



Ministry of Environment
and Natural Resources



50
YEARS

Empowered lives. Resilient nations.



NATIONALLY APPROPRIATE
MITIGATION ACTION ON

A CIRCULAR ECONOMY SOLID WASTE MANAGEMENT APPROACH FOR URBAN AREAS IN KENYA

Contact Information

Principal Secretary, Ministry of Environment and Natural Resources

psoffice@environment.go.ke; with cc to:

Dr. Charles Mutai

Director Climate Change

Ministry of Environment and Natural Resources – Kenya

Tel.: +254722856452

E-mail: drcmutai@gmail.com or cmutai@environment.go.ke

Author

Dr. Alexandra Soezer, Climate Change Technical Advisor, Low Emission Capacity-Building Programme (LECB)

Contributors

Mr. Tom Owino, ClimateCare; Alwala Samuel, ClimateCare

Acknowledgements

Special thanks to Dr. Harun M. Warui, Ministry of Environment & Natural Resources / UNDP for his patronage.

We would like to acknowledge the following stakeholders for their participation in the NAMA process: Timothy Ranja, UNDP; Veronica Lekopole, CAGE; Stephen Kiama, KEFRI; John Katimbwa, Matatu Welfare Association; Nyaga Kebuchi, Sustainable Transport Africa; Andrew Cheboi, Netfund; Suresh Patel, KAM/KEPSA; Francis Nderitu, MOEP; Nathan Bogonko, KIRDI; David M. Kigo, Nairobi County; Fenwicks Musonye, ERC; David B. Adegu, MENRRDA; Joash Obare, ClimateCare; James M. Gatimu, GVEP/CCAK; Michael Muchiri, MOTI; John Kioli, Green Africa Foundation; Elizabeth Murua, MENRRDA; Ivy Murgor, MENRRDA; Richard Mwangi, KFS; Lucy Kamande, MENRRDA; Salome Machua, NEMA; Harrison Oloo, WENMAK.

Editor

Georgina Wilde

Design

Kimberly Koserowski

Disclaimer: The views expressed in this publication are those of the author(s) and do not necessarily represent those of the United Nations, including United Nations Development Programme (UNDP), or their Member States.

UNDP LOW EMISSION CAPACITY BUILDING (LECB) PROGRAMME

This product was developed under the LECB Programme, with generous funding from the European Commission (EC), the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), and the Australian Government.

The UNDP Low Emission Capacity Building (LECB) Programme is a country-driven initiative that promotes essential cooperation between relevant institutions, engaging the public sector and industry in a concerted effort to design and implement approaches to low emission development that are consistent with national development priorities. National counterparts are supported to strengthen technical and institutional capacities to identify and formulate Nationally Appropriate Mitigation Actions (NAMAs) and Low Emission Development Strategies (LEDS) in the public and private sectors, and to strengthen the underlying greenhouse gas inventory management and Measurement, Reporting and Verification (MRV) systems.

The LECB Programme runs through 2016 and is active in 25 countries: Argentina, Bhutan, Chile, China, Colombia, Costa Rica, the Democratic Republic of Congo (DRC), Ecuador, Egypt, Ghana, Indonesia, Kenya, Lebanon, Malaysia, Mexico, Moldova, Morocco, Peru, Philippines, Tanzania, Thailand, Trinidad and Tobago, Uganda, Vietnam and Zambia.

The programme is supported through generous contributions from the European Commission, the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), and the Government of Australia.

More information can be found at www.lowemissiondevelopment.org



Supported by:



Federal Ministry
for the Environment, Nature Conservation,
Building and Nuclear Safety

based on a decision of the German Bundestag



*Empowered lives.
Resilient nations.*

TABLE OF CONTENTS

List of Figures	5
List of Tables	5
List of Boxes	6
Abbreviations and Acronyms	7
Executive Summary	9
1 Introduction	12
1.1 Sustainable Solid Waste Management and Development	12
1.2 Nationally Appropriate Mitigation Actions (NAMAs)	14
1.2.1 History of NAMAs	14
1.2.2 A Circular Economy Approach to Solid Waste Management as an Opportunity for Kenya	14
1.2.3 NAMA Objectives and Its Transformational Change	16
1.2.3.1 Objectives of the NAMA	16
1.2.3.2 Transformational Change of the NAMA	16
2 Background on Kenya	18
2.1 Geography and Administration	18
2.2 Climate	19
2.3 Demography	20
2.4 The Socio-Economic Situation	22
2.5 Kenya's National Development Strategies	23
2.5.1 Progress on the Millenium Development Goals	23
2.5.2 Alignment with Sustainable Development Goals	24
2.5.3 Alignment with the INDC	25
3 Background to Solid Waste Management in Kenya	26
3.1 The Solid Waste Situation in Major Cities in Kenya	26
3.2 Analysis of the Solid Waste Situation in Nairobi	27
3.3 Recycling and Composting as a Potential Solution	30
3.4 Barriers to Recycling and Composting	31
4 The Policy Environment	32
4.1 Policy on Waste Management	32
4.2 Existing Economic Incentives for Solid Waste Management	36

