

# **Sustainability and Real Estate Curriculum: A Review of Estate Management Curriculum in Nigerian Federal Universities**

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## **Abstract**

Climate change and global warming are issues that continue to take centre stage in many global discussions presently. Thus, various programs and schemes are geared towards the mitigation of these pressing problems. In 2005, the United Nations declared the Decade of Education for Sustainable Development (DESD) to integrate sustainable development values with various aspects of learning. The ultimate goal was to induce sustainability behavioural changes through education. One of the objectives of the DESD was to embed sustainable development issues in various curricula. It is however unclear if the real estate curriculum in Nigeria has since reflected any such changes. This study uses a content analysis to assess the current curricula of the estate management departments of selected federal universities in Nigeria, in an attempt to ascertain the level of inclusion of environmental sustainability issues in the teaching – learning process. The findings of the study are important for curriculum modification and sustainable development goals implementation in Nigeria.

**Keywords:** Estate Management, Environmental Sustainability, Curriculum, Nigeria.

## **1. Introduction**

As society evolves, pressing global concerns keep changing, causing previously pressing issues to be totally reconceived by various stakeholders in

the light of the gravity of emerging ones. One of such issues is the sustainable development (SD) phenomenon. The sustainability of human interaction as well as their interaction with the natural environment is currently a major concern in every known endeavour. Hence, terminologies such as sustainable investing, sustainable agriculture and even sustainable sports have become common place. The World Commission on Environment and Development (1987) defines sustainable development as “*Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*” Various programs, conventions and strategies have thus been rolled out by different international and local bodies at different levels that are aimed at steering the generality of the populace towards the achievement of the sustainable development goals. Examples of these are the Kyoto Protocol (United Nations Framework Convention on Climate Change, 1997), the target to limit global temperature to 2° above pre-industrial levels (United Nations Conference on Climate Change, 2015) and the United Nations (UN) Decade of Education for Sustainable Development, DESD, (Buckler and Creech, 2014).

In 2005, the UN launched the DESD with the goal of promoting better awareness and enlightenment of sustainability among the general public (Buckler and Creech, 2014). The body adopted a strategy to achieve this goal by targeting four major education systems viz. formal education, non-formal education, informal education and training. Hence, the mandate of the DESD included plans to transform education at all levels such that the society is reoriented towards SD. The use of education as a tool for social change has been researched across various fields of study including medicine and economics (Nutbeam, 2000, Burns, 2002, Astin and Astin, 2000). As the significant contribution of the Built Environment (BE) to atmospheric Greenhouse Gases (GHG) continues to be highlighted in the sustainability discourse, the paradigm shift towards sustainable education is also taking centre stage in Built Environment education.

Blewitt and Cullingford (2013) discuss the various setbacks that have affected the integration of sustainability into architecture curricula in the United Kingdom. Murray and Cotgrave (2007) find a strong rationale for embedding sustainability in the construction curriculum. Hayles and Holdsworth (2008) also describe the pedagogical approach to embedding sustainability into the curriculum of the School of Property, Construction and Project Management in an Australian university. Thus, the subject of sustainability in the BE is not new. What is unclear however is whether higher institutions in developing

countries such as Nigeria are also aligning with this general shift in the teaching–learning practices.

Considering the dynamism of existing and emerging social, economic and environmental issues, curriculum development should be a practically versatile exercise, seeking to accommodate changes in society as they occur. Gough and Scott (2001) state that the complex relationship between sustainable development and curriculum development manifest in the societal changes that practitioners need to deal with daily and the continual intellectual challenges they both experience. Thus, for a subject such as SD, the curriculum should be structured in such a way that the theory is not just engrained in learners but that there is a practical dimension to knowledge impartation. This paper therefore examines the extent of adoption of the sustainability subject in the curricula of Nigerian Universities programme with particular regard to Estate Management courses in the light of the situated learning model as proposed by Lave and Wenger (1991).

## **2. Theoretical Framework**

The history of curriculum development may date back to as early as 1918 (Ponder, 1974). However, societal dynamics continually call for review, modification and modernisation of curricula in different fields to accommodate current developments and challenges. Such is the case with SD. The need to integrate sustainability and sustainable development into school curricula is obviously a product of strategies aimed at abating issues arising from development, commonly assessed using the environment, the society and the economy windows. The practicality of the issues involved therefore need to be met with pragmatic and innovative solutions as against theory- based teachings which characterize early curricula development models.

