CAPACITY GAP ASSESMENT FOR GREEN GROWTH IN NIGERIA; FOCUS ON NIGERIA INSTITUTE FOR LEATHER AND SCIENCE TECHNOLOGY (NILEST) ZARIA

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ABSTRACT

Green growth, or the transition to green economy has gained significant traction recently because it is considered a critical pathway for realizing economic growth, climate resilience and sustainable development in the third world. While it presents an attractive alternative, Green economy transition requires the formation and a transfer of a wide range of technical, organizational and institutional capacities. It also requires the systematic cultivation of a green innovation ecosystem, the kind that Africa desperately needs to achieve fair, equitable and Sustainable economic growth and social development. Nonetheless, there is a glaring absence of "green" skills and a limited number of interventions that principally seek to develop and deploy such skills across Africa. The capacity and technology gap assessment sought to identify capacity and technology assets and gaps in Nigeria Institute of Leather and Science Technology Zaria, Kaduna State in order to understand and explore possibilities for supporting the transition to a green economy in Nigeria. The result showed that there is a growing demand for knowledge and skills in the context of the green economy in Nigeria.

KEYWORDS: Green Economy, Green growth, capacity building, innovation and investment.

1.0 INTRODUCTION

To transit towards a green economy, Nigeria must position itself adequately in terms of capacity at developing individual, organization and institutional levels. A similar call can be made for the entire continent where capacity building has been identified as an imperative for achieving green growth at various scales. The AfDB consensus statement in AfDB 2013 to 2020 is that more investments in capacity building and technology development will be needed for

African countries to transition to green economies. The limitation however is the poor understanding of capacity and technology gaps for green growths as well as the low quality of efforts directed at understanding them. There is a very limited understanding of the range of skills, framework, policies and procedures needed to make the transition.

This study sought to fill the gap by refining the capacity assessment analytical framework developed by Governing Green Growth in Africa (GIGGA) in order to focus the analysis on individual level. This new framework facilitated the analysis on individual level. This framework, the systematic framework of capacity assets and needs for transition to green economy by an Agency in the federal Ministry of science and Technology (NILEST). In essence, it responds to the primary research questions: what capacity or skills do key institutions in Agriculture, energy and industrial sectors need to support and transition to a green economy in Nigeria? The framework guided the development of questionnaires that were administered to middle level managers from various units of the institution.

GREEN GROWTH CAPACITY ISSUES IN NIGERIA

Green growth is a recent global phenomenon and a much-lauded pathway for achieving economic transformation, climate resilience, and sustainable development. In industrialized countries, science, technology and innovation are at the heart of green growth transformation. However, green growth is a relatively new approach for policymakers and businesses in Africa.

While there have been some notable promising steps, African countries are largely yet to understand and exploit the various opportunities for developing the green economy across scale from national to regional and local levels. Critically, there is a very limited understanding of the range of skills (both indigenous and external) needed to achieve the transition to a green economy in Africa. In Nigeria, the Vision 2020 economic blueprint commits to large scale development of renewable and sustainable energy sources, while the more recent Economic Recovery and Growth Plan (ERGP) stresses the intention to 'encourage and promote the development of green growth initiatives' (EGRP, p. 134). In 2015, Nigeria als0 set an ambitious target through Nationally Determined Contributions (NDCs) to potentially reduce the emission of greenhouse gases (GHGs) by around 45% to 2030 with the support of the international community. The main objectives of the Vision 2020, NDCs and ERGP are to foster loW carbon, high growth economic development and build a climate resilient society. While these objectives are laudable, achieving them would require the development and deployment of a range of technical, organizational and institutional capacities as well as the careful cultivation of a green innovation ecosystem driven by science and technology. To date, no work, as far as we know, has been devoted to identifying the existing green' capacity assets and additional capacities that would need to be developed by the Federal Republic of Nigeria and her ministries in order to put the Ministry in the position to drive a science-based green growth transition in Nigeria as

encapsulated in the Vision 2020, ERGP and NDCs. Internationally, decades of discourse on capacity building has focused on ad hoc programme implementation with little attention to the long-term human and technical capacity development required to inform action and achieve sustained progress.

CAPACITY IN THE CONTEXT OF GREEN GROWTH

Capacity has been defined in myriad ways and for multiple purposes. In the context of development, UNDP sees it as 'the ability of individuals, institutions, and societies to perform functions, solve problems, and set and achieve objectives in a sustainable manner (UNDP 2006). For Goodman et al (1998), capacity is the ability to achieve stated objectives. In this regard, La Fond et al (2002) considered capacity to be both a process and an outcome. These definitions stress the importance of capacity building for achieving objectives set for sustainable development. The terms 'capacity building and capacity development' are related but different. They both refer to processes through which individuals, institutions, and societies acquire, improve, and maintain the skills needed to achieve certain development objectives (UNDP 2009). The nexus between the two is the focus on the utility of capacity as a tool for transformation, though capacity development includes assessing gaps and needs before building on existing resources (Sutherland 2011). This focus on the assessment of gaps and needs to inform the provision of training services makes capacity development more comprehensive than capacity building. The DFID perceives capacity development differently because, rather than focusing on the institutional and individual levels, it pays keen attention to the organizational level, where inputs and performance can be easily connected (DFID 2006). The DFID approach considers capacity development as an input-output system defined by performance, hence its broad application to publiC sector capacity assessments. The analysis of capacity in the context of green growtn requires a focus on specific gaps, which when filled, contribute to building capacities at individual, organizational, and institutional levels. Whether the goal is to define opportunities that enrich planning and set the course for institutional action, or to track performance, green growth capacity assessments pay attention to the issues, choices, and consequences that determine how capacity needs are evaluated and addressed to achieve specific development purposes.

2.0 METHODOLOGY

The study involved the administration of survey questionnaires at a workshop targeting middle and high-level professionals from one agency, NILEST. (no of participants=40), Officials n=37) from the Federal Ministry of Science and Technology (FMST) were also included in the sample of participants to help with cross-validating accounts from the assessments and to provide a policy level insight into the way capacity issues are conceived and addressed at various levels, The questionnaire included a pool of questions drawn from the review or literature on green

growth issues in Nigeria, the wider academic literature on green growth capacity assessment, previous findings of the GIGGA project, and suggestions made by participants at the workshop. Data collected from these sources was analyzed using descriptive statistics and presented in order of how questions were asked in each questionnaire. The key limitation is the response rate, as in a few instances, some questions were skipped by participants, probably owing to a lack of knowledge and/or skill in relation to some of the techniques and technologies assessed.

DATA COLLECTION

Two data collection techniques were deployed: a Delphi approach and personal interviews using a survey questionnaire. The Delphi technique involved convening experts from the target institution at a workshop to view a presentation on the different capacity issues captured in the study, the specific skills to be assessed for the institution, and the potential ways in which each skill need could be met. The experts were asked for their opinions, a discussion was initiated about the skill sets that needed to be included in the survey questionnaires. The technique involved educating informants about the most innovative and cost-effective ways of achieving the transition to a green economy through targeted capacity development. It also encouraged informants to actively reflect on how a green growth capacity development model can be adapted to their home country and organization, stressing the vital importance of making the model as collaborative, inclusive, integrated, and holistic as possible. This approach shaped the way participants understood the concepts and issues and increased their input regarding which skill areas are particular to some institutions, and which cut across all case organizations. The approach also helped to improve the adequacy of the different response options provided in the survey questionnaires. The survey, on the other hand, involved using a Likert scaled questionnaire to provide numeric descriptions of the opinions of workshop participants regarding capacity gaps and needs for the transition to a green economy in Nigeria. The questionnaires were useful for collecting structured numerical data to compare and contrast case organization and for increasing confidence in the representation of sampling procedures (Silverman 2013). The questions were based mainly on documents in-use in Nigeria, such as reports, laws, project proposals etc, which helped reveal the meanings attributed to green growth in both policy and practice. The reliability of the instruments was enhanced by the type of questions posed and by pre-tests carried out through discussions with some staff members of the FMST whO formed part of the workshop planning team.

SAMPLING

Nigerian Institute of Leather and Science Technology and Federal Ministry of Science and Technology (FMST) itself were selected purposively tor this assessment on the basis that they could be leading structures for the transition to a green economy in the industrial, energy, and agriculture sectors in Nigeria. The selection was also motivated by consultations made with the

Directorate of Environment at FMST, as well as by findings from the review of relevant literature. A brief description of the organization selected is follows: Nigerian Institute of Leather and Science Technology (NILEST) with headquarters in Zaria (Kaduna state) and is a tertiary training and research institute which specializes in manufacturing, processing, and production of leather and related products; Federal Ministry of Science and Technology (FMST) supervises the above agency,. Its key responsibilities include: the formulation, monitoring and review of the National Policy on Science, Technology and Innovation to attain the macro-economic and social objectives of Vision 20:2020 as they relate to science and technology; the promotion and application of Science, Technology and Innovation to increase agricultural and livestock productivity; the improvement of energy reliance through sustainable Research and Development (R&D) in nuclear, renewable and alternative energy sources for peaceful and development purposes; the promotion of wealth creation through support for key industrial and manufacturing sectors; the creation of technology infrastructure and of a knowledge base to facilitate its wide application for development; the application of natural medicine resources and technologies for health sector development; and the acquisition and application of Space Science and Technology as a key driver of economic development.

DATA ANALYSIS

Data analysis involved cross checking survey data to remove errors and identify missing values. Code were assigned to the Likerk scale used in the questionnaire and data was analyzed using descriptive statistical technique. The chart, mainly pie and bar charts helped Summarize result into easly translatable diagrams and thus made the interpretation of data by comparing responses to different questions easier. A statistical package ISPSS version 25 was helpful in analyzing data which was first sorted and coded by hand in a Microsoft 2016 Excel spreadsheet.

DATA LIMITATIONS

Some important shortcomings of the research methodology have been identified. First, the analysis is based entirely on participants' perceptions, which could be subjective or objective, and open to recall bias (Greene 2007). The purposive sampling used to select cases for the study is also prone to social desirability bias (Grimm 2010), as participants may have given socially desirable responses rather than responses truly reflecting their feelings and circumstances, A further limitation to the research methodology is the use of a case study approach, which involved selecting and assessing a number of organizations from across three sectors. The major problem with case studies is data transferability and generalizability, because perception-based surveys produce highly contextualized data. Each of these limitations has been addressed in the study. For example, participants were fully informed about the purpose of the assessment to seek an 'informed consent', thus limiting the extent to which the researcher could impose his own subjective interpretations on them. Moreover, the vital

importance of the transition to a green economy in Nigeria was stressed in a series of slide presentations, helping participants to realize that the survey was the first step of many aimed at improving (greening) their current roles for the benefit of both their organizations and the sector in general. It is believed that this understanding helped the research team to successfully deal with any incidences of social desirability bias.

