



STUDY ON PLASTICS VALUE-CHAIN IN NIGERIA



JULY**2021**



STUDY ON PLASTICS VALUE-CHAIN IN NIGERIA

UNDER THE PROJECT

STUDY ON AVAILABLE SUSTAINABLE ALTERNATIVE MATERIALS TO PLASTICS AND INNOVATIVE PACKAGING AND RECYCLING TECHNOLOGIES THAT MEET MARKET NEEDS IN AFRICA TO REDUCE PLASTICS LEAKAGES TO THE ENVIRONMENT

J U L Y 2 0 2 1





Disclaimer

Copyright © UNIDO July 2021. All rights reserved.

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as "developed", "industrialized" and "developing" are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

2

STUDY ON AVAILABLE SUSTAINABLE ALTERNATIVE MATERIALS TO PLASTICS AND INNOVATIVE PACKAGING AND RECYCLING TECHNOLOGIES THAT MEET MARKET NEEDS IN AFRICA TO REDUCE PLASTICS LEAKAGES TO THE ENVIRONMENT

TABLE OF CONTENTS

| Table of Contents | 2 |
|----------------------------|----|
| List of Figures | 6 |
| List of Tables | 10 |
| List of Plates | 12 |
| Abbreviations and Acronyms | 13 |
| Forward | 16 |
| Preface | 18 |
| Acknowledgment | 20 |
| | |
| EXECUTIVE SUMMARY | 22 |
| | |
| CHAPTER ONE: INTRODUCTION | 30 |
| | |

| 1.1 | Solid and Plastic Waste Problems in Nigeria | 31 |
|-------|---|----|
| 1.1.1 | Solid Waste | 31 |
| 1.1.2 | Plastic | 32 |
| 1.2 | UNIDO Project | 33 |
| 1.3 | The Study | 34 |
| 1.3.1 | Objectives of the Study | 34 |
| 1.3.2 | Area of the Study | 34 |
| 1.3.3 | Study Methodology | 35 |
| 1.4 | Structure of the Report | 36 |
| | | |

CHAPTER TWO: POLICY AND REGULATORY FRAMEWORK ON WASTE MANAGEMENT SYSTEM 2.1. Existing Policies, Regulatory Framework and Enforcement System in Nigeria

| 2.1. | Existing Policies, Regulatory Framework and Enforcement System in Nigeria | 38 |
|-------|--|----|
| 2.1.1 | Existing policies, Laws Regulations Related to Solid Waste, Plastic Lifecycle Management | 38 |
| 2.1.2 | Policy and Legislative Framework for Solid Waste Management | 54 |
| 2.1.3 | Institutional Framework for Plastic Waste Management | 55 |
| 2.2 | Waste Management Structure at Federal and Local Levels of Governance | 57 |
| 2.2.1 | Introduction | 57 |
| 2.2.2 | Organization of Waste Management at National Level | 60 |
| 2.2.3 | Organization of Waste Management at State and Local Levels | 63 |

| 2.2.4 | Federal Capital Territory (FCT) | 63 |
|---------|---|----|
| 2.2.5 | Lagos | 65 |
| 2.3 | Waste Management Systems in FCT and Lagos | 68 |
| 2.3.1 | Federal Capital Territory (FCT) | 68 |
| 2.3.1.1 | The Abuja Environmental Protection Board (AEPB) | 70 |
| 2.3.1.2 | Collection of Solid and Plastic Wastes in FCT | 71 |
| 2.3.1.3 | Recycle and Reuse System | 72 |
| 2.3.1.4 | Needs of AEPB | 72 |
| 2.3.1.5 | Local Plastic Recycling Companies in FCT | 72 |
| 2.3.1.6 | Challenges | 73 |
| 2.3.2 | Lagos | 73 |
| 2.3.2.1 | Lagos State Waste Management Authority (LAWMA) | 75 |
| 2.3.2.2 | Collection of Solid and Plastic Wastes in Lagos | 75 |
| 2.3.2.3 | Recycle and Reuse System | 77 |
| 2.3.2.4 | Disposal Sites | 86 |
| 2.3.2.5 | LAWMANeeds | 87 |
| 2.3.2.6 | Local Plastic Recycling Companies in Lagos | 87 |
| 2.3.2.7 | Challenges | 89 |
| 2.3.2.8 | Operational Aspects of LAWMA | 89 |
| 2.3.2.9 | Lagos Waste Data | 90 |
| 2.4 | Plastics and COVID-19 Pandemic | 96 |
| 2.5 | Marine Litters | 96 |
| 2.6 | Marine Pollution and COVID-19 | 97 |
| | | |

