

# - Student worksheet for case study - Lagos Waste Management Authority (LAWMA)



## Generic green skills

### Cognitive competencies:

- Environmental awareness and a willingness to learn about sustainable development
- Systems and risk analysis, skills to assess, interpret and understand both the need for change and the measures required
- Ability to think about things differently

### Interpersonal competencies:

- Consulting skills to advise consumers about green solutions and to spread the use of green technologies

### Technological competencies:

- Management systems (waste)



## Learning objective

### You will be able to:

1. Understand the closed-loop mindset in waste management.
2. Identify innovative solutions/technologies in waste management.
3. Provide suggestions to improve the waste management practice in LAWMA.



## Format

Group discussion, presentation, and field trip



## Resources needed

A4 paper, laptop, internet, digital camera, case study



## Time required

Two classes, 1 hour each; 3-hour field trip



## Assessment

### You will be assessed based on:

The group presentation that demonstrates, your understanding of the importance of closing the loops in waste management, and your ability to suggest innovative solutions/technologies to improve current practice in LAWMA.

## Class 1

### Before the class:

1. Read the case study “Sludge treatment in T-Park” provided online (<https://www.greenskillsresources.com/>) to understand the “waste-to energy” closed loop for sludge treatment, which turns sludge into electricity.

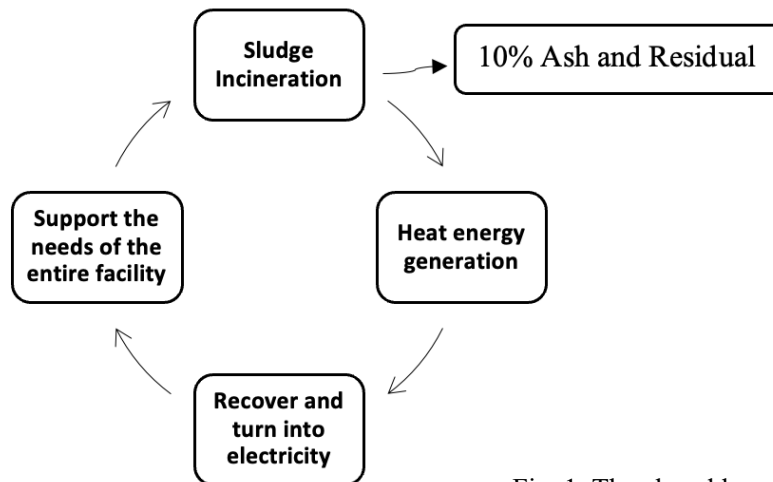


Fig. 1. The closed loop in sludge treatment.

2. Search online to identify different closed loops in waste management, such as food waste management and plastic waste management.
3. Read the case study “Lagos Waste Management Authority (LAWMA) and identify the innovative ways/solutions/technologies used for waste management, such as engineered landfill. Do further research online if needed. Prepare your ideas to share in your group.

### During the class:

#### 1. Group sharing

- a. The group sharing should focus on:
  - i. Why the concept of a close-loop economy is important to waste management Use the case study “Sludge treatment in T-Park” to discuss this. Clearly list your arguments.
  - ii. Different kinds of closed loops in waste management.
  - iii. The innovative solutions/technologies for waste management and the issues they can address.
- b. Summarize your group discussion on A4 paper. Use different graphical forms to present your findings (e.g. graphs, a mind map and a tree map).
- c. Share your group discussion with the class.

#### 2. Plan a field trip for your group

You should plan a field trip to:

- a. Observe the waste management solutions/technologies used in LAWMA.
- b. Identify whether any closed loops can be identified in these solutions/technologies.
- c. Talk to the staff/managers at LAWMA to understand the challenges/problems they face in current practice and how they would like to improve their waste management practices. Prepare a list of questions, which can adjust during the site observation.

### During the field trip:

1. Take notes of your observations.
2. Take pictures of objects and scenarios that impress you and which are relevant to what you have discussed in class.
3. Talk to the LAWMA staff to identify challenges/problems, and any issues that you are interested in.

### Class 2 (after the field trip)

#### Before the class:

1. Reflect on the notes and the pictures.
2. Identify closed loops in different kinds of waste management in LAWMA. If you cannot find any, try to design at least one, based on one kind of waste management e.g. food waste, to share in class.

#### During the class:

1. Discuss the results of your field trip with your group particularly in relation to:
  - a. The challenges/problems faced by LAWMA.
  - b. The closed loops identified/designed for different kinds of waste management in LAWMA. Explain how they work and the issues they address.
2. Based on the identified/designed closed loops, provide suggestions about using innovative solutions/technologies to improve the current practice of waste management in LAWMA.
3. Group presentation (PowerPoint)
  - a. Summarize your group discussion and identify the main ideas you want to present.
  - b. The group presentation should focus on explaining the identified/designed closed loops and suggestions about using innovative solutions/technologies to improve current practice.
4. Start writing a letter to the LAWMA managers to introduce your PPT as the promotion material, and summarize how LAWMA can work further on the identified challenges to improve waste management practices.

#### After the class:

1. Improve your PowerPoint based on comments from your teachers and students in other groups.
2. Finalize your letter and receive approval from your teacher.
3. Send all materials to the LAWMA managers.

#### Reference:

LAWMA – Lagos Waste Management Authority (LAWMA). Retrieved from <https://lawma.gov.ng/Landfills> | SSWM - Find tools for sustainable sanitation and water management! Retrieved from <https://sswm.info/water-nutrient-cycle/wastewater-treatment/hardwares/solid-waste/landfills>

Pavlova, M., Chen, C. S., & Saral, A. T. (2018). Case study: Sludge-treatment in T-Park. Retrieved from <https://greenskillsresources.com/resources/uploads/page/110/document/Case-study---Sludge-treatment-in-T.-Park-20220520134128.pdf>