Jean Lave, a major proponent of the situated learning model (Cunningham, Gannon, Greene, Reddy & Whitson, 2007) recommends that contrary to cognitive learning theories, learning must not be distinguished from human activities, hence the importance of context- based teaching (Illeris, 2009). The situated learning model promotes the fact that a learner can develop knowledge by being engrained in the context of the issues rather than from a set of pre-conditioned instructions (Cunningham et al., 2007). Therefore, impartation of knowledge on sustainability and sustainable development requires innovation in accordance with the context in which the learning is occurring. Barth et al.

(2007) in their study discovered that developing competencies in sustainable development in universities entails the use of both formal and informal methods of education. They also state that for learners to effectively acquire such competencies, multifaceted contexts must be introduced to the learners, equipping them for decision making in complex situations.

Vare and Scott (2007) identify three approaches to education for SD. First, there is the approach that assumes that basic environmental problems can be understood scientifically and resolved by employing the right social and environmental technologies. The second approach assumes that environmental issues are simply symptoms of underlying social and political problems. The third approach however theorises that knowledge of environmental issues cannot be specifically based only on what is currently known but is continually discovered in the learning process. Hence, while the first two approaches advocate learning as a tool for social change, the third approach encourages an “open-ended” approach which takes cognisance of developing issues in the learners’ current context to proffer solutions.

This approach is increasingly receiving authentication as the most appropriate method of integrating sustainability into the learning curriculum as evidenced in the various literature available on the subject (Hayles and Holdsworth, 2008, Müller-Christ et al., 2014). Müller-Christ et al. (2014), in justifying the importance of context-based learning in higher institutions noted that students need to be engaged with the real world through a problem-oriented approach to sustainability knowledge impartation. This same approach is currently employed in the BE courses and especially in the real estate curriculum. In a study of the School of Property, Construction and Project Management of the RMIT university, Melbourne, Hayles and Holdsworth (2008) found that traditional teaching – learning methods are inadequate in imparting sustainability knowledge in learners and therefore developed new materials based on the practicalities of their field of study.

### **3. Sustainability Curricula in the Built Environment**

The need for sustainability in society continues to be apparent in the developing statistics of natural disasters and pollution related occurrences alongside many social and economic issues. However, it is not clear that this need is met with the same degree of response or reaction needed either to abate it or mitigate these effects. This inadequate response may be more pronounced

in developing countries when compared with their developed counterparts. In evidence of this assertion, at the end of the DESD in 2014, the UNESCO noted that the program particularly faced challenges in the Sub-Saharan African region which included inadequate policies to support ESD and insufficient drive for climate change action in the region (Buckler and Creech, 2014).

Gough and Scott (2001) state that there is a complex relationship between sustainable development and curriculum development and argued that both need to be conceptualised intellectually. They also state that in both fields, practitioners must decide if actions should be taken based on technical or practical considerations. Based on this interrelationship, integrating sustainable development into curriculum development should be continuous rather than a one-off event. Following this proposition, Wals and Jickling (2002) warn against the integration of prototypical definitions and concepts of sustainability and sustainable development into higher institutions curricula. They recommend that pluralistic and participatory approaches allow for divergent perspectives and solutions from both learners and instructors. This further informs the need for a strategic approach to the existing curriculum modification and hence the appropriateness of the use of the situated learning approach.

Given that the need to integrate sustainability principles and practices into higher education institutions curricula cannot be overstated, the progress being made in doing so is highly undetermined. This is not unconnected with various challenges that sustainability as a concept faces in these institutions. Seatter and Ceulemans (2017) identify three major challenges the higher institutions face in integrating sustainability into their curricula. They state that sustainability is grossly misconstrued by learners, the concept is sometimes unnecessarily narrowed towards a particular agenda by the instructors, to suit their personal research interests and lastly, depending on the teaching method adopted, the curriculum is usually inadequate in doing justice to the subject of sustainability. These challenges may not be unconnected to the lack of adequate relevant education of the instructors who are laden with the task of imparting the sustainability knowledge. After all, one cannot give what they do not have.

