

FINAL PROJECT REPORT



Group photo at Sustainable e-Mobility Campaign Pop-up Event on February 9th, 2021, held at Ministry of Environment

PROJECT TITLE: Building the Electric Mobility Ecosystem

ORGANISATION: EnergyLab

REPORTING PERIOD: [01-09-2020 – 30-04-2022]

Project duration: [01-09-2020 – 30-04-2022]

Total Approved Budget: US\$ 100,000

Total Expenditure to date: USD \$100 000

Project partners: Oyika

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1. Summary

The five most important achievements are:

(one sentence only per each achievement)

- 1) Deployment of first electric motorbike sharing service in Cambodia with 70 motorbikes now and 120 by end 2022
- 2) Ride share has influenced delivery businesses to increase electric motorbike fleet through exposure to electric motorbikes from 0 to 1M km's.
- 3) A successful interministerial workshop between 5 ministries on the policies and responsibilities for EVs moving forward
- 4) MPWT is now running their own electric mobility showcase and released draft for increasing EV uptake in early 2022
- 5) Organize two mobility showcases in 2021 and 2022, gathering a total of 110 and 182 respectively.

The five most important lessons learned are:

(one sentence only per each lesson)

- 1) It's critical to assess the partner's supply chain on new products, to understand potential bottlenecks and where the delivery timeline could be delayed
- 2) Business model flexibility is imperative across a 2 year project to ensure that the end goal can still be met, but where parameters can change along the way, especially since we can't predict the external environment
- 3) Leveraging partnerships is key to reaching new demographics, as well as new media partners and gaining maximum project visibility
- 4) Cambodian's are open to accepting the electric motorbikes and most people already have a basic understanding and exposure to this technology.
- 5) Engaging different demographic groups requires different kinds of buy in – for example, young people are ok to engage with social media, whereas the low income groups required a key person in community to be an advocate

The three most important recommendations are:

(one sentence only per each recommendation)

- 1) Scale EV economy including increased charging infrastructure and improved regulatory environment to incentivize scaling EV market in Cambodia, by organizing regular dialogues and outcomes with key people in the ministries such as MPWT, MEF, EDC, MOE and also partners that are supporting this (e.g. GIZ) to get favorable policies for EVs and charging stations
- 2) Focus on B2B for quicker mass adoption of electric motorbikes, and on young professionals for consumer level adoption
- 3) Continue to increase ride-share vehicles to provide more chances for people to experience riding electric vehicles, with a low barrier to entry.

2. Overall achievements and adaptation and mitigation outcomes and impact.

The overall objective of this project was to reduce GHG emissions from motorbikes in Cambodia by 26.85T CO₂, specifically from ride share bikes. Over the 20 month period, ride share bikes have reduced 22.7T CO₂, less than the target. However, Oyika's business model was pivoted due to the pandemic in these last 2 years, and has grown to increase B2B & B2C sales. The B2B sales has resulted in a decrease of 63.5T CO₂, almost 3 times more than the ride-share. Oyika continues to run ride-share, B2B and B2C sales, with the intention to soon deploy an additional 50 ride share bikes that are currently waiting the installation of an onboard computer.

The two outcomes of the program were 1. Increasing the use of electric motorbikes and 2. Increased public awareness and engagement with electric vehicles. Overall, the program has achieved both outcomes. The highlights during the program have been:

- Deployment of electric motorbikes to delivery and other businesses, riding a total of 1M km's. Before the program, there were no electric motorbike fleets in operation
- MPWT released a draft for increasing EV uptake in early 2022, following a panel event under this program in November 2021 with MPWT Senior Minister Sun Chanthol, EDC Minister attached to the Prime Minister Keo Rottanak, Australian Ambassador Pablo Kang and UK Ambassador Tina Redshaw
- MPWT is now running their own electric vehicle showcase, modelled off the showcase that EnergyLab annually from 2019-2022
- MPWT and UNDP are rolling out EV charging stations. Total Energies, PTT and Caltex have also announced that they will roll out EV charging stations at their petrol stations

Additionally, EnergyLab publicly collected data to assess the general public's understanding and use of electric vehicles. There were two surveys done in 9 month intervals. The endline survey was completed by 65 people in the month of February 2022. There was a smaller number of total participants, but a larger percentage of the participants had heard of EVs and had ridden EVs compared to the baseline survey in June 2021. In both surveys, most participants were using EVs due to the perceived environmental benefits, as opposed to the financial benefits. This is still an ongoing barrier and should be addressed through marketing, scaling the EV economy (including charging infrastructure) in Cambodia.