CHAPTER THREE: SURVEY OF PLASTICS VALUE - CHAIN PLAYERS

| 3.1 | Plastics Value-Chain | 100 |
|-------|---|-----|
| 3.2 | Overview of Single-Use Plastic Products Market in Nigeria | 102 |
| 3.2.1 | Plastic Production and Consumption Data | 105 |
| 3.3 | Plastics in Nigeria | 109 |
| 3.4 | Survey of Plastic Products Value-Chain | 113 |
| 3.4.1 | Scope And Methodology of Survey on Plastic Value-Chain in FCT and Lagos | 113 |
| 3.4.2 | Overview of the Survey | 114 |
| 3.4.3 | Analysis of Survey of Plastic Value-Chain Players | 114 |
| 3.5 | General Overview of Plastic Value-Chain in FCT and Lagos | 117 |
| 3.5.1 | Compounders | 118 |
| 3.5.2 | Packaging Producers | 119 |
| 3.5.3 | Distributors | 119 |
| 3.5.4 | Retailers | 120 |
| 3.5.5 | Waste Collectors | 126 |
| 3.5.6 | Recyclers | 127 |
| 3.5.7 | Specific Findings | 127 |
| 3.5.8 | Awareness on Environmental Impact of Plastic Wastes | 128 |
| 3.5.9 | Extended Producer Responsibility (EPR) | 129 |
| 3.6 | FCT Value-Chain Players | 131 |
| | | |

| 3.6.1 | Recyclers | 131 |
|-------|--------------------------------------|-----|
| 3.6.2 | Waste Collectors | 135 |
| 3.6.3 | Distributors | 138 |
| 3.6.4 | Retailers | 142 |
| 3.7 | Lagos Study Area Value-Chain Players | 149 |
| 3.7.1 | Recyclers | 149 |
| 3.7.2 | Waste Collectors | 152 |
| 3.7.3 | Distributors | 156 |
| 3.7.4 | Retailers | 159 |
| 3.7.5 | Packaging Producers | 164 |
| 3.7.6 | Compounders | 169 |
| 3.8 | Findings | 171 |
| 3.8.1 | Specific Findings | 171 |
| 3.8.2 | General Findings | 172 |

174

202

CHAPTER FOUR: RESIDENTS' SURVEY ON SINGLE-USE PLASTIC PRODUCTS IN FCT AND LAGOS

| 4.1 | Overview of the Survey | 175 |
|-------|--|-----|
| 4.2 | Scope and Methodology | 175 |
| 4.3 | General Overview of Residents' Survey in FCT and Lagos | 176 |
| 4.4 | Analysis of FCT Residents' Survey | 179 |
| 4.4.1 | Sampling Techniques, Data Collection and Analysis | 179 |
| 4.4.2 | FCT Area Councils Survey | 179 |
| 4.4.3 | Demographics of FCT Respondents | 180 |
| 4.4.4 | Awareness of Environmental Impacts of Plastics Wastes | 182 |
| 4.4.5 | Problems Associated with Single-Use Plastics | 183 |
| 4.4.6 | Plastic Waste Management | 185 |
| 4.4.7 | 3Rs (Reduce, Reuse and Recycle) | 187 |
| 4.5 | Lagos | 189 |
| 4.5.1 | Sampling Techniques, Data Collection and Analysis | 189 |
| 4.5.2 | Lagos State Local Government Areas Survey | 190 |
| 4.5.3 | Demographics of Lagos Respondents | 191 |
| 4.5.4 | Awareness of Environmental Impacts of Plastics Wastes | 192 |
| 4.5.5 | Problems Associated with Single-use Plastics | 193 |
| 4.5.6 | Plastic Waste Management | 196 |
| 4.5.7 | 3Rs (Reduce, Reuse and Recycle) | 198 |
| 4.6 | Summary of Residents' Survey | 201 |
| | | |

CHAPTER FIVE: INTERVENTIONS TO REDUCE PLASTIC POLLUTION IN

NIGERIA 5.1 Nigerian Government

| 5.1 | Nigerian Government | 203 |
|-----|---|-----|
| 5.2 | Ministries, Departments and Agencies (MDAs) | 204 |
| 5.3 | Recyclers/Collectors | 211 |
| 5.4 | Non-Governmental Organizations (NGOs) | 214 |

| 5.5 | Other Organizations | 214 |
|--------|---|-----|
| 5.6 | Youth Response to Plastic Pollution | 219 |
| 5.7 | Stakeholders' Survey Results | 219 |
| СНАРТЕ | R SIX: CONCLUSION AND THE WAY FORWARD | 224 |
| 6.1 | Summary of Project Implementation | 225 |
| 6.2 | Questionnaires Administered | 226 |
| 6.3 | Findings from Plastic Value-Chain Players | 226 |
| 6.4 | Findings from FCT and Lagos Residents' Survey | 227 |
| 6.5 | Policy Recommendations | 227 |
| 6.6 | Recommendations of this Study | 228 |
| 6.7 | Recommendations for Further Studies | 229 |
| 6.8 | The Way Forward | 230 |
| 6.9 | Conclusion | 230 |

REFERENCES

6

STUDY ON AVAILABLE SUSTAINABLE ALTERNATIVE MATERIALS TO PLASTICS AND INNOVATIVE PACKAGING AND RECYCLING TECHNOLOGIES THAT MEET MARKET NEEDS IN AFRICA TO REDUCE PLASTICS LEAKAGES TO THE ENVIRONMENT