It is worthy of note that teaching contents can only be as relevant as the period in which they were developed (De Haan, 2006). Hence, there is the necessity for dynamism in curricula development at every level of education. The

Association for the Advancement of Sustainability in Higher Education (AASHE) (2010) recommends that if sustainability education is to be promoted in tertiary institutions, related barriers must be eradicated. They state that a major barrier is the fact that some faculty see sustainability as a diversion from already set goals. These goals include targeted research outcomes and personal conviction of the researchers. On the contrary however, the AASHE (2010) describes education for sustainability as a paradigm shift that extends and realigns existing research rather than break away from it completely. This stance is also reiterated by Sterling (2004) who advocates that pedagogical reviews and reorganisations to accommodate sustainability should be a preferred alternative to simply adding on new sustainability topics to already bogus curricula.

In the built environment and especially in the real estate sector, the necessity of sustainable practices cannot be over-emphasised. Global data continues to depict the significant impact of buildings on the environment (UN- Habitat, 2012, UN- Habitat, 2014, UNEP Sustainable Buildings Climate Initiative, 2009, Edenhofer et al., 2014). Considering the inevitable role of the built environment to human existence, it is important to inculcate sustainability principles into learners at the inception of their studies. While it is difficult to develop a conclusive list of sustainability issues as they affect the real estate sector, a number of prominent issues have been identified from literature. Table 1 below shows some sustainability themes which have been identified from extant literature by various authors and how they relate to courses currently taught in Estate Management departments in Nigeria universities.

**Table 1 Taught courses in Estate Management Departments in Nigeria**

<b>Courses</b>	<b>Themes</b>	<b>Authors</b>
Valuation	<ul style="list-style-type: none"> <li>• Life cycle assessments (LCA)</li> <li>• Use of mixed use developments</li> <li>• Building key performance indicators (KPI) monitoring</li> <li>• Building information</li> </ul>	(Keeping and Shiers, 2009)  (World Economic Forum, 2016)  (Aroul and Hansz, 2012) (Chau et al., 2010)  Royal Institution of

	<ul style="list-style-type: none"> <li>modelling</li> <li>Hedonic pricing methods of valuation</li> <li>Willingness-to pay for green buildings</li> <li>Valuation methods for green buildings</li> </ul>	Chartered Surveyors (2005)
Property Management	<ul style="list-style-type: none"> <li>Energy consumption</li> <li>Minimising ecological impact</li> <li>Indoor environment quality</li> <li>Minimising waste</li> <li>Green Leases</li> <li>Building key performance indicators (KPI) monitoring</li> <li>Building information modeling</li> </ul>	<p>(Keeping and Shiers, 2009, Pivo and McNamara, 2005)</p> <p>(World Economic Forum Industry Agenda Council on the Future of Real Estate &amp; Urbanization, 2016)</p>
Real Estate Investment Appraisal	<ul style="list-style-type: none"> <li>Responsible property investing (RPI)</li> <li>Corporate responsibility, sustainability and environmental policies</li> <li>Risk analysis and life cycle costing for project planning</li> <li>Environmental audits</li> <li>Integration of environment and social development into decision making</li> <li>Financing of sustainable buildings</li> </ul>	<p>(Pivo and McNamara, 2005)</p> <p>Macquarie University, Australia (Denby and Rickards, 2016)</p>

	<ul style="list-style-type: none"> <li>• Public awareness of sustainable development</li> </ul>	
Land Economics	<ul style="list-style-type: none"> <li>• Reliance on public transportation systems</li> <li>• Use of mixed use developments</li> <li>• Sustainable cities</li> <li>• Biodiversity</li> </ul>	<p>Keeping and Shiers (2009) Macquarie University, Australia (Denby and Rickards, 2016) Buckler and Creech (2014)</p>
Project Management	<ul style="list-style-type: none"> <li>• sustainable consumption and production</li> <li>• Disaster risk eradication</li> <li>• Minimising ecological impact</li> <li>• Risk analysis and life cycle costing for project planning</li> <li>• Financing of sustainable buildings</li> </ul>	<p>Buckler and Creech (2014)  Keeping and Shiers (2009)  Pivo and McNamara (2005) Macquarie University, Australia (Denby and Rickards, 2016)</p>
Public Health Engineering	<ul style="list-style-type: none"> <li>• Indoor environment quality</li> </ul>	<p>Keeping and Shiers (2009)</p>
Building Construction	<ul style="list-style-type: none"> <li>• sustainable consumption and production</li> <li>• Building adaptation and resilience to climate change</li> <li>• Material efficiency</li> <li>• Building retrofitting</li> <li>• Reduction of energy use, water use and greenhouse gas</li> </ul>	<p>Buckler and Creech (2014) Macquarie University, Australia (Denby and Rickards, 2016) World Economic Forum Industry Agenda Council on the Future of Real Estate &amp; Urbanization (2016) Pivo and McNamara (2005)</p>

