



University of Malaya
ZERO WASTE CAMPAIGN
(UM ZWC)

**SUSTAINABLE AND INTEGRATED
WASTE MANAGEMENT**



TOGETHER WE GREEN THE EARTH



SUPPORTED BY:



**DEPARTMENT OF DEVELOPMENT
& ASSET MAINTENANCE (JPPHB)**



PREFACE

Rising quality of life, and high rates of resource consumption patterns have had an unintended and negative impact on the urban environment - generation of wastes far beyond the handling capacities of urban governments and agencies. Cities are now grappling with the problems of high volumes of waste, the costs involved, the disposal technologies and methodologies, and the impact of wastes on the local and global environment.

But these problems have also provided a window of opportunity for cities to find solutions - involving the community and the private sector; involving innovative technologies and disposal methods; and involving behavior changes and awareness raising. These issues have been amply demonstrated by good practices from many cities around the world. There is a need for a complete rethinking of "waste" - to analyze if waste is indeed waste. A rethinking that calls for:

‘WASTE to become WEALTH’ ‘REFUSE to become RESOURCE’ ‘TRASH to become CASH ‘

There is a clear need for the current approach of waste disposal that is focused on separation at source and to move more towards waste processing and waste recycling (that involves public-private partnerships, aiming for eventual waste minimization - driven at the community level, and using low energy/low technology resources. Some of the defining criteria for future waste minimization programmed will include deeper community participation, understanding economic benefits/recovery of waste, focusing on life cycles (rather than end-of-pipe solutions), decentralized administration of waste, minimizing environmental impacts, reconciling investment costs with long-term goals.

CONTENTS

1	THE INCEPTION —The VEECYCLE 2009	1
2	GREEN BAG SCHEME 2010	4
3	TAKAKURA COMPOSTING METHOD 2011	6
4	COMPOST AND FARMING 2012	8
5	ANAEROBIC DIGESTION 2013	10
6	DIVERSIFY RECYCLING 2014	12
7	ZERO WASTE CAMPAIGN INTEGRATED WASTE MANAGEMENT CENTER 2015	15
8	ACHIEVEMENTS	17
9	WASTE REDUCTION BY ZWC	27
10	ECONOMIC AND ENVIRONMENTAL COST SAVING OF ZWC	28
11	PUBLICATIONS	29

INTRODUCTION

Universities worldwide are embracing the move towards sustainability, including University of Malaya (UM) as the premier university in the country. The UM Sustainable Campus initiative was inspired by a call by the Vice Chancellor (Datuk Rafiah Salim at the time) for volunteers to green the campus in 2008. Since then, through the initiative of our previous Vice Chancellor, Tan Sri Dr. Gauth Jasmon - The University environmental initiatives has grown into a bottom-up staff and student volunteer movement, a group that achieved formal recognition as the university's official and voluntary Environmental Secretariat under the Vice Chancellor's office in September 2009. The movement has grown by leaps and bounds until today (now under the leadership of the new Vice Chancellor, Prof. Dato' Dr. Mohd Amin Jalaludin), with a focus in tackling five key priority areas: waste management, water conservation, energy and low carbon, greening and biodiversity and sustainable lifestyle.

In this, the Zero Waste Campaign (ZWC) is one of the university's longest and most consistent endeavors. It is also unique due to the bottom-up and top-down synergy that characterizes its development. It was set-up to spearhead the development of a more sustainable waste management model in the UM campus and ultimately achieve the status of a zero waste campus. The history of UM Zero Waste Campaign rooted from a final year environmental engineering assignment on recycling by Assoc. Prof. Dr Sumiani Yusoff in year 2009. Two final year environmental engineering students (Ng Chee Guan and Jaron Keng) initiated a student group "VeeCYCLE" to develop a recycling collection system in Faculty of Engineering in July 2009 with the retrofitting of existing rubbish bins in the faculty into integrated recycling and waste set of bins called "PRO bin" to promote the best practice of waste segregation at source. The inception of the Organic Waste Diversion (OWD) project in October 2009 was inspired by the fact that food waste is the major component and problem in Municipal Solid Waste (MSW) management in Malaysia.



ABOUT UM ZERO WASTE CAMPAIGN



UM Zero Waste Campaign (ZWC) is a campaign to spearhead the development of an integrated waste management model in the UM campus and ultimately achieve zero waste campus. The objectives of the campaign are:

- 1) To develop policy and innovation system to divert organic waste (from disposal in landfill) for nutrient (composting) and energy recovery (anaerobic digestion).
- 2) To streamline recycling activities and strategize efforts to increase recycling rate.
- 3) To create awareness and inculcate best practices of waste separation at source among the campus communities.
- 4) Serve as a long term campaign to achieve integrated waste management model and ultimately a zero waste campus.
- 5) Initiate projects, research projects and schemes such as Green Bag Scheme, in-house composting centre, anaerobic digestion project, recycling collection system, composting emission study, etc

ZWC was initiated in 2010, led by Associate Prof. Dr. Sumiani Yusoff (Principal Coordinator), Jaron Keng (Project Supervisor), and other student volunteers.