

**GLOBAL ENVIRONMENT FACILITY**  
**PROPOSAL FOR PDF BLOCK B GRANT**

**Country:** Philippines

**Project:** Marikina Bikeways Project Component of Metro Manila Urban Transport Integration Project (MMURTRIP)

**Requesting agency:** The Mayor of the City of Marikina

**GEF Focal Area:** Climate Change

**Project cost & financing plan:** TBD, Preliminary estimate: US\$ 1.8 million

**Amount of PDF Requested:** US\$150,000

**Project Co-funding:** The City of Marikina (Metro Manila)

**Block A Grant:** Yes, US\$ 25,000

*A) Activities Financed:* The Block A financed the Pre-feasibility Study for the Marikina Bikeways Project. The objectives of the study are: (i) to identify corridors/areas where bikeways and bicycle parking facilities may be developed; (ii) to assess their potential for attraction/generation of Non Motorized Transport (NMT); (iii) to develop a bicycle safety program; and (iv) to determine the economic viability of the project, assess its environmental impact and its social acceptability.

*B) Results:* The results from Block A financed activities are: (i) accurate projections of the transportation activity both for Marikina and the Manila Metropolitan Area.; (ii) exhaustive estimates of modal shares with particular regard to NMT; (iii) preliminary plans of bikeways and bicycle parking facilities, including localization and technical specifications; (iv) construction/implementation plans and recommendations on their Pre-feasibility taking into account Economic viability and social/environmental issues. Items (i) and (ii) serve as input for the Incremental Cost Analysis and estimation of savings in Greenhouse Gas (GHG) emissions deriving from the development of the bikeways.

## 1. Summary Project Objectives and Description

The City of Marikina is a rapidly growing municipality of about 400,000 inhabitants situated at the west border of the administrative area of Metro Manila (MM). Growth in population, employment and scholar enrollment are generating increased demand for transportation, which coupled with increased Car Ownership will result in a sharp increase in Greenhouse Gas (GHG) emissions unless alternative measures to control these emissions are developed and successfully implemented at an early stage. Moreover, within Marikina, more than 2% of all trips are by bicycle, but the anticipated increase in traffic and pollution will likely cause the disappearance of this mode of transportation. A pattern already experienced in inner Metro Manila (and in many other Asian metropolis), where bicycles have been basically “crowded-out”.

The Marikina Bikeways Project (MBP) consists of the design and operation of a system of bike trails and designated lanes for non-motorized transport (NMT) which will connect residential communities with schools, employment centers, the new metropolitan train station and other public transport terminals, where appropriate parking facilities will be created. Its development will help avoiding the crowding-out phenomena mentioned above. Furthermore, the connection with the public transport terminals will promote the use of NMT combined with train/bus for trips between Marikina and the rest of the Manila metropolitan area. The project will be prepared in the framework of the broader Metro Manila Urban Transport Integration Project (MMURTRIP).

The **primary objective** of the MBP project is to contain the increase of GHG emissions by shifting some of the new transport demand towards less polluting/zero-emission modes and by maintaining the current share served by non motorized modes. A secondary objective is to demonstrate and publicize the benefits and viability of bicycles as an alternative transport mode thus encouraging replication of this pilot program in other parts of MM, elsewhere in the Philippines and in other East Asian countries. The project will be implemented as a pilot component of the broader MMURTRIP financed by the World Bank. The development objective of the MMURTRIP project is to reduce congestion and travel times particularly those experienced by public transport users, the majority of whom are poor “captive” users. This objective will be achieved through the improvement of the street level interchange between buses, jeepneys and Light Rail Transit (LRT) and the implementation of effective traffic management measures along major travel corridors.

In order to determine the economic viability of the project, a Pre-feasibility study has been financed by a GEF PDF Block A Grant. The preliminary results of the study and the data collected have been used as input to carry out a simple Incremental Cost Analysis (ICA). This analysis focuses on the cost of achieving the main global benefits in terms of GHG emissions reduction through the MBP implementation (the GHG case) compared with a Baseline case in which the project is not implemented.

The reduction in expected GHG emissions has been estimated computed by applying the ASIF<sup>12</sup> Methodology. In this particular application, a transport simulation model based on the data of the

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<sup>1</sup> Schipper, L. and Céline Marie-Lilliu, 1998. Transportation and CO2 Emissions: Flexing the Link. A Path for the World Bank, draft paper.

Pre-feasibility study and on a simple set of assumptions has been developed for the City of Marikina to estimate transportation Activity and modal Shares. Subsequently, the outcomes of the simulation have been combined with the relevant values for energy Intensity and fuel Mix for each mode, hence obtaining the estimates for the current and future transport-generated GHG emissions. Finally, by varying the set of assumptions a sensitivity analysis has been performed in order to assess the robustness of the findings and of the expected GHG emission savings. The costs of MBP development have been estimated around US\$ 1.8 million. The ICA results, although preliminary, show that positive benefit in terms of avoided costs of increased GHG emissions are likely to originate from the development of MBP.