3.0 RESULTS

A total of 40 participants from NILEST were surveyed for the assessment. 24 participants were male and 16 were female.

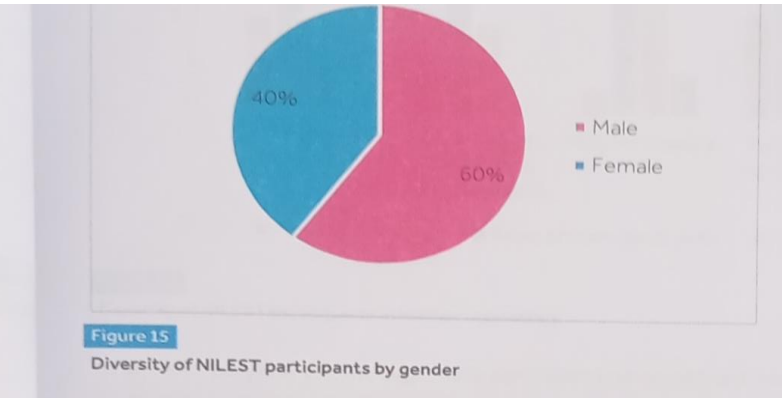
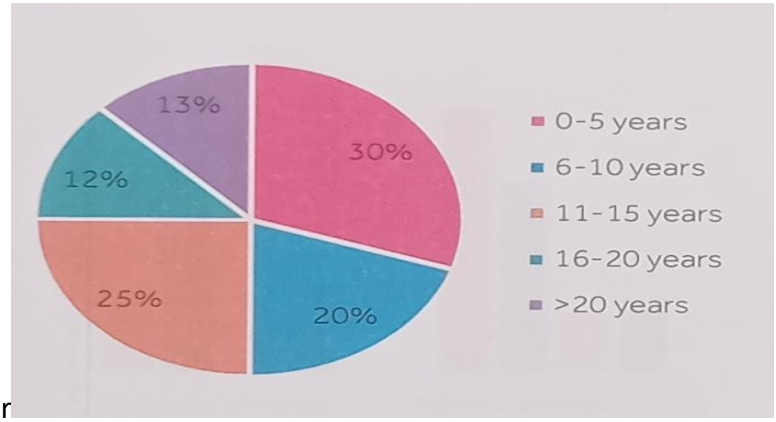


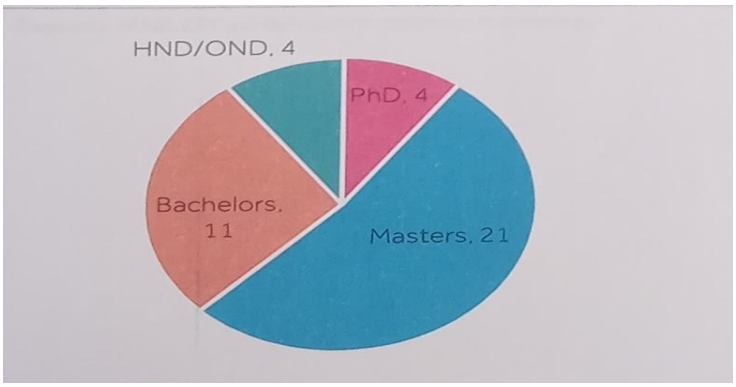
Figure 15
Diversity of NILEST participants by gender

Diversity of NILEST participants by gender



Diversity of NILEST participants by years of service

Many of the participants (about 30%) have spent about 5 years in the workforce. 4 hold a PhD, 21 have a master's degree, 11 have a bachelor's degree, and 4 hold a technician diploma or certificate.