Output 1.1 Establishment of electric motorbike sharing fleet

During the project period, 70 ride-share electric bikes have been deployed, out of the targeted 300. This was mainly due to technology delays as Oyika moved all the app development and computer development either in house or to different suppliers. Although this resulted in a slower deployment, it will increase the ability for the company to scale up the ride share program, and therefore improve the sustainability of the ride share business in Cambodia in the future.

Additionally, the establishment of the electric motorbike ride share has led more users (total of 1,400+ users) to experience riding electric vehicles. This has led to increased sales at Oyika and presumably at other electric motorbike companies. It has also led to B2B sales with delivery companies including Nham 24, GoodToGo, Wownow, e-Gets, and Wing Delivery.

Output 2.1 Validated understanding of barriers to EV uptake

Through EnergyLab's 2 focus groups, held at the start of the program, the key barriers affecting uptake of EVs was determined for low income and young professional groups (see attachments for full report).

For young professionals: 1. Top speed is too slow 2. Fear of not being able to charge/inconvenient to charge 3. No confidence in brand/model due to lack of proven capability among trusted sources

For low income demographics: 1. need a vehicle that is reliable, cheap and long lasting. 2. lack of charging infrastructure is a barrier. 3. No exposure to electric vehicles in their communities and therefore lack of trust and additionally: All aspire to have a Honda Dream due to the current resale value and wide-spread understanding of this motorbike model. These individuals also need a bike that they can drive to the provinces.

This data was then used to inform capacity building workshops and the knowledge products that were created (videos and webinars). The participants of these focus groups were invited and encouraged to join ongoing events, and to give feedback on the knowledge products. Unfortunately, most did not actively participate beyond the focus groups, however EnergyLab continues to inform and update the individuals on the program progress.

Output 2.2 General public have a greater understanding of the benefits of EVs

Seven panel discussion and capacity building events were held during the program – ranging in demographic from government officials to young professionals and low income individuals. In addition, six videos were released to

educate people about different aspects of electric vehicles. In addition, the annual electric vehicle showcase was held in 2021 and 2022 with a total participant number of over 300 (out of goal of 500). These activities added to the available information in Khmer on the benefits of electric vehicles. This is confirmed by the survey where 100% of 44 participants rated that they had increased their understanding on the benefits of electric vehicles.

EnergyLab’s goal was to provide multiple sources of information that is primarily in Khmer to low-income individuals, young professionals and ministry officials, on the benefits and general information on electric vehicles. Prior to the program, these resources did not exist. On Facebook alone, the videos reached almost 500,000 people. The current resources are longer videos – around 3 minutes. In the future, these videos are more likely to be even shorter clips to attract young people, given that social media now is trending towards extremely short video clips. There is also a tendency towards having influencers and ambassadors who can connect more deeply with their audiences. EnergyLab has adopted the practice of working with influencers, and this should be used even more in the future to deliver a more in depth message on electric vehicles.

More details of the knowledge products can be found in section 6 of the report, and the statistics for audience reach are in attachment RBM-8.

Output 2.3 Increased visibility of careers in electric vehicle industry

The goal of increasing the visibility of careers in electric vehicles is to highlight to young people and professionals that the EV sector exists in Cambodia and is a career path for those that want to be at the forefront of technology. This output consisted of 2 parts: employing student interns in EV companies, and highlighting different professionals in the sector. During the program, 1 intern was employed at Oyika and 3 were recruited for Tada (who have rolled out the first electric tuktuks in Cambodia), but unfortunately the positions were withdrawn due to COVID-19. This internship marks the beginning of a partnership with EnergyLab and EV companies for the Clean Energy Internship – a program that has run for around 7 years and employs 15-20 students per year. The renowned internship program will continue to take on interns in the EV sector and give students the idea that they can work with electric vehicles. The full list of internship positions and career profile campaign is documented in section 6 of the report.

