

**ASSESSMENT OF MATERIAL BUILDING WASTE MANAGEMENT
PRACTICES IN SOUTHWEST, NIGERIA**

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**A THESIS SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES IN
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ACCEPTANCE

This is to attest that this thesis is accepted in partial fulfilment of the requirements for the award of the degree of the Doctor of Philosophy (Ph.D) in Architecture in the Department of Architecture, College of Science and Technology, Covenant University, Ota, Ogun State, Nigeria.

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DECLARATION

I, **TONGO, SAMUEL OSAYAMEN (15PCA00924)** declare that this research was carried out by me under the supervision of Prof. Albert B. Adeboye and Dr. Adedapo A. Oluwatayo of the Department of Architecture, College of Science and Technology, Covenant University, Ota, Ogun State. I attest that this thesis has not been presented, either wholly or partially, for the award of any degree elsewhere. All sources of data and scholarly information used in this thesis were duly acknowledged.

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Signature and Date

CERTIFICATION

We certify that this thesis entitled “**Assessment of Material Building Waste Management Practices in Southwest, Nigeria**” is an original work carried out by **TONGO, SAMUEL OSAYAMEN (15PCA00924)** in the Department of Architecture, College of Science and Technology, Covenant University, Ota, Ogun State, Nigeria under the supervision of Prof. Albert B. Adeboye and Dr. Adedapo A. Oluwatayo. We examined and found this work acceptable as part of the requirements for the award of the degree of Doctor of Philosophy (PhD) degree in Architecture.

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DEDICATION

I dedicate this work to God Almighty for being my source throughout the duration of this programme and to the memories of my parents Mr. John I. Tongo and Mrs Comfort O. Tongo who together have gone to be with the Lord.

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LIST OF ABBREVIATIONS

ABS	Australian Bureau of Statistics
ADB	Asian Development Bank
ARCON	Architects Registration Council of Nigeria
BC	Building Construction
BLC	Building Life Cycle
BW	Building Waste
CAC	Corporate Affairs Commission
CORBON	Council of Registered Builders of Nigeria
COREN	Council for the Regulation of Engineering in Nigeria
DEFRA	Department for Environment, Food and Rural Affairs
DFID	UK Department for International Development
EEC	European Environmental Council
EPD	Environmental Protection Department
EU	European Union
FOCI	Federation of Construction Industries
FOS	Federal Office of Statistics
GCCC	Gulf Cooperation Council Countries
GCFC	Gross Fixed Capital Formation
GDP	Gross Domestic Product
IWMS	Integrated Waste Management System
LC	Life Cycle
MW	Material Waste
MWM	Material Waste Management
MWMP	Material Waste Management Practice
NAT	Norm-Activation Theory
NBI	Nigerian Building Industry
NBS	Nigerian Bureau of Statistics
NEDO	National Economic Development Office
NIA	Nigerian Institute of Architects
NIOB	Nigerian Institute of Building
NIQS	Nigerian Institute of Quantity Surveyors
NIS	Nigerian Institution of Surveyors
NSE	Nigerian Society of Engineers
NPC	National Planning Commission

NPC	National Population Commission/Census
OECD	Organisation for Economic Cooperation and Development
PMI	Project Management Institute
PPP	Polluter Pays Principle
QSRBN	Quantity Surveyors Registration Board of Nigeria
RIBA	Royal Institute of British Architects
SDG	Sustainable Development Goals
SURCON	Surveyors Council of Nigeria
THB	Ipsative Theory of Human Behaviour
TPB	Azjen's Theory of Planned Behaviour
UAE	United Arab Emirates
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
US EPA	United States Environmental Protection Agency
UN-HABITAT	United Nations Human Settlements Programme
VBN	Value-Belief Norm Theory
WGBC	World Green Building Council
ZWA	Zero Waste Approach

ABSTRACT

Waste generation from life cycle stages of building has continued unabated to a level that portends adverse effects on the environment and its sustainability. This study, therefore, assessed the current ways by which material wastes generated by the activities of procuring building projects during their life cycle stages, especially in Southwest, Nigeria where large-scale developments are currently ongoing. The practices of 261 registered firms of architects, quantity surveyors/cost engineers, civil/structural engineers, client agencies, and building contractors with projects in the study area were explored using a questionnaire survey. Information about their knowledge, attitudes, and current practices regarding the management of wastes from building construction processes, and the motivation to adopt any strategy was obtained. The findings showed that contrary to previous studies, the post-construction stage activities was ranked first by the majority (54%) of the respondents to have the highest propensity for the generation of waste, followed by the construction stage activities with 24.5% of the respondent. The waste management practices currently in use appeared to vary with the type of waste, overall, the collection method was ranked first out of six by the respondents as the most used material waste management practice on building projects in the study for 8 out of the 13 waste types identified in the study area and then landfilling method for 8 out of the 13 waste types by the respondents. However, the incineration method was found to be most common for paper and cardboard wastes and recycling for rubber/plastic/foam wastes. Landfilling was the most common for stones/hard-core/granite, sandcrete blocks, cement/sand mortar, soil, and concrete wastes and collection was the most common for POP, glass, ceramics, ferrous metal, aluminium, wood, paint, cable/wires, pipes, and ceiling wastes. The results further revealed that individual and organisational characteristics, as well as behavioural intentions, accounted for the variance observed in the choice of waste management practice. The study concludes that since wastes were generated throughout the entire life cycle stages of building projects and the waste management practices vary with the individual, corporate and behavioural intentions of the stakeholders; therefore, the industry operators must align their attitude and behaviour towards the management of wastes from building projects. Consequently, the study recommends that; there is the need for the industry stakeholders to engage one another to take a holistic approach towards developing strategic guidelines for managing material waste on building projects especially in the area of reusing existing buildings as against demolition and ensuring that the cost of material waste management is included as part of the project cost.

Keywords – Assessment; Building Industry; Building Life Cycle; Building Waste; Building Waste Management