Diversity of NILEST participants by level of education

4.0 FINDINGS & DISCUSSION

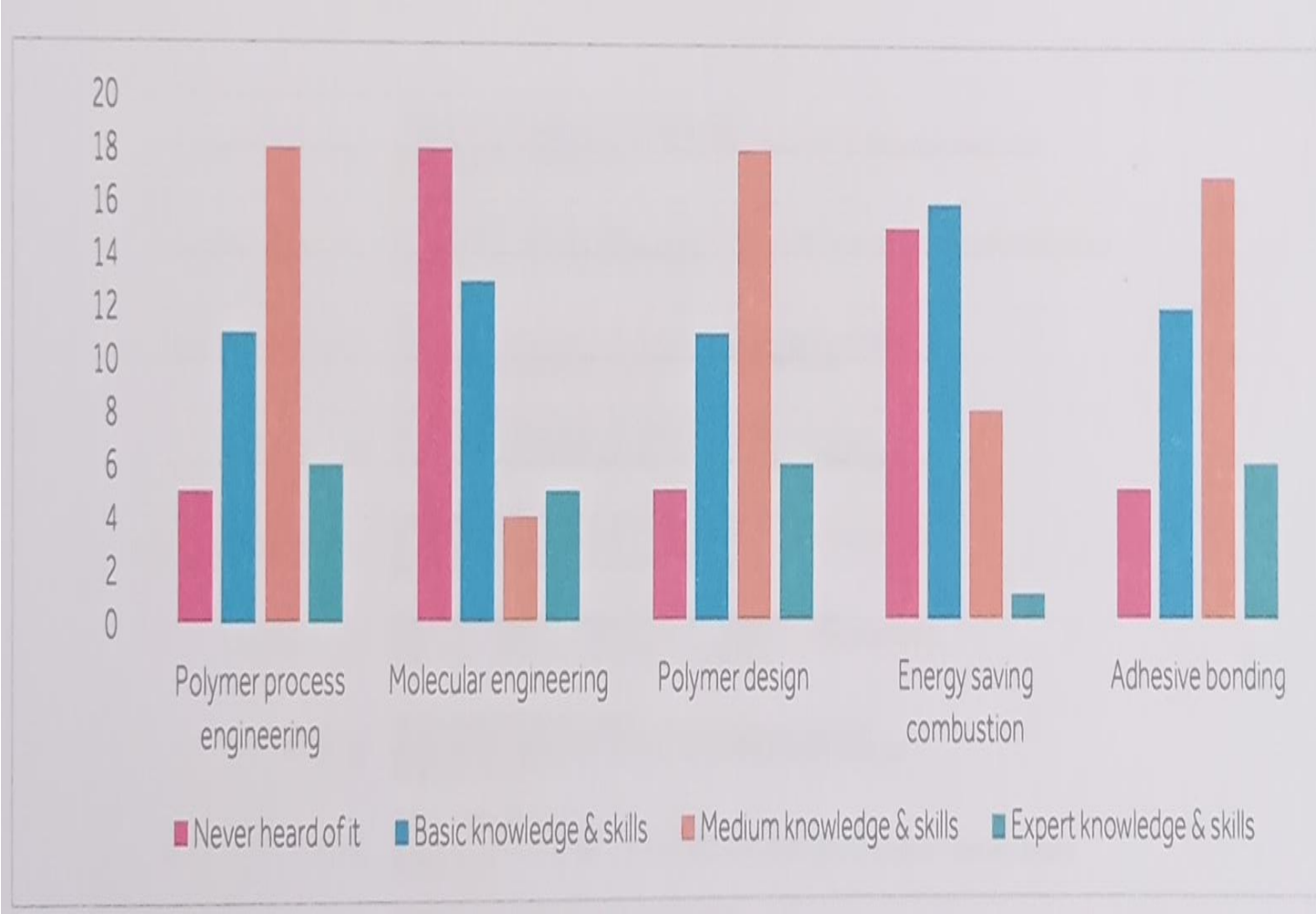
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In terms of leather technology, there were mostly basic knowledge and skills in equipment design, energy modeling, biogas systems, and energy saving combustion. Understandably, the highest capacity (medium knowledge and skills) appeared to be in tanning chemistry.



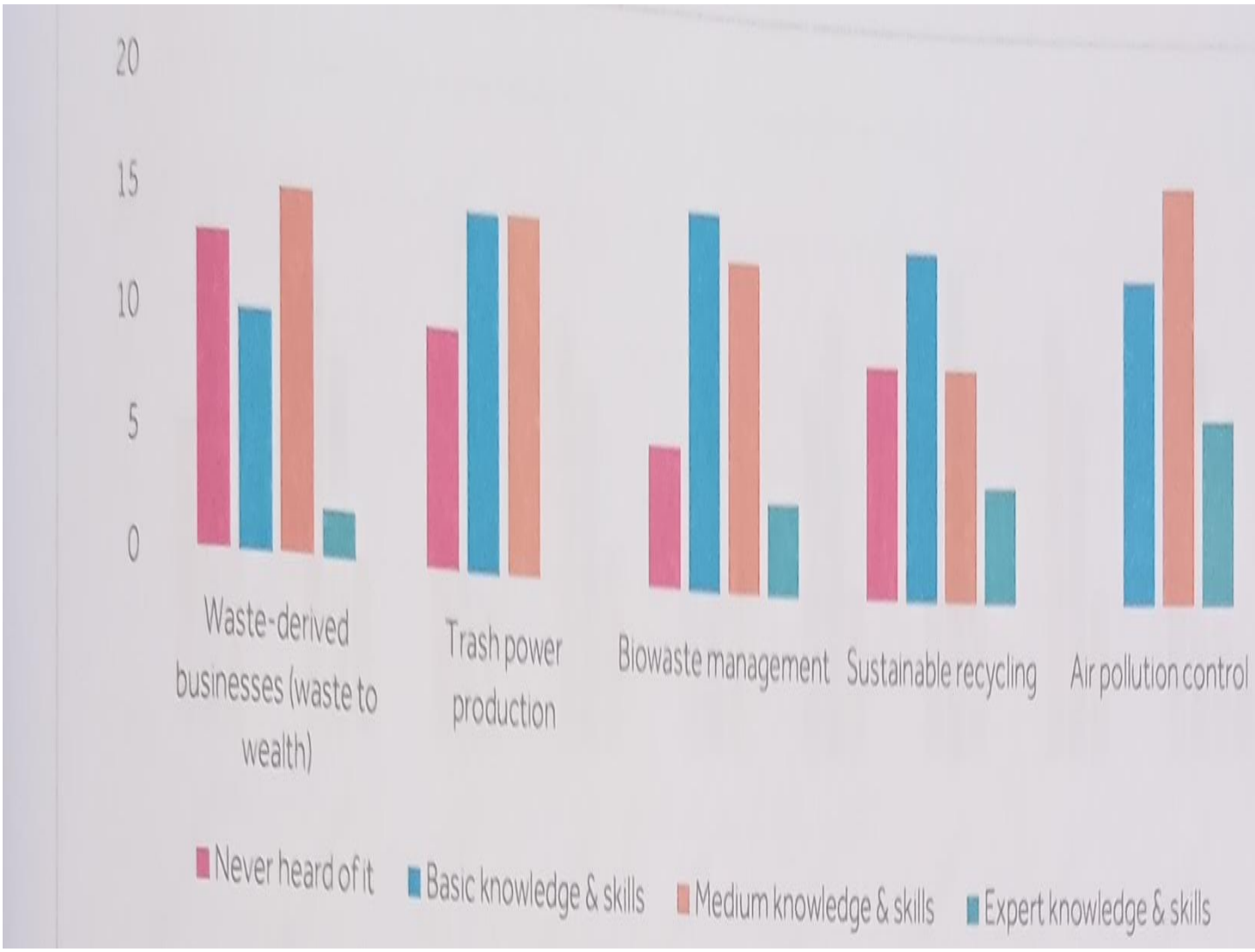
Diversity of NILEST participation in Leather Technology

In terms of polymer technology, many participants demonstrated medium and expert levels of knowledge and skills in polymer design and polymer process engineering, while the least capacity (or knowledge) was noted in molecular engineering.



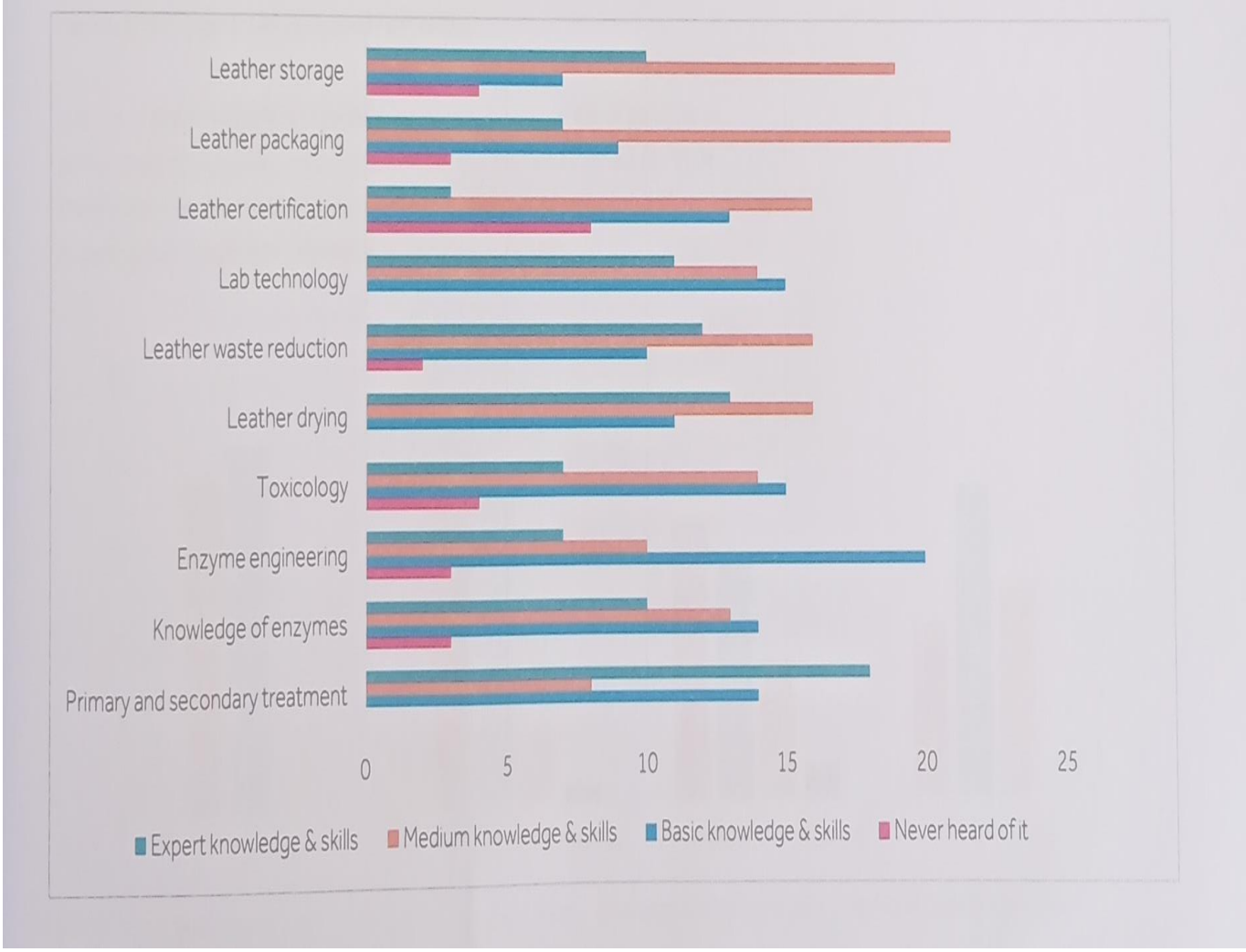
Capacity of NILEST in Polymer Technology

In terms of recycling and bioremediation, medium levels of knowledge and skills were indicated by the majority of participants, with higher levels of knowledge and skills (medium and expert) were observed for air pollution control. Participants had a basic level of knowledge and skills in all of the skill sets assessed under this theme.



