

CLEAN DEVELOPMENT MECHANISM CREDITS

A. Background

1. The Kyoto Protocol (KP) signed in 1997 under the United Nations Framework Convention on Climate Change (UNFCCC), follows the principal of common but differentiated responsibilities for actions to tackle the problem of climate change. It has been recognized and accepted by the global community that the current changes in climate are the result of global warming caused by the increasing level of greenhouse gas¹ (GHG) concentration in the earth's atmosphere. The main goal of the UNFCCC is to control the emissions of the GHGs and bring down their atmospheric concentrations eventually. Based on the inventories of GHG emissions from the developed countries, the KP provided a cap for 38 industrialized countries. These countries are required to bring down their GHG emissions by 5.2% on average below the emission level in the base year 1990 and demonstrate it in the first commitment period 2008-12. The KP also provided three market based mechanisms as a means to assist the industrialised nations to meet their commitments. These are Joint Implementation (JI) Clean Development Mechanism (CDM) and International Emissions Trading. For the developing countries CDM is relevant as it allows entities in the industrialised nations to support GHG mitigation projects in the developing countries and purchase credits generated by them.

2. Barring Japan and Kazakhstan all the other countries in the Asia and Pacific are eligible to host CDM projects. Thus all the DMCs of ADB can take advantage of potential CDM benefits from eligible infrastructure projects.

3. The projects involving use of clean energy sources like wind, biomass, hydropower, solar energy, cleaner fossil fuels like natural gas, urban infrastructure projects involving solid waste treatment through technologies like composting, anaerobic digestion, sanitary landfill with LFG recovery, wastewater treatment with biogas recovery and use, urban energy efficiency improvement projects, coal mine methane recovery/use are eligible for consideration under CDM.

B. GHG Mitigation Activities

4. Transport accounts for 13% of Greenhouse gases and 23% of energy related CO₂ emissions. By the year 2050 the OECD / ITF predicts a 120% growth in global transport emissions on 2000 levels. Most of the increase will be caused by road transport in developing countries and emerging economies. ASEAN-Japan Action Plan on Environment Improvement in the Transport Sector (AJ-APEIT) was affirmed at the 7th ASEAN-Japan Transport Ministers Meeting held on December 2009 in Hanoi(Vietnam). Under AJ-APEIT, ASEAN Member States agreed to implement measures to realize low-carbon and low-pollution transport systems based on National Implementation Plan. Greenhouse gases and air pollutants emissions by the transport sector are controlled, consequently international and regional environment are preserved.

5. Tricycle usage in the Philippines is widespread. No other transport mode can compete with the tricycle in terms of practicality, efficiency and convenience. There is not enough data on tricycle ergonomics in the country. This seminal project serves as a starting point for design

¹ According to the Intergovernmental Panel on Climate Change (IPCC), there are six greenhouse gases, carbon dioxide, methane, nitrous oxide, hydro-fluoro carbons, per-fluoro carbons and sulphur hexafluoride that have substantial global warming potentials.

standardization and provides baseline data for further research regarding tricycle design. The increase of tricycle units in the country has been attributed to various factors. Rapid urbanization has taken place in many areas along with higher incomes and vehicle acquisition.

6. The tricycle subsector is also responsible for air, as well as noise pollution, with levels measured at 83-97 decibel (dB). The population and speed capacity of tricycles are also causing traffic congestion, especially in the central business district (CBD).

7. Despite all the negative impacts of tricycles, they remain a major transport tool to the residents in the local government units (LGUs), especially among students and employees, due to their (i) high accessibility; (ii) availability; (iii) affordability; (iv) comfort, and (v) convenience. Tricycle driving is also the most preferred alternative livelihood among the unemployed as it does not require a huge amount of capital nor an extensive mental skill.

8. The Philippines E-Trike Project intends to distribute 100,000 electric tricycles throughout the Philippines with the Philippines Department of Energy as the coordinating entity for this project. The main intention is to develop an entire industry for electric vehicles in the Philippines to curb the adverse effects of conventional tricycle usage such as pollution, noise and severe greenhouse gas emissions.

8. Emission reduction calculations per tricycle for this project yield an emission reduction of 3.8 tCO₂e per tricycle per year. The table below illustrates the estimated emission reduction for the project when 100,000 electric tricycles are distributed.

Year	Emission Reduction (tCO ₂ e)
1	387,896
2	387,896
3	387,896
4	387,896
5	387,896
6	387,896
7	387,896
8	387,896
9	387,896
10	387,896

C. ADB Mission

9. ADB mission is reducing poverty in the Asia and Pacific and the means to achieve this mission is through financing infrastructure projects in the developing member countries. As such, carbon finance especially CDM which promotes sustainable development in developing countries is very important. CDM assists the DMC hosting them to achieve human development which results in poverty alleviation. All multilateral development banks are encouraging CDM project development in the projects being assisted by them. World Bank has a major carbon finance programme with several funds under management on behalf of donor nations who have caps under KP. ADB is managing funds from several European Governments as trustee. The Asia Pacific Carbon Fund (APCF), a USD 150 fund purchases carbon credits from projects assisted by ADB and pays up front so as to remove the investment barrier akin to countries with limited recourse to market based finance.

