

## **CHAPTER V**

### **CONCLUSIONS AND IMPLICATIONS**

#### **5.1 Conclusions**

This research tries to explore how a waste to energy project should be managed. From that management, financing and funding are certainly no less important aspects to ensure that waste to energy projects can be sustainable in the future. Here are the key findings from this research

1. Technology option is needed to be considered in developing waste to energy projects. The technology option chosen must be able to adapt to the characteristics of waste in Indonesia, the affordable costs, and the output from processing waste into energy has a market to be sold. The technology options those are most likely to be applied in Indonesia are Moving Grate Incinerator (MGI) technology with electricity as output and Mechanical Biological Treatment (MBT) with refuse derived fuel, compost, and biogas electricity as output.
2. Sources of financing with low cost of financing are still a requirement that must be met by waste-to-energy projects. This is because the high capital expenditure of this project is not accompanied by the internal ability of the project to finance it. Financing sources with low cost of financing are generally divided into two, namely APBN financing through Green Sukuk and Viability Gap Fund and Non APBN financing through several financing platforms such as the Green Climate Fund, Indonesia Environmental Fund, Sustainable Development Goal (SDG) Indonesia One, and Private Financing.

3. Sufficient funding sources are also needed by waste to energy projects. This funding source is mainly needed to finance the financing that has been obtained by the previous project as well as to finance the operational needs of the project. There are three sources of funding those are available and can be reached by the waste to energy project, namely sales of waste to energy products, tipping fees, and subsidies from central governments in the form of the allocation of Non-physical Special Allocation Funds (Aid Funds for Waste Processing Services).
4. Financial feasibility analysis shows that both MGI and MBT technology has a positive financial feasibility after the inclusion of elements of available financing and funding sources.

## **5.2 Limitations**

There are several limitations in the method those could affect the study's outcome. The following are some of the limitations:

1. The financial model employed in this study is designed to simplify the complexity of real-world situations.
2. The number of assumptions are limited those may not represent the whole risk involved in the project
3. The value used in determining the weighted average cost of capital is approximate realizable value, not the actual value

### **5.3 Recommendations**

Recommendations those can be given from the results of this study to related interested parties are as follows

1. Consider to prioritize the use of the Mechanical Biological Treatment technology option instead of the Moving Grate Incinerator technology
2. Provide additional incentives to the private sector who are willing to contribute to provide financing for waste to energy projects
3. Consider to issue regulations those can enable waste-to-energy projects to obtain financing at a low interest rate
4. Consider to expand the allocation of government subsidies not only to waste power plant-based technology but also to technology options with refuse derived fuel as the main product