4.3	Policy Recommendations	37
4.4	NAMA Alignment with National and Sectoral Strategies and Policies	38
4.5	Relevant Stakeholders	39
4.5.1	Ongoing Initiatives	40
5	NAMA Baseline and NAMA Targets	42
5.1	The NAMA Boundary	43
5.2	The NAMA Baseline	43
5.2.1	GHG Emission Reduction Baseline	43
5.2.2	Sustainable Development Baseline	43
5.3	NAMA Targets	47
6	The NAMA Circular Economy Approach	48
6.1	The Circular Economy Business Model	48
6.1.1.1	Recycling Points, Sorting Process and Layout	50
6.1.1.2	Composting Process and Layout	51
6.1.1.3	Composting Field Trials (Test Farms)	53
6.2	NAMA Institutional Support and Support for Technology Transfer and Development	53
6.2.1	NAMA Institutional support	53
6.3	Waste Fractions Included in the NAMA	54
6.4	Eligibility Criteria and Support Mechanisms for Private Sector Companies	56
6.4.1	Eligibility Criteria for Waste Collection Companies (under WEMAK)	56
6.4.1.1	Engagement Requirements	56
6.4.1.2	NAMA Measures to Support Waste Collectors	56
6.4.2	Eligibility Criteria for Recycling points	57
6.4.2.1	Engagement Requirements	57
6.4.2.2	NAMA Measures to Support Recyclers	57
6.4.3	Eligibility Criteria for Composting Companies	58
6.4.3.1	NAMA Measures to Support Composters	59
6.4.4	Eligibility Criteria for Recycling Industries	59
6.4.5	Eligibility Criteria for New Technologies	60
6.5	Technical Requirements for Participation in Recycling and Composting	60
6.5.1	Recycling of Waste	60
6.5.2	composting of Biodegradable Material	61
6.6	Approval Process for Grant Disbursement to Private Sector Participants	61

7	The NAMA Institutional Structure	64
7.1	Institutionalizing the NAMA	64
7.2	NAMA Institutions	65
8	NAMA Costs and Finance	70
8.1	Determination of NAMA Costs	70
8.1.1	International and National Grants and Loans	70
8.1.2	Capacity Development Costs	73
8.1.3	Potential Source(s) of Finance:	74
8.1.4	National and International Finance	75
9	Measurement, Reporting and Verification	78
9.1	The MRV System for GHG Emission Reductions	78
9.1.1	Recycling of Plastics	79
9.1.2	Monitoring and Verification	81
9.1.3	Composting of biodegradable material	81
9.1.4	Monitoring and Verification	83
9.2	Measurement and Monitoring of Sustainable Development Benefits	83
9.2.1	Baseline and Project SD Scenario	84
9.2.2	Monitored SD Parameters	85
9.3	Measurement and Monitoring of Financial Support	89
9.4	MRV Management	90
9.4.1	Responsibilities and Process Workflow	90
9.5	Reporting	91
9.5.1	Reporting Forms	91
9.6	Verification	92
9.6.1	Verification Procedures	92
9.6.2	Quality Assurance Procedures	92
10	NAMA Implementation Plan	94
10.1	Step 1. NAMA Operationalization	94
10.1.1	Operationalizing the Institutional Structure for NAMA Implementation	94
10.1.2	Launching the NAMA and Promoting the NAMA Achievements	95
10.1.3	Hiring International Experts	95
10.2	Implementation Phase 1: Infrastructure Development (Years 1–5)	96
10.3	Full-scale Operations Phase 2 (Years 6–15)	96
	References	98
	Annexes	102
	NAMA Summary	102
	Outcomes, Outputs and Activities	103

LIST OF FIGURES

Figure 1: Circular Economy Model	9
Figure 2: Overview of the NAMA Outcomes	15
Figure 3: Location of Kenya	18
Figure 4: Distribution of Mean Annual Rainfall	19
Figure 5: Kenya's Demographic Trends, 1950-2050	20
Figure 6: Kenya's Urban Population, 2000-2015	21
Figure 7: Kenya's GDP Growth Rates, 2008-2013	22
Figure 8: Circular Economy Model	49
Figure 9: Recycling Point Layout for 20 Tons of Waste	50
Figure 10: Layout of the Composting Facility	52
Figure 11 The NAMA Intervention Approval Process	62
Figure 12: Institutional Structure of the NAMA	68
Figure 13: Schematic Representation of a Strategic CSA Model	75
Figure 14: Flow Chart of International and National Finance	77
Figure 15: The NAMA MRV Process	90

LIST OF TABLES

Table 1: Urban Population and MSW Generation Trends in Kenya	13
Table 2: SDG Targets and SD Benefits resulting from the NAMA	24
Table 3: Relevance of the NAMA to stated Mitigation Priorities in Kenya's INDC	25
Table 4: Data on Major SWDSs operating in Kenya, 2013	27
Table 5: Overview of the NAMA Policy Framework	32
Table 6: NAMA Alignment with National and Sectoral Strategies and Policies	38
Table 7: Sustainable Development Indicators, Parameters and Baseline Values	44
Table 8: NAMA Indicators, Impacts and Target Values	47
Table 9: Key Elements of the Intervention	60
Table 10: Mandatory Technical Requirements	60
Table 11: Description of NAMA Approval Process	61
Table 12: Breakdown of NAMA International and National Grants and Loans	71
Table 13: Local Investment Grants (Government Contribution to Private Sector)	71
Table 14: International Investment Loans (to Private Sector)	72

Table 15: Local Investment Loans (to Private Sector)	72
Table 16 : Indicative Costs of NAMA Capacity Development	73
Table 17 : International and National Funding Needs	76
Table 18: SD Indicators for the NAMA	83
Table 19: Overview of Baseline and Project SD Scenarios	84
Table 20: Monitored SD Parameters	85
Table 21: Overview of NAMA Stakeholders' Capacity Development	97

LIST OF BOXES

Box 1: Health Situation caused by Dandora Dumpsite	28
Box 2: A Successful Pilot Circular Economy Model	41
Box 3: Enabling Private Sector Finance through Strategic Corporate Sustainability Actions (CSA) and Impact Investing	74

预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_12052

