

Recovery of Plastic Bottles for  
Recycling: A Study of Responsible  
Environmental Behaviour at the  
University of the West Indies,  
Mona Campus, Kingston,  
Jamaica"

# Background

## (Recycling versus dumping)

- Recycling is expensive and can be very expensive
- Dumping is cheap
- Recycling requires courage and motivation
- Dumping is natural
- Recycling requires forward investment, make governmental authorities, polluters from private and public enterprises upset
- Dumping require no investment
- Why should one choose recycling?

# Waste composition in Jamaica

Waste Composition	2000	2006
	%	%
Organic Materials	55	69
Paper	13	5.9
<b>Plastic</b>	<b>12</b>	<b>13.9</b>
Metal/Tin	5	2.3
Cardboard	4	3.7
Glass	4	2.4
Textile	3	2.3
Wood board	1	0.3
Other	3	0.2
Total	100	100

# Recovery of plastic bottles for recycling...

- Plastic represents more than **20%** of waste production and **two thirds** are plastic bottles
- The development of a policy framework for the management of plastic packaging material and hazardous waste for Jamaica (2001)
- There was an estimated consumption of **246 millions** Pet beverage containers in Jamaica in 2000
- Our assumption of **6%** of Jamaicans generates one plastic bottle per day, this gives you about **52 millions** per year

# Theoretical and conceptual framework

- **Project implementation was based on the Voluntary Compliance Approach**
- Social and psychological theories or behavioural and situational theories to explain responsible environmental behaviour
- Attitudes – Behaviour
- **Information Integration theory in early 1970s (Norman Anderson, 1971)**
- Value and weight of new information in changing attitudes
- **The theory of Reasoned Action (Fishbein and Ajzen 1975)**
- Behavioural intent shapes behaviour

# Theoretical and conceptual framework

- **Theory of Planned Behaviour (Fishbein and Ajzen 1980, 2005)**
- Perceived behavioural control which “refers to people’s perception of the ease or difficulty of performing the behaviour of interest” (Ajzen 1991:183)
- **The theory of responsible environmental behaviour in the early 1970 by the Environmental Movement**

# Theoretical and conceptual framework

- Increase of knowledge and change of attitudes do not automatically lead to behaviour change
- Behaviour change results from a sense of empathy and concern, a sense of ownership and a sense of empowerment
- Locus of control, environmental sensitivity, knowledge of environmental action and strategies, skill in environmental action and strategies
- Within the context of this study, responsible environmental behaviour was caused by a multiplicity of factors.
- **Responsible environmental behaviour derives from general environmental values and attitudes, situational factors and psychological factors**

# Recovery of plastic bottles for recycling...





# Methodology

- A representative sample size of 347 respondents at 95% confidence level was selected from nearly 3000 students residing on the different Halls of residence.
- In order to achieve greater accuracy and representativeness of the student population, it was decided to use stratified sampling, spatial sampling and simple random sampling procedures to identify and select the respondents.
- The questionnaire collected empirical data on
  - Demographic characteristics of the students and childhood experience,
  - Educational backgrounds, attitudes and general knowledge of the environment,
  - Generation of plastic bottles on the UWI Mona Campus,
  - Issues of proper disposal of plastic bottles and responsible environmental behaviour.

# Some findings

- More than 400 lbs. of plastic bottles and containers were collected every week by Protect the Environment Trust (PET).
- The level of compliance in terms of solid waste separation at source was about 95% on the Halls of residence and 90% campus wide.
- The sample size consisted of 61% females and 39% males
- Most students residents on the Halls of residence come from the countryside or abroad
- Aspects of the environment are included in courses of study (40%)
- 79% preferred outdoor recreational activities during childhood
- A scale of 1 to 5 was used to assess the level of environmental awareness of the respondents
- Most of the respondents fell between levels 3 and 4

# Some findings

- More than 70% showed significant level of environmental care and awareness and action
- 73% of them ranked issues of environmental protection between 3 and 4 as compared to their own issues at the present time
- With regard to ranking the type of drink or juice container from a scale of 1 to 6, plastic bottles were most preferred (56%)
- Convenience was the primary reason (62%), easy to carry (34%) and being cheap (31%)

# Some findings

- 96% of the respondents were aware of the plastic bottle separation and recovery project on the UWI Mona Campus.
- 96%) were also aware of the alternative recycling bins (blue and green) on the Halls of residence and across the Campus.
- 98% of the interviewees argued that it was very easy to differentiate the recycling receptacles from the general bins.
- 96% of the respondents knew that only plastic bottles should be disposed of in the recycling bins.