	emission	
Building Maintenance	<ul style="list-style-type: none"> <li>• Building key performance indicators (KPI) monitoring</li> <li>• Building information modeling</li> </ul>	World Economic Forum Industry Agenda Council on the Future of Real Estate & Urbanization (2016)
Professional Practice	<ul style="list-style-type: none"> <li>• Corporate responsibility, sustainability and environmental policies</li> <li>• Public awareness of sustainable development.</li> </ul>	Pivo and McNamara (2005)  Macquarie University, Australia (Denby and Rickards, 2016)
Land Policy & Land Administration	<ul style="list-style-type: none"> <li>• Sustainable land administration</li> <li>• Green Leases</li> <li>• Promotion of social housing</li> <li>• Reliance on public transportation systems</li> </ul>	Bennett et al. (2008) World Economic Forum Industry Agenda Council on the Future of Real Estate & Urbanization (2016) Keeping and Shiers (2009)

#### 4. Estate Management Curricula in Nigerian Universities

According to the Nigeria Universities Commission, in May 2018 there were 31 universities offering courses in estate management. Of these universities, 21 are public, while 10 are private (JAMB. 2018). It is to be noted that the first of these programmes was established at University of Nigeria in 1963, followed by Obafemi Awolowo University (then known as University of Ife) in 1969, and was implemented at the University of Lagos in 1982. As at date of the 31 universities offering programmes in estate management 18 are accredited by the professional regulatory body. The Estate Surveyors and Valuers Registration Board (ESVARBON, 2018). There appears to be a surge in the implementation of programmes in estate management recently as witnessed

with five universities implementing programmes in estate management in the last six years alone. The estate management curriculum is anchored on the Nigerian Universities Commission's (NUC) Benchmark for Minimum Academic Standards (BMAS). The NUC is the regulatory body for universities in Nigeria, and among its statutory functions is the setting of minimum academic standards for degree awarding institutions. The NUC guides the initial curriculum development stage drawing from experts in the industry and academia to make a benchmark for all universities to use. The standards made are generally regarded as minimum and serve as a basis for NUC accreditation of degree programmes. The set academic standards are usually extended by the universities through the inclusion of additional courses to reflect locational and unique needs of the catchment area. The BMAS is reviewed regularly, usually every five years.

Estate management as a discipline is taught at first degree (B Sc./B Tech) in Nigeria as one of the environmental sciences programmes and its department is usually domiciled within the faculties of environmental sciences/technology alongside other courses like architecture, building construction, environmental management, survey & geo-informatics/geomatics, industrial design, quantity surveying, and urban-planning.

As listed among courses in the environmental faculty above, it is worthy of note that environmental management/ technology is also taught as a distinct discipline in Nigeria as a first-degree course (B Sc.) in the department of environmental management/ technology and sometimes as a post-graduate degree programme of departments of geography as environmental resources management. The practice is that where a specialist department exists in the faculty or university, the department provides the ancillary training to departments in need of such services. It may be assumed that sustainable development and environment conservation knowledge would be directly sourced from the portfolio of courses taught in the environmental management programme. This need is only partly met and departments of estate management evolve 'fit for purpose' courses that fit their unique needs. According to the NUC, the philosophy of the environmental management programme is anchored on the need to 'provide skilled manpower, trained specifically for environmental surveillance, monitoring and management.' to mitigate the current practice where these tasks are performed by people trained in basic and applied sciences (National Universities Commission, 2014). This is considered adequate for the sort of work graduates of Environmental

Management are expected to do, and enables standardisation in the practice of environmental surveillance, monitoring, and management but falls short of the meeting the requirements of other disciplines of the BE.

