and potential grid instability. The availability of maintenance stations is of equal importance, and will require capacity-building for local mechanics.

Another challenge is the overall low public awareness of electric vehicles, which is compounded by limited exposure to the technology. In 2019, a survey by the Ministry of Environment found that only 34 per cent of respondents could sufficiently explain what an electric motorcycle is. Common public concerns that prevent the uptake of electric motorcycles include:

- Range anxiety owing to a lack of charging stations and low battery range;
- The very limited availability of maintenance stations;
- The limited range of electric motorcycle models available;
- Investment costs, given the lack of financial institutions willing to provide loans for the purchase of electric motorcycles and given there is no second-hand market for them;
- Quality concerns, given that national standards for electric motorcycles are still under development, which allows low-quality vehicles to enter the market and contribute to negative consumer perceptions.

Furthermore, a solution for the management of battery waste needs to be developed to ensure that batteries are properly disposed of or recycled, for example through producer take-back schemes.

Long-term sustainability, replicability and potential for scaling up: Cambodia's approach to advancing low-emission mobility solutions through the uptake of electric motorcycles is sustainable in the long term as it creates an enabling environment for a thriving electric motorcycle market. In economic terms, the operating costs of electric motorcycles in Cambodia are on average 10 times lower than combustion engine motorcycles over a 10-year period. The approach is replicable in other countries as it can be easily adjusted to local circumstances. It also has the potential for being scaled up domestically as it is currently limited to urban areas.

3.1.7. Strengthening climate-resilient agriculture in the Dominican Republic

Participating countries: Colombia and Dominican Republic

Partners: Inter-American Institute for Cooperation on Agriculture

Start of technology uptake process: 2016

Climate technology: SRI

Contribution to NDC implementation: Improved capability to adapt appropriately to climate change and variability in the rice production subsector (Colombia); reduced emissions from rice cultivation through changes in production technology (Dominican Republic)

Further information:

SRI International Network and Resources Center: <http://sri.ciifad.cornell.edu>.

Project website: <https://www.fontagro.org/proyecto/cultivar-mas-con-menos-adaptacion-validacion-y-promocion-del-sistema-intensivo-del-cultivo-arrocero-sica-en-las-americas-como-una-respuesta-al-cambio-climatico>.

Climate technology: SRI is an agroecological and climate-smart production strategy based on four key principles: early and healthy plant establishment; minimizing competition between plants; building fertile soils rich in organic matter; and the careful management of water, to avoid both flooding and water stress, and increasing soil aeration. Through this strategy, SRI modifies the management of plants, soil, water and nutrients, thus enhancing resource use efficiency and the productivity of a system while reducing vulnerability to climate change. It is a flexible, knowledge-intensive strategy implemented through practices that are contextualized in response to the needs, priorities and skills of each producer.

Uptake of the climate technology: In Colombia and the Dominican Republic, small-scale farmers play an important role in agriculture and food security. Climate change is causing greater water stress, greater storm damage and increased incidence of crop diseases, all of which impact heavily on small-scale farmers.

