

**THE POTENTIAL OF GHG EMISSION SAVINGS FOR  
PROGRAMMATIC CDM BY MUNICIPAL SOLID  
WASTE COMPOSTING IN THE WESTERN  
PROVINCE**

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November, 2011

*Affectionately dedicated to*

*my loving parents*

*for their endless support and encouragement.....*

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## LIST OF ABBREVIATIONS AND ACRONYMS

AAU	Assigned Amount Unit
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CFCs	Chlorofluoro Carbons
CH <sub>4</sub>	Methane
CO <sub>2</sub>	Carbon dioxide
COP	Conference of the parties
CPA	CDM Program Activity
DNA	Designated National Authority
DOE	Designated Operational Entity
DTIE	Division of Technology, Industry and Economics
EB	Executive Board
ERU	Emission Reduction Units
GHG	Green House Gases
GWP	Global warming potential
HFCs	Hydrofluoro carbons
IPCC	Intergovernmental Panel on Climate Change
JI	Joint Implementation
kt CO <sub>2</sub>	Kilo ton of CO <sub>2</sub>
LA	Local Authority
MC	Municipal Council
MOP	Meeting of the Parties
MSW	Municipal Solid Waste
MSWM	Municipal Solid Waste Management
Mt	Metric Ton
NO <sub>2</sub>	Nitrous oxide
pCDM	Programmatic Cleaner Development Mechanism
PDD	Project Design Document
PFCs	Perfluoro carbons

PoA	Program of Activities
PP	Project proponent
PS	Pradeshya Sabha
SBI	Subsidiary Body for Implementation
SBSTA	Subsidiary Body for Scientific and Technological Advice
SF <sub>6</sub>	Sulfur hexafluoride
SWDS	Solid waste disposal site
tCO <sub>2</sub>	Tons of Carbon Dioxide equivalents
UC	Urban Council
UNEP	United Nations Environment Program
UNFCCC	United Nation's Framework Convention on Climate Change
WMA-WP	Waste Management Authority of Western Province
WMO	World Meteorological Organization

## **ACKNOWLEDGMENT**

I would like to express my deepest gratitude to my supervisor Prof. Nilanthi Bandara, Department of Forestry and Environmental Science, the University of Sri Jayewardenepura for her valuable advices and guidance throughout the period and for granting me the opportunity to carry out an interesting study for my final year research.

I am indebted to my external supervisor Mr. Saman Leelarathna, Assistant Director and Mr. Yasantha Gunarathna, Technical Assistant, Western Province Waste Management Authority for their guidance and support extend to me during the research.

I extend my sincere gratitude to Prof. Hiran Amarasekara, Head, Department of Forestry and Environmental Science, Prof. Hemanthi Ranasinghe, Prof. B.M.P Singhakumara, Dr. Prasanthi Gunawardena, Dr. Upul Subasingha and Mr. G.G.T Chandrathilake for the immense knowledge given to me to succeed in my research work.

I am grateful to Mr. Priyantha Samarakkodi, Director, Mr. Nalin Mannapperuma, Deputy Director and all the staff members of Western Province Waste Management Authority for their kind assistance in providing essential equipments and data for my research as well as the institutional arrangements given to me for carrying out my research work.

My special thanks for Mr. Shiro Chikamatsu, CDM Project Development Appraiser (JICA team), Climate Change Secretariat, Ministry of Environment, Sri Lanka for his kind assistance in the emission calculations.

I must highly appreciate the corporation given to me by my special batch mates, Dinesh Kumara, Sadeepa Yapa, Udaya Abeysingha, Sarath Ranaweera, Niranjana Kannangara and Supun Nigamuni. I extend my heartfelt appreciation to Praneeth Rajapakse for the support given in many ways during my research work.

I must make a special acknowledgment to Prabani Jayasekara and Chammi Gunathilaka for their kind corporation and help extended throughout the study.

My thanks are due to Ms. Ramanika Boteju for helping me in preparation of official letters.

It is with great honor I thank my father and mother for their encouragement and support which led me throughout the research study.

**The Potential of GHG Emission Savings for Programmatic CDM by Municipal Solid Waste Composting in the Western Province,**

**B.Sc Dissertation, Kariyakarawana VKDH (2011)**

## **Abstract**

The higher level of municipal solid waste (MSW) generation in Sri Lanka is due to increased consumption patterns as well as the movement of the people from the rural areas to urban centers. The Western Province (WP) is the most populated province in the country with 5.4 million people and a daily floating population of more than 1.5 million. It was found in the study that the daily collection rate of MSW in the entire WP is around 2000 tons per day. According to the composition analyses held in five Local Authorities (Dehiwala-Mt. Lavinia MC, Horana UC, Kesbewa PS, Kaluthara PS and Kelaniya PS) during the study, it can be concluded that the biodegradable portion dominates the bulk of MSW in WP as about 76.30%. Average composition found was: paper 5.77%; food waste 55.49%; garden waste 15.04%; metals 1.07%; plastics 2.14%; polythene 7.90%; glass 1.95% and other remaining 11.43%. Generally the biodegradable portion is mainly due to food and yard waste, typical of developing countries.

Out of the 48 administrative Local Authorities within the WP, only 16 Local Authorities are practicing MSW composting. All the other Local Authorities are practicing the most common method of MSW disposal; open dumping which contributes to a continuous emission of methane gas to the atmosphere in high quantities.

Global warming due to GHG emission is a major concerned environmental issue all over the world. Programmatic Cleaner Development Mechanism (pCDM) which is one of the flexibility mechanisms of Kyoto protocol affiliated with United Nations Framework Convention on Climate Change (UNFCCC) facilitates industrialized countries to reduce their GHG emission through developing countries. Among the 15 categories of CDM project types, avoidance of methane emission of open dumps by adopting composting is an opportunity for Sri Lanka to claim carbon credits from industrialized countries. Application of pCDM for MSW composting is suitable for the Sri Lankan scenario because it can be applied for several clustered small scale composting activities as a single group.

The study aimed at finding the potential of GHG emission savings by MSW composting in 32 Local Authorities of the WP which are not currently practicing MSW composting in order to quantify the CER which can be claimed for that. It can be conclude that the required emission saving level can be fulfilled with regard to the Western Province where, annually 231 kt of GHG emission can be avoided by MSW composting.

**Key words:** CDM, pCDM, Climate change, Global warming, Green house gasses, Municipal solid waste, Compost