It is observed that this philosophy is limiting as it provides only for an after-the-act mitigation practice and thus falls short of the demands of the discipline of estate management. Estate management is a discipline whose practices most often engage in direct land use practices of the first instance. Estate management graduates must thus deal with land resource use decisions at all stages. Whether pre-development, development, or post development it must of necessity evolve courses that instill in their graduates the capacity to proactively appreciate and ensure that all use decisions capture the goals of sustainable development and environment compliance at use conception stage. For the other later stages, i.e. knowledge of land use and development and skills needs for environment and sustainable development, the estate management programme curriculum adopts the various environmental management courses that meet sustainable development and environment related objectives. Examples here include courses like introduction to environmental science, and environmental impact analysis.

## **5. Methods and Data**

The study assesses the level of integration of sustainability and sustainable development issues and themes in the Nigerian estate management curriculum at the first degree level. This is done by using a content analysis of the undergraduate syllabi of selected seven Nigerian universities that offer programmes in Estate management as a course of study. The universities are chosen to reflect geographical spread and on the basis on establishment history. The contents of their respective syllabi are analysed against the themes which have been identified from literature as stated in Table 1. The selected universities for this study are presented in Table 2.

Table 2. Selected Universities Offering Programmes in Estate Management

<i>S/No</i>	<i>University</i>	<i>Year Established</i>	<i>Programmes</i>
1	University of Nigeria, Enugu Campus	1960	BSc., MSc., PhD
2	Obafemi Awolowo University, Ile-Ife	1962	B Sc., M Sc., PhD
3	University of Lagos, Akoka	1960	B Sc., M Sc., PhD
4	Federal University of Tech., Minna	1983	B Sc., M Sc., PhD
5	Abubakar Tafawa Balewa Univ., Bauchi	1983	B Sc., M Sc., PhD
6	Federal University of Tech., Akure	1983	B Sc., M Sc., PhD
7	Kaduna State University	2004	B Sc.

## 6. Extent of incorporation of Sustainable Development into the Nigerian Estate Management Curriculum

To identify and assess the extent to which the respective Estate Management curricula of the selected universities' programmes incorporate thematic elements of environment and sustainable development, it is pertinent to outline specific areas that require this.

The practice of estate management in Nigeria revolves around the activities of property valuation, property and investment portfolio management, feasibility and viability appraisals, real estate agency, property development, and project management for those working as practitioners or employed in organisations in the private sector. For the public sector, activities of estate management graduates revolve around public land administration covering land titling, maintaining estate records, property tax administration, and managing involuntary resettlements (compulsory acquisitions and compensations).

It is noteworthy that with almost all the universities in Nigeria offering courses in estate management, the portfolio of courses taught at the first-degree level can be classified as foundation courses which are basically common across the faculty of environmental sciences' disciplines and are taught in the first two years of study. The next set of courses comprises the introductory courses which are taught in the intermediate level years, while the last two years is the stage where the specialities are taught. Environment and sustainable development courses can be incorporated at any stage after the foundation courses' years either as distinct courses altogether or incorporated as themes within existing courses synopsis. Given the generalised nature of these foundation courses we have left out the first and second year courses.

In Table 3 below, we present intermediate and final stage courses for the selected universities' undergraduate programmes. As at the time of gathering data for this study in June, 2018, three of the universities informed us of on-going review for their departments' curricular though we have no idea of the planned direction of change and when this will come into effect. There is therefore a possibility of observing a slight variance in their curriculum from what we have used in this study in no distant future. Our choice of using post foundation stage courses is informed by the fact that environment and sustainable development issues, though capable of being handled as discrete matters, will only find meaningful significance if embedded within the main activities of the profession and as such should be taught as part of themes of the core courses. It is for this reason that we have chosen to undertake a content analysis of the courses to achieve the set aim of this study.