Capacity of NILEST in Recycling and Bioremediation

In terms of leather processing, the highest capacity (medium levels of knowledge and skills) demonstrated by many participants was in leather storage, packaging and drying. Participants demonstrated significant expert knowledge in primary and secondary treatment of leather, lab processes,



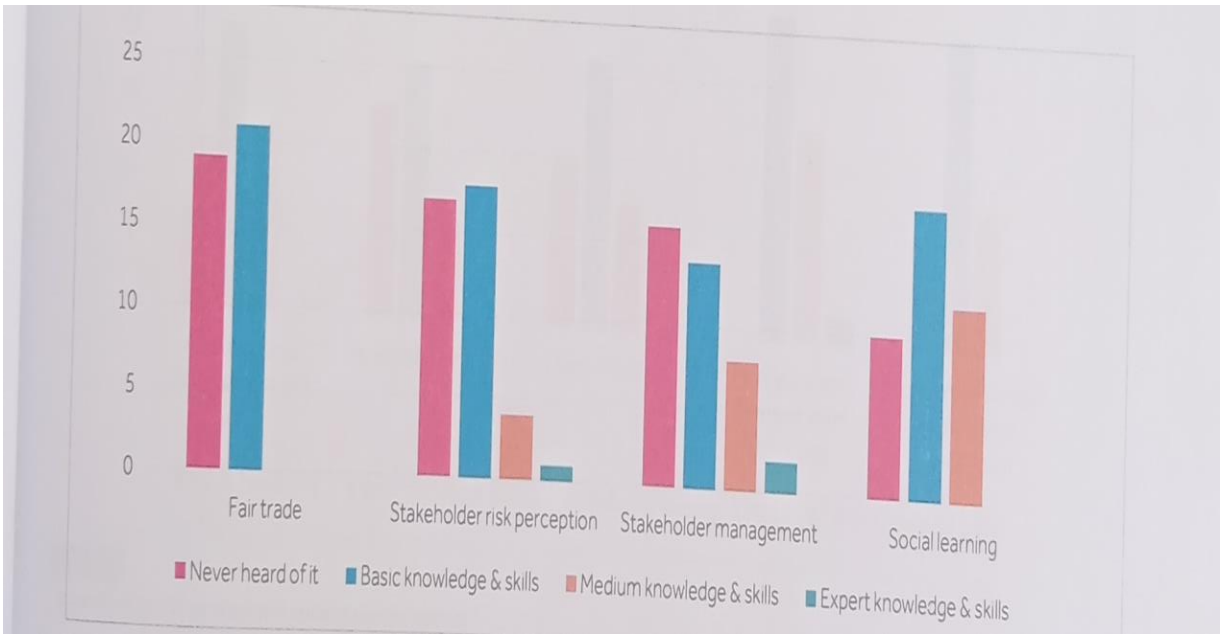
Capacity of NILEST participation in Leather Processing

In terms of standards and auditing, participants lacked expert knowledge and skills in all the issues assessed except in safety standards. The majority indicated that they had never heard of theme like carbon foot printing, energy performance testing and life cycle analysis (LCA)



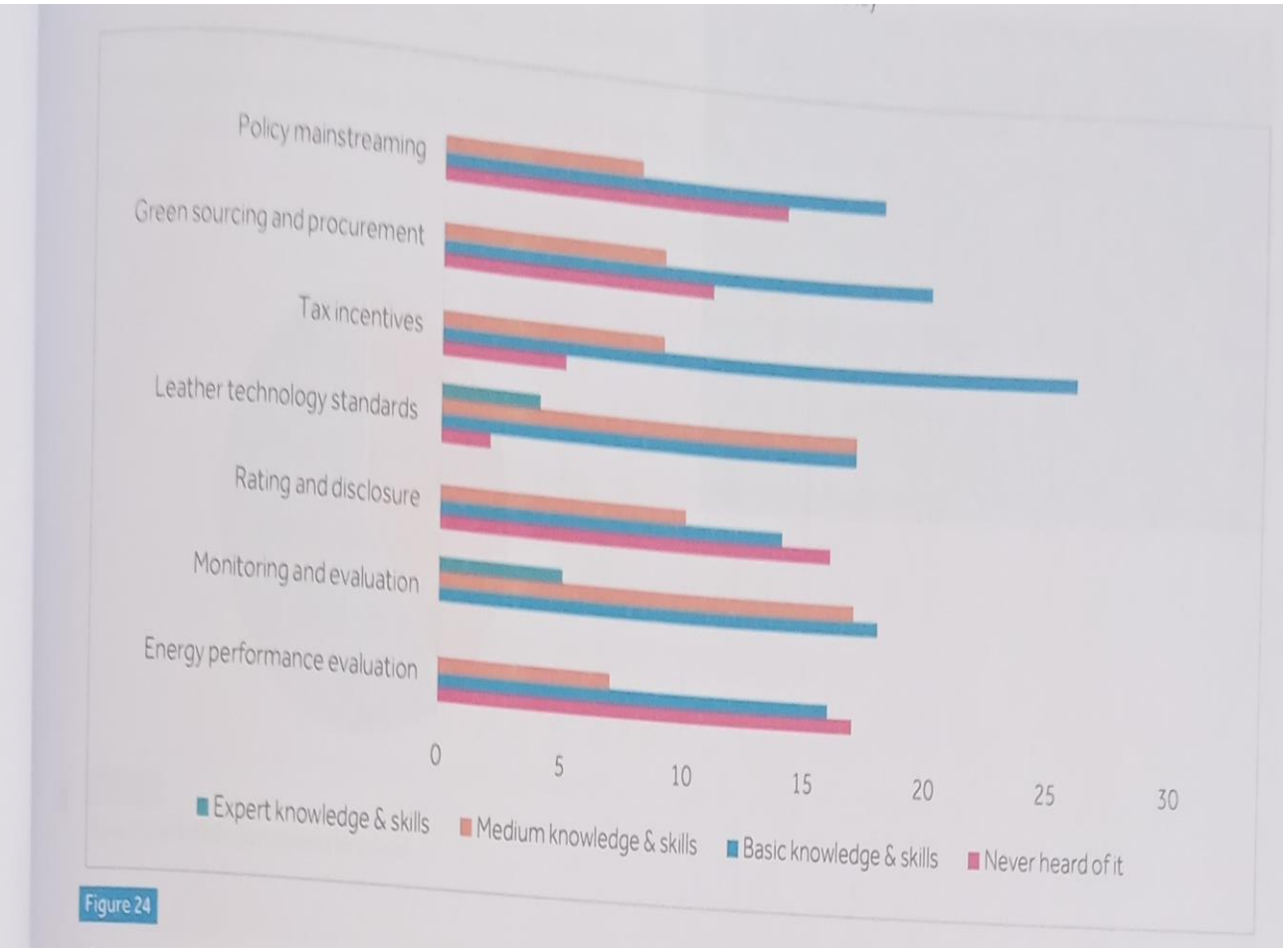
Capacity of NILEST participants in standards and auditing

