

Urban Transport and Energy Nexus Solutions – Deployment of Electric Water Taxis in Indonesia

Chuenchanok JANTANALIKHIT

Consultant, Grutter Consulting

chuenchankj@gmail.com





Pilot Electric Boats

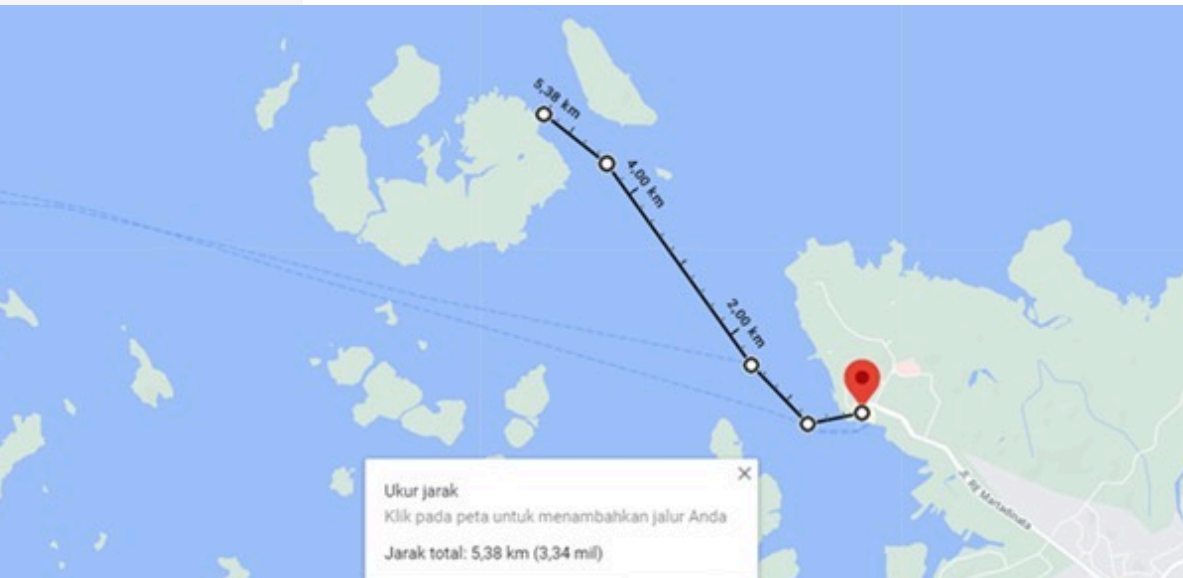
ADB's Technical Assistance (TA) to experiment benefits and challenges of electric vehicles deployment.

Donor (50% Capital Cost)	Location	Number and Type of Boat
Urban Climate Change Resilience Trust Fund (UCCRTF)	Indonesia	2 Water Taxis
UCCRTF	Philippines	9 Fishing Boats
High-Level Technology Fund	Thailand	3 tourism boats 2 ranger boats

Objectives:

- First step to enable better understanding of operating models for a wide variety of users;
- Allows ADB to fine-tune approaches in rolling out future low-carbon solutions/technology.

Electric Water Taxi Batam, Indonesia



Why Water Taxis in Batam?

Fixed route & short distance between Sekupang Pier and Belakang Padang Pier (5.38km).

Suitability of boat operation (boat size of 15 pax, speed, distance) to convert to electric engine.

Water taxi cooperative is under pressure of oil quota and oil price.

Possibility to upscale the electrification of 125 boats.

Benefits of Electric Boats



	Petrol	Electric
Operational cost/Round-trip	IDR 110,000 (USD 7.6)	IDR 25,000 (USD 1.73)
Annual Maintenance Cost (e.g. Lubricating oil etc.)	IDR 5,000,000 (USD 345)	None
Wellness	<ul style="list-style-type: none"> ▪ Loud noise ▪ Smoke and air pollution ▪ Strong vibration of a tiller handle 	<ul style="list-style-type: none"> ▪ Silence ▪ No smoke ▪ Smooth driving

Challenges & Solutions



	Challenges	(Possible) Solutions
Capital cost	Petrol: USD7,460 vs Electric: USD25,318	Subsidy 50% of capital costs by UCCRTF under this pilot project.
Speed	Petrol: 40 kilometres/hour vs Electric: 15 kilometres/hour	Improving the size of engine and battery to optimize the speed for operation.
Maintenance Service	Problems of a petrol boat can be fixed by locals. While an electric boat needs expert's advice on technical problems.	Capacity building for the boat's users to gain knowledge and confidence in using the electric boats.



Next steps

Speed improvement

The boat manufacturer is working with experts to upgrade an engine to larger size for faster speed.

Infrastructure Upgrade

- To upgrade to fast charger (fully charged within 2-3 hours instead of 8-hour via normal charger).
- To expand the charging station facilities for larger fleet.

Local government support

- The Batam mayor will reduce port tax from IDR10,000 to IDR1,000 for electric boats passenger.
- Local's government will provide free land for an electric authority for charging stations.