

# CHAPTER 3

## METHODOLOGY

Having clearly identified the objectives of the study, the next step is to come up with a systematic research methodology. Basically, the research methodology consists of Observation on Processes and Activities in Izie Herb Enterprise, Audit, Analysis on Audit Findings, Generation of Environmental Management Options, and finally Evaluation on Benefits and Barrier of Environmental Management Options. The flow of information gathering activities and research report preparation are roughly as follow:

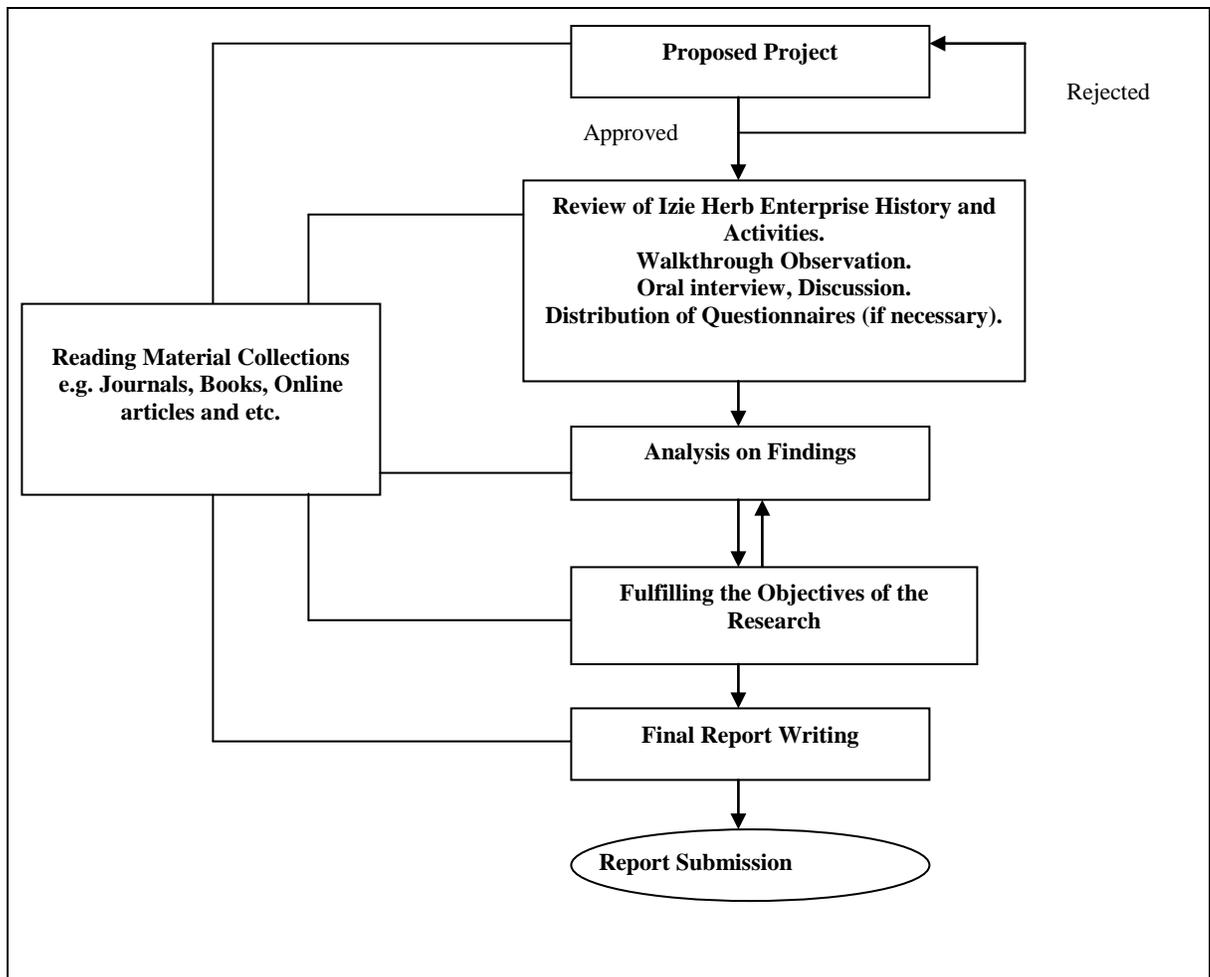


Figure 3: General Research Methodology

This research is conducted by various means of data and information collection such as walk-through observation, oral interview, discussion, distribution of questionnaires (if necessary) and also from reading references such as books, articles, reports and journals.

### **3.1 Observation on Processes and Activities**

During the walk-through observation, the company's process, activities and history are reviewed. Feedback from the customers, manager, personnel in-charge or former workers on the current and past activities that can influence the environmental will be gathered by distribution of survey questions (if necessary), oral interviews, surveys or discussion. Review on feedback and findings analysis will be conducted base on referenced methods to recommend the environmental management options and then understand the implementation barriers.

### **3.2 Audit Methodology**

Environment Management audit is conducted based on audit checklist which were purposely designed to produce relevant data for this research project. During the audit, oral interview, survey and discussion with workers and top managers were done mainly to define sources, quantities and types of waste generated, collate information on water and energy usage, and finally highlight risk possibility issues that may arise due to poor practice and workplace conditions. Further, other useful information are also obtained from this audit which consist of workspace layout, emergency exit, information on materials storage and handling, inventories and maintenance records.

### **3.3 Audit Finding Analytical Method**

Quantity of waste generated, water and energy usage are calculated in Microsoft Office Excel 2007, based on yearly basis. Further, determination of energy consumption is calculated based on unit operation specification (i.e. capacity, estimated efficiency) and operating duration. The information obtained is imperative, as the results generated by the data should answer the intended audit checklist.

### **3.4 Environmental Management Options Generation**

The ideas for generating Environmental Management options come from literature search (i.e. journals, books and professional website), discussions with workers and examples in some case studies. Possible Environmental Management options are then generated in the water, energy, waste and risk areas.

### **3.5 Evaluation of Environmental Management Options**

Each option is evaluated in terms of the benefits and their barriers in order to prioritize the options for possible implementation in Izie Herb Enterprise. The feasibility studies have to prove whether each of the Environmental Management option is contributes to the environmental, safety and economical improvement and less barriers.