Output 2.4 Physical exposure for the public to view and experience electric vehicle technology available at consumer level

To convince people that EVs are a great transportation option, EnergyLab aimed to have as many people exposed to and experiencing riding them as possible. This was primarily through the ride share and the electric vehicle showcase events. The showcase events not only had over 300 people attend (despite the COVID-19 challenges), but they also resulted in the Ministry of Public Works and Transport organizing an almost identical event in 2022. EnergyLab supported MPWT to organise the panel discussions and invite key stakeholders to this event. EnergyLab also plans to support these future events. They provide an ideal opportunity to push forward policy discussion, as well as bolster support and recognition on EVs in the country.

Output 2.5 MPWT, MEF and NCSO officials

One key facet of creating a sustainable and thriving electric vehicle market in Cambodia is to bring on board the right ministries and ensure that there is momentum to improve the sector. As part of the Program, EnergyLab organized 2 large events with ministries. The first was a workshop with MPWT officers and the second was an interministerial workshop including 5 ministries: MPWT, MEF, EDC, MOE and MISTI. Both of these events created the foundation for an interministerial technical working group (TWG) on e-mobility policy development. EnergyLab also worked with SMMR (supported by GIZ) who have been working with MPWT on the overall sustainable urban transport system. Because of this partnership, the work from these government workshops will continue to drive Cambodia’s path to more electric vehicles. In 2022 alone, there has been a draft for increasing EV policy released, the EV TWG discussion has begun, 5 EV charging stations are being rolled out by UNDP and all major petrol stations are also in the process of installing EV charging stations, starting in Phnom Penh. EnergyLab plans to continue to work with all these Ministries and partners to drive the discussions for better policy on EV uptake and EV charging in Cambodia.

Assessment of adaptation and mitigation demonstration activities

Per Adaptation and Mitigation Demonstration Activity (e.g. piloting drought resistant rice varieties, etc.)
N/A
Type of climate hazard or risk addressed
N/A

How the activity has or is expected to reduce vulnerability or GHG to climate change?
Over the course of the 18 months of the project, the GHG emissions reduction by the rideshare of electric bikes led by Oyika accounted for 26.85T CO2 equivalent. However, the rideshare alone will not reach the target of the aimed GHG emissions. Oyika has changed strategy to also target food delivery due to COVID-19. This is not a result in our logframe however it is included due to the fact that it is an additional reduction in GHG from electric motorbikes. With the delivery system, it accounted for 63.49T CO2 equivalent in addition to the rideshare.
While the rideshare provides visibility of the usage of the technology, EnergyLab also organized an e-Mobility showcases both in 2021 and 2022, aiming to increase the public awareness and uptake of electric vehicles.
Number of villages where demonstration sites have been established
N/A
Total number of HH beneficiaries
N/A
Total number of HH beneficiaries with ID Poor I and Poor II
N/A
Total number of HH beneficiaries with female headed household
N/A
Evidence of reduction of vulnerability or GHG
The GHG emission reduction resulted from the total ride share of the electric vehicles which was 484,000km.
Total number of Households Replicating the activity
N/A
Barriers and enabling factors that affect sustainability and up-scaling (for example lack of access to credit, limited availability of seeds, etc.)
N/A

3. Lessons learned

- 1) It's critical to assess the partner's supply chain on new products, to understand potential bottlenecks and where the delivery timeline could be delayed. EnergyLab worked closely with Oyika from before the program started to assess the possibility of rolling out the ride-share project in the given time frame. However, there were multiple technology challenges, including the batteries, on-board computers in addition to COVID-19 supply chain challenges. This meant that in the end, the program could not deliver the expected 300 ride-share bikes during the time frame. These challenges were not fully examined before beginning the program and in the future, EnergyLab expects to have a better understanding of the partner's business and the mitigation options that are tied to program outcomes. It is also noted that many of these challenges were exaggerated by the COVID-19 pandemic.
- 2) Business model flexibility is imperative across a 2 year project to ensure that the end goal can still be met, but where parameters can change along the way, especially since we can't predict the external environment. This has been extremely important during COVID-19 as many unexpected circumstances arose – from curfews that affected the ride-share ability to operate, to staffing shortages and general hygiene concerns. Working with Oyika during this time was ideal because they understood the need to pivot the business to address these concerns. Therefore, the fact that Oyika could focus on the B2B and B2C side of the business and use this to continue increasing electric motorbike uptake meant that the program could continue, albeit with a slightly different focus in this period, and that the electric motorbike sharing can be rolled out faster when the timing is more practical.
- 3) Leveraging partnerships is key to reaching new demographics, as well as new media partners and gaining maximum project visibility. One example was working with MPWT on the panel discussion event (with MPWT Senior Minister Sun Chanthol, EDC Minister attached to the Prime Minister Keo Rottanak, Australian Ambassador Pablo Kang and UK Ambassador Tina Redshaw) created the biggest flow on effect of media and social media sharing due to the popularity of the panelists and connections that their teams had to different outlets. This allowed the program to be shared factors more than what EnergyLab was able to achieve on its own.
- 4) Cambodian's are open to accepting the electric motorbikes and most people already have a basic understanding and exposure to this technology. This was clear through the focus groups, baseline surveys and all the events that EnergyLab held. This means that the barriers to uptake are not cultural, and can be overcome with favorable regulatory and infrastructure conditions.
- 5) Engaging different demographic groups requires different kinds of buy in – for example, young people are ok to engage with social media, whereas the low income groups required a key person in community to be an advocate. Ministries are interested in increasing EVs in Cambodia but there is a lack of knowledge on how to do this. When presented with the opportunities at the different workshops in the program, many government officials came and were engaged in the conversation – demonstrating an interest to move this forward. Young professionals on the other hand are a great target audience as they understand the benefits of EVs well, and they think the EVs are cool. The number one barrier is still capital cost. Most of them buy their motorbikes and own them for many years and so they must be captured at the time they are looking to change motos.
- 6) Low income groups understand EVs as much as other demographics, but the use case is not suitable. For example, most low income communities live further from the city and 1 EV charge may not make it to the city and back. They also live in areas that are not serviced by the battery-swapping cabinets yet. Finally, 50% of the participants in our low-income workshop were illiterate – so the signs and ads around the ride share and on the ride-share bikes are of no use. It is very hard for them to understand how to use these bikes and the stations are not near them. The desired option for this demographic is still to purchase a bike, most of them would prefer to buy a Honda Dream for its known reliability

4. Sustainability and proposed follow up actions after the project completion



- Ride share – run by Oyika which is a private business and has the business imperative to successfully deploy the Go2 ride share model. EnergyLab continues to support networking and promotion around this but it is driven by Oyika. While the company will not hit the 300 targeted ride-share bikes, by the end of 2022 Oyika currently plans to have 120 ride-share bikes in operation plus an additional 330 e-motorbikes on the road from their rental and sales program.
- MPWT will continue to run the electric mobility showcase and EnergyLab has plans to keep supporting them along with SMMR (GIZ supported) on how to progress with EV policy in Cambodia
- EnergyLab is working to continue the EV sector support portfolio so that it can organize quarterly dialogues with government and other relevant stakeholders on the EV policies, as well as continue to link EV businesses to the resources required to enter the Cambodian market

- EnergyLab will also continue sharing resources on social media and newsletters on the EV market developments in Cambodia and other useful sector information
- EnergyLab has now integrated EV companies in the annual Clean Energy Internship Program and will encourage and recruit more students for these careers; increasing the skilled workforce

5. Recommendations

- Annual knowledge sharing even between grant recipients could be earlier in the project so we could find ways to work together. For example, EnergyLab working with MPWT on their similar project
- Support from CCCA on public awareness, specifically on press releases or connecting with different channels to highlight the program more broadly would be beneficial as it can be difficult for program leads to have such good connections

6. Deliverables and supporting documents

Document title	Document Type (refer to the examples below)
Low-income Household Focus Group Report	Technical report
Sustainable e-Mobility Campaign Messaging & program	Program of events organised
Campaign - Khmer Times Article	Newspaper articles
Campaign – Focus Cambodia article	Newspaper articles
Link to video 1 – ‘Go smooth, go Cool, #goelectric’	Educational Material
Link to video 2 – ‘What is an EV’	Educational Material
Link to lecture at American University of Phnom Penh – Why are electric vehicles integrated with clean energy important?	Educational Material
Link to video interview with Professor Kim Buntherton at ITC	Educational Material
Link to video interview with Karolien Caesar-Diez from GGGI	Educational Material
Link to video interview with HE Vann Monyneth	Educational Material
Panel Discussion “Cambodia’s Progress Towards Electric Vehicles” video	Educational Material
Panel Discussion “Cambodia’s Progress Towards Electric Vehicles” report 	Technical report
Career campaign – Facebook post	Promotional material
Career campaign – internship website	Promotional material
Internship applicant list 	Supporting document
Sustainable e-mobility program website	Promotional material
EVs survey infographic-01, EVs survey infographic-02 EV infographic Facebook post	Promotional material
EnergyLab M&E Survey Result June 2021-data	Supporting document
210321 Basic Go2 Info	Supporting document
Data summary of video series and panel discussion from Facebook	Supporting document
Video for panel discussion: EnergyLab Video for panel discussion: British Embassy Video for panel discussion: Australian Embassy Video for panel discussion: MPWT	Supporting document
Ministry of Information article on the panel discussion	news article
BTV article on the panel discussion	news article
Khmernote article on the panel discussion	news article
Video series: episode 1	knowledge product
Video series: episode 2	knowledge product
Video series: episode 3	knowledge product
Electric Mobility Showcase 2022 Event Page	supporting document

Internship journey presentation by Tea Sovanmony	supporting document
Concept note - low income workshop	supporting document
Concept note - government workshop with MPWT	supporting document
Article: Oyika and City Bus Partnership	news article
Article: Oyika and Food Panda sign MOU	news article
EV Career Campaign report	Supporting document
Electric Mobility Showcase attendance list (check-in)	Supporting document
CCCA- Official Agenda – Interministerial workshop	Supporting document
CCCA - Online Feedback Form (Responses)_ interministerial workshop	Supporting document
CCCA- Attendance list interministerial workshop	Supporting document
CCCA- Concept Note: Showcase	Supporting document
CCCA - Government workshop Jan 21st Agenda	Supporting document
CCCA - MPWT 21st Jan Workshop Online Feedback Form (Responses)	Supporting document
CCCA - Panel Discussion Agenda 29th Jan 2022 Afternoon	Supporting document
CCCA - Panel Discussion Agenda 29th Jan 2022 Morning	Supporting document
CCCA - Showcase 2022 - Satisfaction Survey (Responses)	Supporting document
EV Career Profiles – FB Posters	Knowledge Product
Low Income Workshop Photos	Supporting document
GHG Calc for Quarterly reporting Q6	Supporting document
Electrification Of Vehicles For A Cleaner Cambodia (Event highlighted video)	Promotional material
Electric Mobility Showcase 2022 (Event highlighted video)	Promotional material
Understanding Uptake of EVs in Cambodia Survey_ Infographic	Supporting document
Video- What is an EV (basic explainer video)	Knowledge Product

1. Annexes

1. Overall Workplan and Activity Progress Table (Annex RBM-1) Results Framework Tracking (Annex RBM-2) -yes
2. Field activities Beneficiaries Tracking (Annex RBM-6) – N/A
3. Training and awareness raising activities Beneficiaries Tracking (Annex RBM-7) - yes
4. Tracking of outreach and communications (Annex RMB-8) - yes

For details on the templates above refer to Section 7.1 of the Grant Implementation Guidelines.