The GEF PDF Block B Grant will finance following preparation activities for the Marikina Bikeway Project:

*Detailed Engineering Design of the bikeways and of the annexed facilities* -. The Detailed Engineering Design will include the preparation and elaboration of:

- (a) maps and surveys of the designated bikeways;
- (b) public consultation in the detailed design process
- (c) blueprints and final designs of the bikeways and related facilities; technical specifications for safety and parking facilities and other installations;
- (d) cost estimates of the works; bill of quantities and preparation of bid documents
- (e) detailed implementation/construction plans;
- (f) on site design validation and testing on specific sections.

The above items will be undertaken with the Operational and Institutional Advisory Services of an international consultant team with specific expertise who will assist the City Administration and advise on the choice of the final bikeway system among the various alternatives in accordance to established planning criteria and taking into account user's necessity and the city's existing/planned traffic management measures. The consultant will also provide inputs on design and technical specifications of bikeway lanes/trails to the City Engineers, taking into account current practices and literature. The City Engineers department themselves will be responsible for the actual detailed design. The consultant team will include a local consultant who undertook the Pre-feasibility study to ensure continuity and sustainability.

*Development of Monitoring and Evaluation Indicators, and an Operational Manual.* Suitable Monitoring and Evaluation indicators for program monitoring will be developed so that criteria can be developed for future replication of such projects in other parts of Metro Manila and the Philippines and other countries. An Operational Manual designed to provide guidance to the City Administration to manage and maintain the bikeway network, to plan for its expansion, to promote the use of bicycles will also be developed. This will include development of materials for an information campaign and safety campaigns as needed.

*Refining the emissions calculations and methodology.* In parallel to the work being undertaken on the detailed design of the Marikina Bikeways Project, the World Bank team assisting on this

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<sup>2</sup>This methodology allows to estimate GHG emissions by looking at the following four factors: (i) transportation Activity; (ii) modal Shares, (iii) energy Intensity of each mode; (iv) and the Fuel mix of each mode with its GHG emissions characteristics.

project will continue to work on refining the emissions calculations and methodology. This work will not be funded under this PDF B grant.

### 3. National Level Support (including key stakeholders, and level and nature of consultations)

The City of Marikina will be the executing agency for the PDF B and project preparation. The current Administration has demonstrated exceptional commitment to NMT and to the related environmental issues. The City has already set up, a counterpart team to the Consultant in charge of the activities supported by the GEF PDF A Block Grant. This Counterpart team composed by staff of the various city's offices (Settlement, Health, Engineering, Administration) will continue be responsible for liaison and coordination with the Consultant and the City Engineers office in charge of the Detailed Engineering and the other activities supported by the PDF B.

Moreover, to inform the process of design and implementation of MBP, the Consultant in charge of the activities supported by the GEF PDF A Block Grant has already carried out a series of public consultations with various stakeholders from the communities and businesses that will be affected by the project. The City will continue with public consultation in the detailed design..

### 4. Justification for PDF B Grant

The specific objective of the GEF Operational Program for transportation is “to reduce GHG emissions from ground transport sources in recipient countries. The objective will be achieved by facilitating recipient countries commitment to adopt sustainable low-GHG-transport measures, and disengagement from unsustainable measures common in many parts of the world”. More specifically “GEF will promote, amongst others, non-motorized transport technologies and measures, especially in medium-scale growing cities”<sup>3</sup>

### 5. Items to be financed

#### *Cost Breakdown estimate (US\$)*

Item/Activity	GEF PDF B	City of Marikina <sup>4</sup>	Total
Detailed Engineering Designs Bidding Documents and Evaluation	140,000	40,000	180,000
Development of Monitoring and Evaluation Indicators, and an Operational Manual Operational Advisory and Manual	10,000	2,000	12,000
Refining the emissions calculations and methodology	0	0	0
<b>Total</b>	<b>150,000</b>	<b>42,000</b>	<b>192,000</b>

<sup>3</sup> Elements of a GEF Operational Program on transport, GEF/C.12/14/Rev.1, Washington D.C. 1999

<sup>4</sup> City of Marikina contribution will be mainly in terms of staff-time and other administrative resources

## **6. Outputs**

Outputs will include :

- (i) Complete detailed designs
- (ii) Bidding documents
- (iii) Operational Manual
- (iv) Information Campaign Materials

## **7. Expected Date of Preparation Completion**

Detailed Engineering is expected to start in March/April 2000. The PDF GEF B Grant preparation program will take approximately 3 months to implement and the final output should be ready by July 2000. This would allow beginning the construction works by November 2000.

## **8. Special Features**

The GEF PDF B Grant support is requested to overcome barriers to the achievement of the project objective of addressing global emissions from motorized transport by means of introducing non-motorized transport as a viable alternative mode of transport. The barriers to this shift are the reality and travelers' perceptions that bicycles and walking are relatively slow, inconvenient, and unsafe transport options. The PDF B Grant will allow not only to continue the appropriate preparation activities of the MBP but also to maintain the City Administration commitment and to start raising stakeholders' awareness, which is necessary for the ultimate successful implementation of MBP.

**IA Representative**

**Date**

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