In terms of environmental and social governance, a large number of participants demonstrated only a basic understanding of the four themes assessed. Fair trade, stakeholder risk perception and stake holder management seemed to be of limited concern to participants, hence their limited knowledge and skill



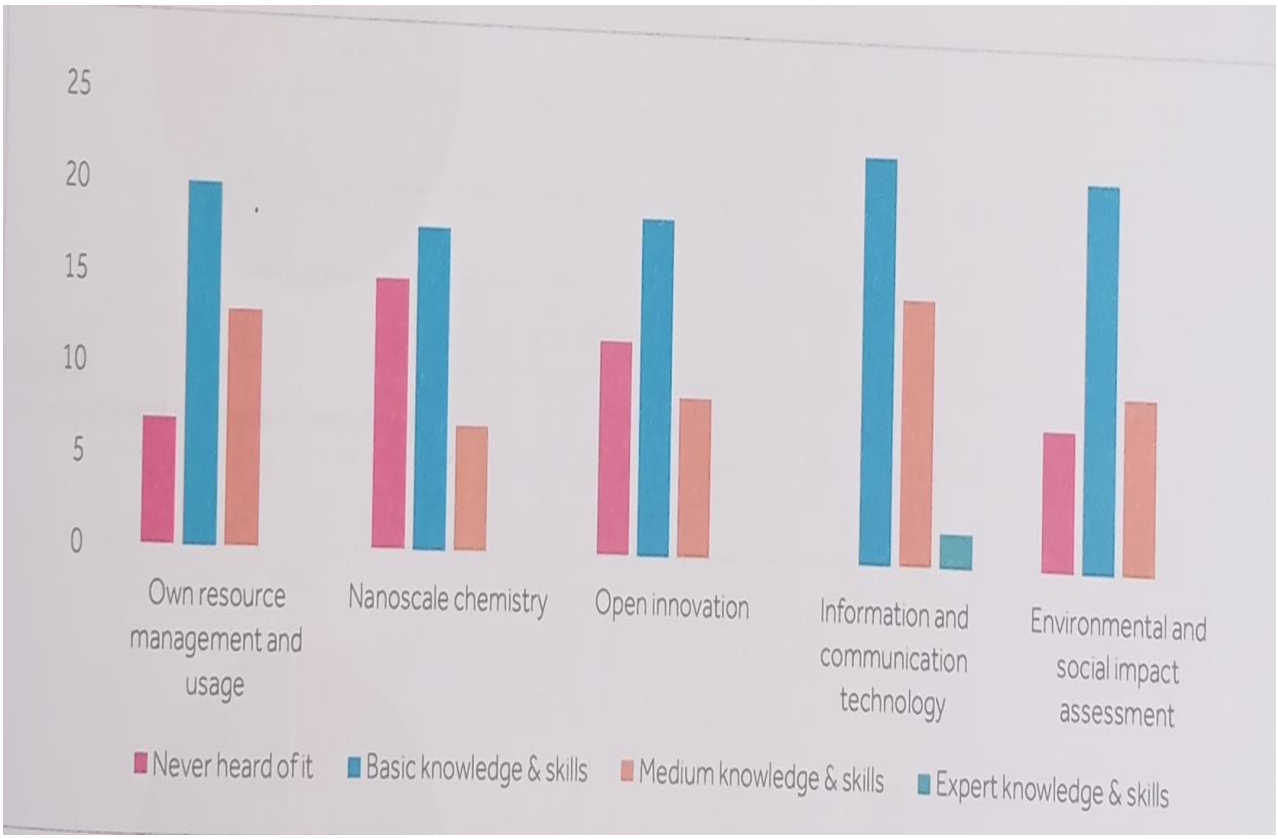
Capacity of NILEST participation in environmental and social governance

In terms of Policy regulation, tax incentive was noted as one of the areas in which sa an mited capacity while monitoring and evaluation was a theme where staff felt they an expert level of knowledge and skill.