10. Several of projects funded by ADB are located in small under developed countries with banking system in their infancy. In such countries, even after applying ADF fund sources and grants, there is still a gap in funding especially for highly capital intensive projects like solar energy. The CDM revenues especially if available upfront serve a critical purpose which make the clean energy projects possible.

D. CDM Assessment of the Philippines E-Trike Project

11. **Sources of anthropogenic GHG emissions.** Fossil fuel combustion, specifically gasoline, from conventional internal combustion engine tricycles. For some two-stroke tricycles, scavenging occurs whereby unburnt fuel escape through the exhaust pipe.

12. **Climate change mitigation aspects of proposed project/technology.** The project activity intends to mitigate GHG emissions through the use of electric tricycles thus avoiding the use of conventional tricycles which run on gasoline.

E. CDM Modalities & Procedure issues

13. **Additionality:** A CDM project is expected to result in real measurable emission reductions that are additional to any that may occur in its absence. In other words, the project participants have to demonstrate that a baseline scenario other than project activity without CDM benefits would have occurred in the absence of the project. This is done by applying a Tool for demonstration and assessment of additionality approved by the CDM Executive Board (EB). The tool provides two alternate ways; investment analysis and barrier analysis.

1. Serious consideration of CDM at investment stage

14. The project participants are expected to have considered CDM seriously while taking the investment decision on the project. This must be demonstrated with documentary evidence. The projects with starting date after 02 August 2008 must inform the Designated National Authority and/or UNFCCC Secretariat within six months about the project with precise geographical location. For the project activities before 02 August 2008 must indicate awareness of the CDM prior to the project activity start date, and that the benefits of the CDM were a decisive factor in the decision to proceed with the project. Evidence to support this would include, inter alia, minutes and/or notes related to the consideration of the decision by the Board of Directors, or equivalent, of the project participant, to undertake the project as a CDM project activity

2. Methodology for estimating baseline/project emissions and leakage

15. The project activity will use an approved methodology from the UNFCCC to determine the baseline and calculate emission reduction. For the Philippines e-Trike Project, the latest version of the approved methodology AMS III.C shall be used. AMS III.C "Emission reduction by electric and hybrid vehicles" is a methodology for "project activities introducing new electric and/or hybrid vehicles that displace the use of fossil fuel vehicles in passenger and freight transportation.

3. Operational and monitoring arrangements for CDM

16. CDM is a performance based mechanism, which means that only those many Certified Emission Reductions (CER) will be issued which are monitored, verified and certified by an independent agency called designated operational entity (DOE). The project will have to

establish a set up for operation and monitoring as required by the applied approved methodology. This operation and monitoring plan is stated in the project design document (PDD), which is validated by the DOE.

17. Methodology AMS III.C specifies particular project parameters to be monitored such as annual average distance driven by the project vehicle, specific electricity consumption by the project vehicle, emission factor of electricity used by the project vehicle, and the number of project vehicles in operation in a specific year. The methodology also specifies the need to “Demonstrate that the baseline vehicles being displaced are those consuming fossil fuels. This can be done, for example, through documentation of the market share per fuel type per vehicle category in the project region (e.g. based on representative sample surveys or official data or peer reviewed literature)”

18. ADB has taken several initiatives to mainstream climate change considerations into its funding. The current program of ADB is administered through the Carbon Market Initiative (CMI), managed by the Sustainable Infrastructure Division of the Regional and Sustainable Development Department. CMI has three components:

- (i) Upfront carbon financing through the Asia Pacific Carbon Fund (**APCF**) and/or the Future Carbon Fund (**FCF**);
- (ii) CDM related technical support through the Technical Support Facility (**TSF**); and
- (iii) Marketing support for residual carbon credits through the Credit Marketing Facility (**CMF**).

19. ADB CMI shall support the project through its CDM expert in ADB head quarters. Under TA 7754-PHI, the proposed project has made provision for CDM consultants to write the Project Design Document (**PDD**) as specified for registration under CDM Executive Board (**CDM EB**) under the UNFCCC. For Validation of the project the third party designated operational entity (**DOE**) charges fees, which vary according to the complexities in the project. Provisions for hiring a DOE who will validate the project from a third-party perspective have also been made under the above mentioned TA. Furthermore, DNA filing fees for the Host country approval will also be covered.

20. **Registration.** Depending on quantum of CERs generated by a CDM project annually, registration fees have to be paid to the UNFCCC Secretariat.

21. Once implemented the project participants have to monitor the parameters as required by the applied CDM methodology. The cost of doing so will depend on level of instrumentation and level of skill of the employees. The Philippines E-Trike project would internalize the cost of monitoring or hire an independent agency for monitoring of the project.

22. **Verification/certification.** The project operation and the monitoring report prepared by the project entity will be verified by either the same DOE who validated the project (for small scale CDM projects) or by another DOE (for normal scale CDM project) before being certified. The DOE will charge fees for each verification.

23. **CER Issuance.** The Philippines Department of Energy shall be registered under the CDM EB as the recognized project participant of the CDM project activity. The project participant has the authority to communicate and receive all issuances of CERs by the CDM EB. All issued CERs can be sold in the carbon market and proceeds of the sale can go to the Department of Finance who in turn flow CDM revenues back to the Philippines Department of

Energy to further support the E-Trike project objectives. The diagram below illustrates this fund flow scenario:

