

## Residents Perception of and Participation in Solid Waste Recycling in Langkawi

Muhammad Azizan, FMSSM UniSHAMS  
 Adie Effendi Zulkefli, HOSCA UniSHAMS  
 Kamil Azizan, Product Characterization OSRAM



### Definition

- **Perception** – A belief or opinion, often held by many people based on something (Cambridge Dictionary)
- **Participation** – Take part or become involved in something (Cambridge Dictionary)
- **Solid Waste** – The useless and unwanted products in the solid state derived from the activities of and discarded by society (www.smarttranger.net)
- **Recycling** – Method of separating, collecting, and reprocessing or converting used or waste products into new materials (Environmental Protection Agency, 2012)

### Introduction

- **Waste separation** at source need willingness of, and good practices among residents.
- **Managing household solid waste** is a growing challenge for many cities, which is important for environmental conservation.
- **Local authority** is turning towards recycling, which is an effective tool for solid waste management.

## Background

- **Agamuthu et al. (2009)** – Drivers of sustainable waste management include human, economic, institutional and environmental aspects.
- **Langkawi** – Developing island in terms of tourism activities, and the number of visiting tourists increases from year to year. It is located at the north-western part of peninsular Malaysia with a total **population of 110,000** and **3.7 million** of total **tourist arrival in 2017**.
- **Residents' participation** – Very important component of recycling programs (include rigorous engagement of people from implementation to success) especially at their residents.

---

---

---

---

---

---

---

## Data Collection

- **Stebbins (2001)** – Survey created with three main sections as an exploratory research design to obtain deeper understanding of the phenomenon.
- **200 residents** from Langkawi districts were randomly selected.
- **Response rate** for the survey was **85%**, with 170 residents taking part.
- **31% male** and **69% female** respondents.

---

---

---

---

---

---

---

## Participation & Engagement

- **Q:** I have used technology as a medium to deliver a comment on recycling matters in Langkawi?
- **Yes (32%)** using technology medium (**comment and provide feedback**)
- **No (68%)** practicing recycling on their own (**at home among family members**)

---

---

---

---

---

---

---

## Understanding Recycling Behavior & Attitude

### Motivation for Recycling

- **Peattie (2010)** – Motivations were among the strong variables shaping the recycling behavior.
- **Scott (1999)** – The **environmental concern**, the **influence by family and friends**, and **convenience** leads to the motivation for behavior
- **78%** out of 170 respondents were claimed to have **high motivation in practicing recycling**
- **Factors motivate** to engage in recycling:
  - **Recycle program** (74%)
  - **Convenience of recycling facilities** (72%)
  - **Environmental concern** (71%) *conserving natural resources on the island as well as avoiding negative long-term impacts of landfill*

---

---

---

---

---

---

---

---

## Importance of Recycling

- **Residents' perception of recycling** influential role in determining their behavior and attitude towards recycling practices.
- **Irvin and Stansbury (2004)** suggested, it is necessary to understand **individuals' beliefs, intentions and level of importance** that they give to recycling in order to determine their behavior.
- **Q1:** Level of recycling importance to me is?
- **85% high importance** (Important or Very Important) to recycling.
- **Q2:** Level of my knowledge on recycling methods and procedures?
- **58%** indicated **knowledgeable** or **very knowledgeable** on recycling methods and procedures.
- **Jenkins et al. (2003)** suggests that people with high level of education tend to know more about the benefits of recycling and the related procedures, thus causing them to give high importance to it, and later leading to participation.
- **95%** have **good education background** from secondary school and a tertiary education

---

---

---

---

---

---

---

---

## Conclusion & Recommendation

- People will be more likely to continue the attitude and practice once they are able to see the positive results. This will keep people reminded, educated, inspired, motivated and informed about the essentials of sustainable development in Langkawi.
- The study of reduce, reuse and recycle (the 3Rs) can be further implemented throughout Malaysia, where recycling can become more effective and efficient through public outreach and education programs.
- **Enforcement & Establishment of Education Policy**
  - **Should be adopted** in order to educate residents in Langkawi about the importance of recycling, and the methods and procedures.
- **Local authorities of Langkawi**
  - **Can cultivate** a sense of community purpose and perception among Langkawi residents;
  - **Should actively** increase and promote recycling activities to the community;
  - **Should develop** more creative ways of engaging the community in recycling programs;

---

---

---

---

---

---

---

---



---

---

---

---

---

---

---