# Some findings

## Reasons for disposing of plastic bottles and containers in recycling bins\*

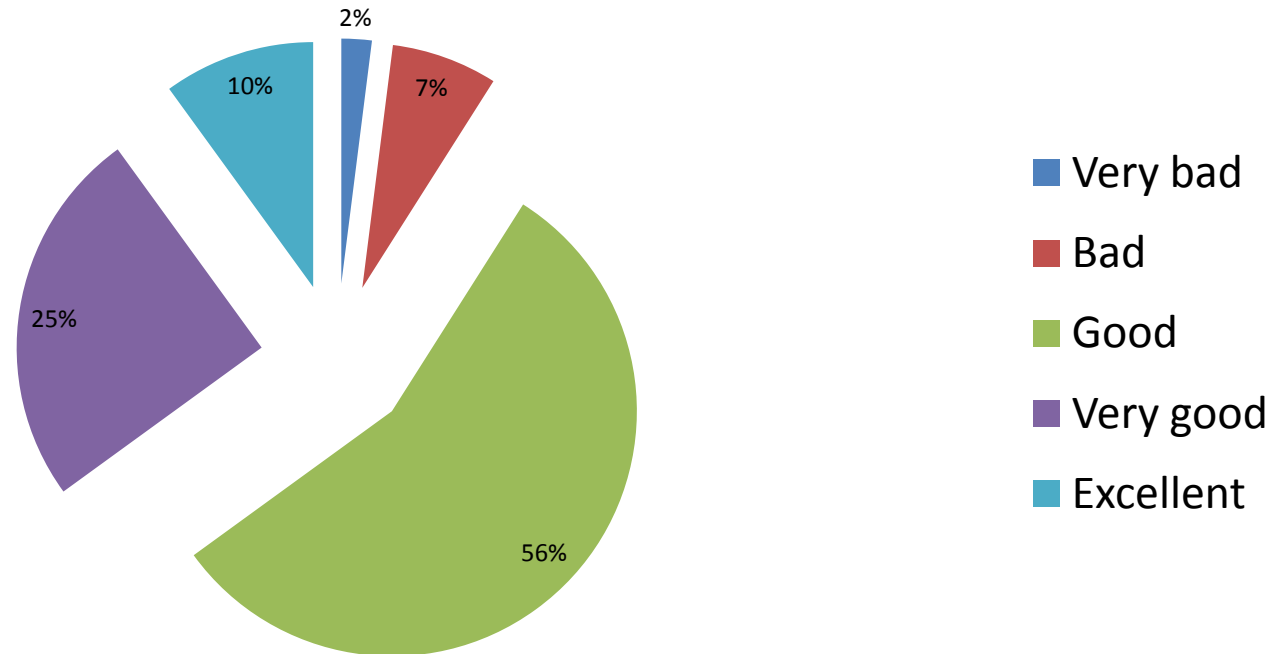
Reasons given	Percentage
Protect the environment	65
Do the right thing	46
The bins are on my way as I walk	30
The bins are near where I live	26
I follow the advice of the environmental club	25
The bins are near where I sit	10
I follow the advice of my friends	8

## Distance students were willing to walk to dispose of plastic bottles in recycling bins

Distance	%
Less than 10 metres	28
10-29	34
30-49	14
50-100	7
Over 100 metres	17
<b>Total</b>	<b>100</b>

# Some findings

## Self-Assessment of own environmental behaviour regarding responsible disposal of plastic bottles in recycling bins provided



- Inferential statistics
- Non parametric test (Spearman correlations)
- Most of the variables describing environmental care, awareness and action were significant correlated with plastic bottles disposal behaviour
- Chi Square tests on the associations between aspects of the environment in courses of study and environmental care awareness and action

# Lessons learned

- To bring about the desired behaviours with respect to the separation of plastic bottles for recycling on the Halls of residence at the UWI Mona:
- Identifying and mobilizing the catalysts for the desired behaviour change. These were the Environmental Clubs and the Commuting students environmental group.
- Creating a network of these environmental groups in order to consolidate activities and diffuse desired behaviours across the campus population.
- Selecting recycling bins with an opening just large enough for bottles in order to discourage inappropriate dumping of other materials
- Providing eye-catching containers for the plastic bottles with appropriate messages to encourage voluntary compliance
- Locating the bins strategically in order to facilitate the required behaviour
- Engaging the Campus authorities, especially the Maintenance Department as a key stakeholder in sustaining the system instituted
- Ensuring the regular emptying of the bins
- Commending compliance at a social gathering so as to encourage future compliance and further initiative