Capacity of NILEST participation in Policy and Regulation

In terms of Research and Development, many participants indicated that they had never heard of certain skills such as open innovation and fair trade. More participants have a basic level of knowledge and skills in the four themes analyzed while one person has an expert level of skill in information and communication technology.



Capacity of NILEST participants in Research and Development

The different themes analyzed here indicate the nature of capacity and technology gaps in the case organization. Some of the gaps are significant because the skills are relevant to the delivery of duties at individual and organizational levels. Others are insignificant. When data for the case organization is compared, the findings can be grouped into three major categories: capacities with the highest scores, capacities with the lowest scores, and capacities with no scores at all. These categories are based on the various themes tor which scores have been provided and give a sense of the current availability or expert knowledge and skills, and of the levels to capacity will need to be developed to effectively and efficiently fill the gaps identified.

The staff at NILEST hold significant knowledge and skills in monitoring and evaluation, leather technology standards, leather treatment and storage, lad techniques, and enzyme engineering. Participants from FMST on the other hand seemed more experienced in program and project implementation, human resources development, policy and strategy formation. In terms of capacities with the lowest scores (those with the lowest recorded values for expert knowledge and skills), participants from NILEST had fewer skills in stakeholder management, energy saving combustion, information and communication technology. Participants from FMST Scored a significant need for skills in green leadership, GHG measurement, sustainable public procurement (green sourcing), and climate change modelling. Turning to theme which no

Scores were provided (indicating a total lack of capacity, skills, or knowledge), the following findings were made. NILEST have no capacity in green sourcing and procurement trash power production, knowledge management, standards and auditing, and policy mainstreaming. FMST have shown a lack of capacity in areas including rating and disclosure, green infrastructure design and management. Clearly, organization-specific interventions need to be designed to address skill areas with limited or no capacity, although training areas such as LCA are needed for the case organizations surveyed. Demonstrating that there is limited and no capacity in these areas may be useful in showing case organizations now much they need to do to support the transition to a green economy in Nigeria. It should be noted that many of the gaps identified can be filled through information sharing and knowledge exchange between and among organizations, using approaches such as study tours, star exchanges, and jointly organized training events. For skills such as LCA and others that may be too technical and require progressive development and adaptive management, appropriate and adequate external resources will need to be utilized. Structured programs for internet-based and on-site learning will need to be adopted and expanded based on the real needs and budgets of organizations. Academic programs run by universities within and outside Nigeria may also be useful depending on the long-term capacity needs of individuals and the partnership strategies of organizations.

5.0 CONCLUSION & RECOMMENDATIONS

The capacity and technology gap assessment sought to identify capacity and technology assets and gaps in NILEST and the Federal Ministry of Science and Technology (FMST), in order to understand and explore possibilities for supporting the transition to a green economy in Nigeria. From the results analyzed and discussed, some important conclusions can be drawn: There is a growing demand for knowledge and skills in the context of the green economy in Nigeria; Skills to support the transition to a green economy in Nigeria are set at different levels and are of many types; The complete lack of certain skills shows why targeted capacity development actions are needed and why a distinctive awareness and understanding of the importance of green growth is necessary; Many of the skills required to support the transition are relatively new, hence the low score for majority of the knowledge and skill types assessed; In light of the overlapping areas of authority revealed by how the capacities assessed converge, an attempt to selectively develop capacity risks creating confusion and fostering competition; Gaps in some capacities identified, such as policy and regulation and research and development need to be filled urgently to ensure more efficiency in operations and avoid creating difficulties in promoting evidence-based policy making and implementation: and Monitoring and evaluation and stakeholder engagement seem to have fallen by the wayside in different organisations, as a lack of capacity In these areas was evident across the board. Such gaps could hinder planning and pose challenges to integrated and applied policy analysis

Based on the findings, the following recommendations are made

1. Capacity development efforts should entail a delicate balance between encouraging change from outside, and empowering change-makers from the inside of case organizations;

2. A multi-sectorial vision for capacity development should be conceived and supported provide a common understanding among organizations regarding the most significant gaps to fill in order to meet national and sectorial objectives for green growth;

3. A holistic capacity development vision should identify and capitalize optional opportunities within organization and foster capacities to strengthen organizational performance;

4. Opportunities for cross-organizational learning and capacity development should include links to relevant green growth policies and processes to ensure that broad objectives are incorporated;

5. Coherence between organizations within FMST should be promoted by prioritizing capacity development goals and sequencing efforts to maximize impact;

6. Capacity should be generated for leadership to produce 'champions of change that can collectively promote progressive qualities in sectorial and national growth leadership.

7. Capacity development should focus on ensuring integrated and applied policy analysis because research, monitoring and evaluation capacity are critical for making decisions' and instituting reforms;

8. Capacity development processes should develop meaningful opportunities for cross level participation by providing individualized attention to the capacity needs of organizations

9. To sustain capacity development efforts, modalities for improving the reliability and availability of information and data should be strengthened. The lack of general capacity in some pertinent themes emphasizes the need to developing or strengthen information infrastructure and to build and improve national information systems (includling statistics and monitoring and evaluation), thereby aggregating and stream-lining information collection and dissemination activities, and promoting networking and information sharing among stakeholders.S

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