Furthermore, taking cognisance of the numerous ancillary courses taught in Estate Management, we have narrowed our analysis to core courses and looked for thematic coverage of environment and sustainable development issues employing the earlier identified themes in Table 1. We grouped the courses into property valuation, property management, property appraisal, land and urban economics, project management, public health engineering, building construction, building maintenance, professional practice, land policy and land administration.

To arrive at the percentages indicating extent of coverage, we employed frequencies on a year by year basis where a particular course is taught, and have expressed the observed occurrence of a particular course per year of study

as a percentage of the sum across the sampled universities. We then aggregate by expressing the actual number of times a subject is offered over the total number of possible occurrences. In terms of coverage we evaluated the content of the synopses of each course and only counted those that include environment and sustainable development themes. The aggregate for coverage is measured in absolute terms as total number of subjects that includes environment and sustainable development expressed on the actual number of times a given subject occurs.

Table 3. Depiction of curriculum contents with ESD themes (undergraduate)

Course / University/ Year of Study		UNN		OAU		LAG		MIN		BAU		AKR		KAD	
		A	SD												
Valuation	5 <sup>th</sup> Yr														
	4 <sup>th</sup> Yr														
	3 <sup>rd</sup> Yr														
Property Management	5 <sup>th</sup> Yr														
	4 <sup>th</sup> Yr														
	3 <sup>rd</sup> Yr														
Appraisal	5 <sup>th</sup> Yr														
Land Economics	5 <sup>th</sup> Yr														
	4 <sup>th</sup> Yr														
	3 <sup>rd</sup> Yr														
Project Management	5 <sup>th</sup> Yr														
	4 <sup>th</sup> Yr														
	3 <sup>rd</sup> Yr														

	r																		
PHE*	5 <sup>th</sup> Y																		
	r																		
	3 <sup>rd</sup> Y																		
Building Construction	5 <sup>th</sup> Y																		
	r																		
	4 <sup>th</sup> Y																		
Building Maintenance	5 <sup>th</sup> Y																		
	r																		
	4 <sup>th</sup> Y																		
Professional Practice	5 <sup>th</sup> Y																		
	r																		
	4 <sup>th</sup> Y																		
Land Policy & Land Admin	5 <sup>th</sup> Y																		
	r																		
	4 <sup>th</sup> Y																		
Environment and Sustainability	5 <sup>th</sup> Y																		
	r																		
	4 <sup>th</sup> Y																		
Environment	5 <sup>th</sup> Y																		
	r																		
	4 <sup>th</sup> Y																		
Environment	5 <sup>th</sup> Y																		
	r																		
	4 <sup>th</sup> Y																		

ment Impact Analysis	4 <sup>th</sup> Y r																		
	3 <sup>rd</sup> Y r																		
Facilities Management	4 <sup>th</sup> Y r																		
Land Use and Resources	5 <sup>th</sup> Y r																		
	4 <sup>th</sup> Y r																		
Housing	5 <sup>th</sup> Y r																		

Key: ■ = Available; □ = Not available; A = Course taught at this level; SD = Course incorporates Sustainable Development and related themes

UNN- Univ. of Nigeria; OAU = Obafemi Awolowo Univ.; LAG= Univ. of Lagos; MIN=Fed. Univ. of Tech., Minna; BAU=Abubakar Tafawa Balewa Univ.; AKR= Fed. Univ. of Tech., Akure, KAD= Kaduna State Univ.

Source: Excerpted by researchers from the B Sc. Degree Curriculum of the 6 universities (University of Lagos, 2017, University of Nigeria, n.d., University, Kaduna State University, n.d.)

## 7. Findings

Our review of the synopses of all the seven universities' BSc. Estate Management curriculum reveals the following:

1. Valuation: This course is taught at the last 3 years of study of all the programmes. From Table 3 above, Valuation courses are taught in all the institutions, however of the sampled valuation courses synopses,

only two of the six taught incorporate sustainable development themes in the fifth year. In the fourth year of study valuation is taught in five out of the six institutions (83.3%), but none of the course synopses includes themes on environment and sustainable development. And in the third year, valuation is taught in all the institutions yet none the course synopses has themes on environment and sustainable development. The result for this subject is as summarised in Table 4 below.