LIST OF FIGURES

| Figure 2.1 | Institutional Structure for Waste Management in Nigeria | 59 |
|-------------|---|-----|
| Figure 2.2 | Organizational Chart for Federal Ministry of Environment | 61 |
| Figure 2.3 | Organizational Structure of the Federal Capital Territory | 64 |
| Figure 2.4 | Organizational Structure Related to Waste Management in FCT | 65 |
| Figure 2.5 | Organogram of Lagos State Environment Sector | 66 |
| Figure 2.6 | Organogram of LAWMA as PRO in Proposed Lagos Plastic Waste/EPR Fund | 68 |
| Figure 2.7 | Map of the Federal Capital Territory Abuja | 69 |
| Figure 2.8 | Map of Nigeria Showing Location of Lagos State | 74 |
| Figure 2.9 | Map of Lagos State showing the 20 LGAs | 74 |
| Figure 2.10 | How PAKAM App Works | 82 |
| Figure 2.11 | Lagos Annual Waste Data for 2017, 2018 and 2019 | 90 |
| Figure 2.12 | Lagos Monthly Waste Data in Metric Tonnes (2017) | 91 |
| Figure 2.13 | Lagos Monthly Waste Data in Metric Tonnes (2018) | 92 |
| Figure 2.14 | Lagos Monthly Waste Data in Metric Tonnes (2019) | 93 |
| Figure 2.15 | Lagos Waste Composition 2016 | 94 |
| Figure 2.16 | Lagos Waste Composition 2015 | 95 |
| Figure 2.17 | Plastic Bottles Littering Beaches | 98 |
| Figure 3.1 | Plastic Value-Chain | 101 |
| Figure 3.2 | Nigeria Plastics Production Data (2009 – 2020) | 105 |
| Figure 3.3 | Nigeria Plastics Consumption Data (2009 – 2020) | 106 |
| Figure 3.4 | Average Consumption by Application in Percent (2009 – 2020) | 107 |
| Figure 3.5 | Average Consumption by Processing Method in Percent (2009 – 2020) | 108 |
| Figure 3.6 | Plastic Waste Treatment in Percentage | 110 |
| Figure 3.7 | Percentage of each Value-Chain Category | 118 |
| Figure 3.8 | Willingness to Collect used Plastics upon Delivery | 120 |
| Figure 3.9 | Retailers' Environmental Protection Practices at Workplace | 121 |
| Figure 3.10 | Feasibility of Charging Customers for Plastic Bags | 122 |
| Figure 3.11 | Feasibility of Providing Alternative Bags to Plastics | 123 |
| Figure 3.12 | Choice of Alternative Bag to Plastic | 124 |
| Figure 3.13 | Customer Perception of Cost of Recycled Plastics | 125 |
| Figure 3.14 | Customer Quality Perception of Recycled Plastics | 126 |
| Figure 3.15 | Awareness on Environmental Impact of Plastic Wastes | 128 |

| Figure 3.16 | FCT Knowledge of EPR | 129 |
|-------------|--|-----|
| Figure 3.17 | Lagos Knowledge of EPR | 129 |
| Figure 3.18 | Lagos and FCT Knowledge of EPR | 130 |
| Figure 3.19 | Ability to Cope with EPR | 130 |
| Figure 3.20 | Lagos Redesign Products for EPR | 130 |
| Figure 3.21 | FCT Redesign Products for EPR | 130 |
| Figure 3.22 | Type of Plastic Products | 132 |
| Figure 3.23 | Type of Businesses in Value-Chain | 132 |
| Figure 3.24 | Waste Collection Methods | 133 |
| Figure 3.25 | Reasons Hampering Reduction of Plastics Use | 134 |
| Figure 3.26 | Policy Measures to Reduce Plastic Use | 134 |
| Figure 3.27 | Type of Businesses in Waste Collectors | 135 |
| Figure 3.28 | Processing of Waste Plastics Collected | 136 |
| Figure 3.29 | Institution for Waste Management | 138 |
| Figure 3.30 | Measures to Reduce Plastics Use | 138 |
| Figure 3.31 | Year Distributors' Businesses were Established | 139 |
| Figure 3.32 | Plastics Waste Collections | 141 |
| Figure 3.33 | Reason Hampering Reduction of Plastics Use | 142 |
| Figure 3.34 | Environmental Protection at Shops | 144 |
| Figure 3.35 | Situation of Plastic Wastes Generation | 144 |
| Figure 3.36 | Provision of Plastics Free to Customers | 145 |
| Figure 3.37 | Feasibility of Providing Alternative Bags | 145 |
| Figure 3.38 | Knowledge of EPR | 148 |
| Figure 3.39 | Willingness to Implement EPR | 148 |
| Figure 3.40 | Ability to Cope with EPR | 149 |
| Figure 3.41 | Redesigning Products for EPR | 149 |
| Figure 3.42 | Plastic Wastes Collected | 154 |
| Figure 3.43 | Situation of Plastic Generation | 154 |
| Figure 3.44 | Price of Used Plastics Sold to Recycling Companies | 155 |
| Figure 3.45 | Shop Awareness Environmental Impacts | 160 |
| Figure 3.46 | Promote Environmental Protection | 160 |
| Figure 3 17 | Tunce of Alternative Race | 161 |

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_23238