

LIST OF FIGURES

Figure 2.1: MSW generation per capita in Malaysia from 1985 to 2007	11
Figure 2.2: Solid waste composition in Malaysia, 2005.....	12
Figure 2.3: Production phases of landfill gas.....	24
Figure 2.4: General trend of CH ₄ emission from landfills in their operating post closure years (calculated using the IPCC 1st order decay model)	28
Figure 2.5: Global CO ₂ emissions from 1980-2005	33
Figure 2.6: World carbon emissions by region, 1990, 2006, 2020 and 2030.....	36
Figure 2.7: World carbon dioxide emissions by region, 1990, 2007, 2025 and 2035	38
Figure 2.8: Trend of global carbon market	43
Figure 2.9: Expected average annual CERs from registered projects by country.....	47
Figure 2.10: Number of CDM projects in Asia by country.....	48
Figure 2.11: Volume of CERs in Asia by country.....	49
Figure 3.1: Methodology of research	52
Figure 3.2: Project boundary	54
Figure 4.1: Emissions of each waste category	79
Figure 4.2: Distance between baseline, collection points and project activity.....	87

LIST OF TABLES

Table 2.1: Generation of MSW in major urban areas in Peninsular Malaysia (1970–2006).....	10
Table 2.2: Waste composition (percentage of wet weight) in Malaysia from 1975 to 2005	13
Table 2.3: Total of landfills and disposal sites in Malaysia, September 2009	14
Table 2.4: Methods of waste disposal in Malaysia	15
Table 2.5: Composition of landfill gas.....	26
Table 2.6: Trends for landfill CH ₄ using (a) 1996 and (b) 2006 IPCC inventory guidelines, extrapolations, and projections (MtCO ₂ e, rounded).....	30
Table 2.7: GHG emissions at different types of solid waste disposal sites.....	31
Table 2.8: Tropospheric concentration and GWP of GHGs	35
Table 2.9: Transaction volumes and values for global carbon market, 2010 and 2011.....	44
Table 2.10: Expected potential of CERs revenues from different types of CMD projects in Malaysia and corresponding amount of megawatt (MW) of renewable energy	51
Table 3.1: Emission sources included and excluded from baseline and project.....	60
Table 3.2: Equations summary	72
Table 4.1: MSW compositions of samples.....	74
Table 4.2: Total MSW collected during crediting period	76
Table 4.3: Emissions of each waste category	78
Table 4.4: Baseline emissions	79
Table 4.5: Emission per tonne of wet waste (baseline).....	80
Table 4.6: Oxidation factor (OX) for SWDS.....	81

Table 4.7: Methane correction factor (MCF) for SWDS.....	82
Table 4.8: Fraction of degradable organic carbon (by weight) in the waste type j.....	83
Table 4.9: Decay rate for the waste type j.....	84
Table 4.10: Parameters/data used to calculate baseline emissions.....	85
Table 4.11: Quantity of MSW composted.....	88
Table 4.12: Quantity of compost produced.....	88
Table 4.13: Emissions from transportation.....	90
Table 4.14: Parameters used to calculate emissions from transportation.....	90
Table 4.15: Quantity of waste composted per day.....	91
Table 4.16: Diesel driven equipments used at the Kota Kinabalu Composting Plant.....	93
Table 4.17: Diesel driven equipments used at the project activity.....	94
Table 4.18: Parameters used to calculate emissions from diesel consumption on-site... ..	94
Table 4.19: Project emissions.....	97
Table 4.20: Emission per tonne of wet waste (project activity).....	98
Table 4.21: Emissions reduction.....	99
Table 4.22: Emission reduction per tonne of wet waste.....	100
Table 4.23: Costs of Malaysia-Kota Kinabalu Composting Plant.....	103
Table 4.24: Estimated cost of Small-Scale CDM project.....	104
Table 4.25: Estimated cost of small scale voluntary project.....	108