**Table 4 Summary of Coverage by Course -Valuation**

Course	Year of study	Availability	Coverage
<b>Valuation</b>	5 <sup>th</sup>	100.00%	33.33%
	4 <sup>th</sup>	71.43%	0.00%
	3 <sup>rd</sup>	100.00%	0.00%
<b>Aggregate</b>		90.48%	11.11%

We observe that in terms of subject availability in the final three years of study, while valuation as a course of study presented an availability rate of 94.4%, the sustainability or sustainable development theme content of the curricular is only 11.1%.

2. **Property Management:** Property management like valuation is a core subject taught in the last three years of study for the B Sc./Tech Estate Management. Our review of the course synopses shows that across all the sampled universities it is taught in the fifth year however only two of these institutions have themes on environment and sustainable development. In the fourth year, property management is taught in four out of the seven programmes sampled, and only one out of the four course synopses has a sustainable development theme. In the third year of study only three of the six studied institutions' synopses have property management as a subject. It is observed that none of these has themes on sustainable development. The summary is given in Table 5 below:

**Table 5 Summary of Coverage by Course –Property Management**

<b>Course</b>	<b>Year of study</b>	<b>Availability</b>	<b>Coverage</b>
<b>Property Management</b>	5 <sup>th</sup>	100.00%	33.33%
	4 <sup>th</sup>	57.14%	25.00%
	3 <sup>rd</sup>	42.86%	0.00%
<b>Aggregate</b>		66.67%	21.43%

3. Property Appraisal: A major for the B Sc. Estate Management programme among Nigerian universities, Appraisal is only taught in the fifth or final year of study. Our review of the respective course synopses reveals that no environmental and sustainable development themes are presented.
4. Land Economics: The synopses reveal that this course (we have combined this subject with Urban Land Economics for purposes of our analysis) is not on the fifth-year syllabus of the B Sc. Estate Management programme. It occurs mostly in the mid part of the programme i.e. between the second to the fourth year. Our findings show that four out of the seven institutions offer the subject in the fourth year and three of the four incorporate environment and sustainable development themes. Table 6 presents a summary.

**Table 6 Summary of Coverage by Course –Land Economics**

<b>Course</b>	<b>Year of study</b>	<b>Availability</b>	<b>Coverage</b>
<b>Land Economics</b>	5 <sup>th</sup>	0.00%	0.0%
	4 <sup>th</sup>	57.14%	75.0%
	3 <sup>rd</sup>	14.29%	100.0%
<b>Aggregate</b>		23.81%	80.0%

5. Project Management: This subject is taught as a fifth-year subject in four of the seven sampled institutions. It appears in only two of the programmes in the fourth year of study, and in one institution at the third year. None of the subject synopses has themes on sustainable development.
6. Public Health Engineering (PHE): This subject appears only once in the fifth and third year subjects of the seven programmes under study. And of this, only one of the two subject synopses incorporates themes on sustainable development.
7. Building Construction: Considered a required ancillary subject, the Building Construction subject is not taught in the fifth year in all of the studies programmes. It occurs rather early by the post foundation stage mostly in the second and third year of study. The sampled seven universities course synopses indicate that it is taught in one of the programmes each at the third and fourth year. None of these have coverage of sustainable development themes.
8. Building maintenance: This subject is not taught at the final year but rather in the third and fourth year of the B Sc. Programme. Among the sampled course synopses, the building maintenance subject is taught in the third and fourth year and is in the curriculum of one out of the six institutions in the fourth year while three institutions teach it

at the third year of their programmes. It is noteworthy that none of these has themes on the environment and sustainable development.

9. Professional Practice: The subject is taught only in the final year of the 5 year B Sc. Programme. It covers only issues of professional etiquette and code of conduct and does not have any themes related to environment and sustainability.
10. Land Policy & Land Administration: The subject is taught by all seven institutions but at different stages. Three universities offer this course in the final year, four in the fourth year, and in one of the institutions it is taught in the third year. A summary showing extent of coverage is given in Table 7 below:

**Table 7 - Summary of Coverage by Course –Land Policy & Administration**

Course	Year of study	Availability	Coverage
<b>Land Policy and Administration</b>	5 <sup>th</sup>	42.86%	100.0%
	4 <sup>th</sup>	57.14%	50.0%
	3 <sup>rd</sup>	14.29%	100.0%
<b>Aggregate</b>		38.10%	75.0%

11. Environment and Sustainability: In the wake of climatic change concerns and debates some departments of estate management have evolved the subject of environment and sustainability to keep their students informed of the subject matter. It is taught in the final year in one of the institutions, two others teach it in the fourth year, while in one of the universities it is taught in the third year Table 8 shows the summary of thematic coverage in the course.

