Table of Contents

1 Introduction 4

2 Overview of the Current State of the Problems and Possible Solutions 5

2.1 Problems about Biodegradable Wastes in Asia 5

2.2 An Alternative Approach to Waste Management 6

2.2.1 Possible Solutions 6

2.2.2 A Sustainable Approach to Waste Management 7

3 Aim of the Thesis Dissertation 9

4 Research Methodology 10

4.1 Sample Collection and Preparation of Biodegradable Wastes 10

4.2 Sample Preparation for measuring Moisture Content 11

4.3 Experimental Equipment 11

4.3.1 Assessment of the Qualities of the Samples for Oven Drying 11

4.3.2 Oven Drying Unit 11

4.3.3 Solar Drying Unit 11

4.4 Comparison of Technical Parameters of Drying Methods and Measuring Devices 12

4.5 Limitations of the Experimental Research 13

4.6 Calculation of the Research about Waste Quality and Potential Benefits from Optimization of Waste Quality 13

5 Results and Discussion 19

5.1 Properties of the Biodegradable Waste Samples of Myanmar by Oven Drying process 19

5.2 Results of the Experiments from Solar Drying Process 19

5.2.1 Comparison of Parameters of Solar Radiation and Air 19

5.2.2 Airflow Rate to the Dryer and Water Removal Rate against Temperature Difference 20

5.3 Results of the Experiments from Different Drying Process 21

5.3.1 Effect of Moisture Reduction on the other Qualities of the Samples 22

5.4 Potential Benefits of Quality Improvement of Biodegradable Wastes 24

5.4.1 Weight and Volume Reduction due to Moisture Reduction 24

5.4.2 GHG Emission/Avoidance from Biodegradable Waste Disposal and Utilization 25

5.5 Comparison of Different Drying Methods 26

5.5.1 Drying Time against Reduction of Moisture, Weight and Volume of MSW 27

5.6 Summary of Drying for Optimization of Biodegradable Wastes 28

6 Conclusion 29

6.1 Overall Conclusion of the Research Work 29

6.2 Contribution to the Scientific Field 29

6.3 Benefits of the Research Work 29

6.4 Recommendations for Further Research 29

7 References 31

8 Abstract 33

9 Curriculum Vitae 34

10 List of Publications 36