**Table 8 - Summary of Coverage by Course – Environment and Sustainability**

Course	Year of study	Availability	Coverage
Environment and sustainability	5 <sup>th</sup>	14.29%	100.00%
	4 <sup>th</sup>	28.57%	100.00%
	3 <sup>rd</sup>	14.29%	100.00%
<b>Aggregate</b>		19.05	100.00%

12. Environmental Impact Assessment: Our review of the synopses indicates that one of the universities incorporated this in the property management course while four others teach it as a sole subject. It is only offered in the third and fourth years of study. Five out of the seven universities offer this course, two in the final year, another two in the fourth year, and one institution offers it in the third year. See Table 9 below:

**Table 9 - Summary of Coverage by Course –Environmental Impact Assessments**

Course	Year of study	Availability	Coverage
<b>Environmental Impact Assessment</b>	5 <sup>th</sup>	28.57%	100.00%
	4 <sup>th</sup>	28.57%	100.00%
	3 <sup>rd</sup>	14.29%	100.00%
<b>Aggregate</b>		41.67%	80.00%

13. Facilities Management: This course is taught in five of the seven sampled programmes in the fourth year of study and does not feature in two who subsume it under property management. It is noteworthy that none of the four institutions observed to be offering the subject incorporates theme relating to environment and sustainability.
14. Land use and Resources: This subject is taught at the fifth and fourth year of the programmes in five out of the seven sampled institutions. Four of the institutions offer it in the final year of study while one offers it as a diet of the fourth year. A summary of coverage is as detailed in Table10 below

**Table 10 - Summary of Coverage by Course – Land Use Resources**

Course	Year of study	Availability	Coverage
Land Use Resources	5 <sup>th</sup>	57.14%	75.00%
	4 <sup>th</sup>	42.86%	33.33%
Aggregate		19.05	57.14%

15. Housing: This subject occurs only in the fifth year among the sampled programmes. And only three of the seven offer it with only one of the three synopses incorporating themes on environment and sustainable development.

## 8. Study Conclusions

This paper has among other things highlighted evolving global practice and importance of the inclusion of sustainability and sustainable development themes in the real estate teaching-learning process. The research was unable to determine the teaching-learning methods of the courses identified to incorporate sustainability themes, to assess if they are taught in context of real world situations. However, the review of the selected universities' real estate curricula shows a lacuna in the Nigerian curricula. The results indicate that the syllabi of several subjects taught in the estate management departments of several of the universities make no provision for sustainability education.

Though, other subjects presented a fair coverage of sustainability education, some key subjects such as valuation and property management presented below average coverages in their course contents.

Sustainability education in Nigerian universities cannot be said to be commensurate with the current need for sustainability principles in the various sectors that graduates of the universities are expected to operate. The multiplier effect of this is that graduates who will soon be in decision-making positions in these sectors are ill-equipped to do so in the best interest of a socially, environmentally and economically sustainable society.

For issues as practical as sustainability and sustainable development, inclusion of such themes in the curricula needs to be deliberate and pragmatic. Contemporary best valuation practices for instance require that environmental and sustainable development aspects of assets are captured in the valuation process of assets. Also, there is an increased advocacy for the adoption of green buildings over conventional high- energy building. These buildings may require management, valuation, investment appraisals and other services of estate surveyors and valuers. These are just some of the issues that require basic knowledge of sustainability and sustainable development.

A critical review of the existing curricula, taken beyond the purview of the academia, and particularly involving practitioners of various professions, government officials and property users is therefore recommended. Also, curricula from higher institutions in other climes where sustainability is a significant aspect of emerging industry practice and has been successfully integrated into their curricula can act as guides towards the formulation of a real estate curriculum in Nigeria. This is necessary so that Nigerian estate management graduates are equipped with the needed understanding of how environment and sustainability impact real estate especially in the light of emerging global demands.

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