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ANALYSIS OF CIRCULAR ECONOMY PRACTICES IN YOUTH EMPOWERMENT IN THE OIL PALM INDUSTRY OF OSUN STATE, NIGERIA

Sylvester Adams¹, Olaide Akintunde^{*2}, Akeem Adesigbin¹, Rachael Adeleke¹

¹*Global Affairs and Sustainable Development Institute, GASDI,
Osun State University, Osogbo, Nigeria*

²*Department of Agricultural Economics and Agribusiness Management,
Osun state University, Osogbo, Nigeria*

Abstract: Despite the vast potential of the oil palm industry in Osun State to drive sustainable economic growth through circular economy (CE) practices, youth participation remains critically low and underdeveloped. This study sought to investigate the impacts of CE on youth empowerment in the oil industry of Osun State, Nigeria. Primary data were sourced with the aid of well-structured questionnaire using two-stage sampling procedure to randomly select 150 youths from the study area. Descriptive and inferential statistics such as Pearson correlation were used for data analysis. The results showed that 48 youths (32%) realize they engage in CE efforts concurrently, while 102 youths (68%) do not engage. Some of the biggest challenges preventing circular economy efforts include limited access to funds and credits (78%), limited technical know-how (72%) and limited awareness of the circular economy benefits (68%). Correlation analysis showed that the calculated Z-value was found to be 4.55 as compared to the critical Z-value at 5% significance level (two-tailed) of ± 1.96 .

This proves that barriers and opportunities identified in the study have a significant effect on youth engagement hence emphasizing the need for policies that would reduce the constraints as well as strengthen enabling factors towards circular economy participation.

Keywords: *Youth, empowerment, circular economy, practices, palm oil*

^{*}Corresponding Author. Email Address: olaide.akintunde@uniosun.edu.ng
ORCID number: 0000-0002-5392-4122

INTRODUCTION

The oil palm industry, a principle subsector of Nigeria's agriculture with potential for fostering CE models, has tremendous capacity for innovation, waste reduction as well as the sustainability of palm oil production. In the context of Osun State, Nigeria, the interplay of the demography makes it a necessity for the youth to be engaged in sustainable development. Particularly as the youth population constitute over 60% of the workforce, involving the youth in circular economy practice is crucial in relation to both the unemployment rates and the environmental destruction. [1]. Through CE practices, for instance, youths are afforded microenterprise opportunities that create a positive impact on the environment, linking the project to SDG 8 [2].

While the oil palm sector offers clear opportunities for innovation, waste valorization, and microenterprise development that align with Sustainable Development Goal 8 [3], systemic barriers such as limited access to finance, inadequate policy support, weak cooperative structures, and insufficient training continue to exclude young people—especially those in rural and disadvantaged communities—from fully engaging in and benefiting from CE initiatives [4]. Without targeted interventions to dismantle these structural constraints and promote inclusive youth-led innovation, Osun State risks missing a critical opportunity to transform its oil palm industry into a sustainable, circular model capable of generating economic empowerment, environmental resilience, and social equity for its rapidly growing youth population [1], [4].

Empowered youth and circular economy literature suggest benefits across the board. For instance, CE solutions create opportunities for economic growth and the emergence of leadership, innovation, and social integration [5]. In addition, CE operates with technologies made by young people such as digital access, agricultural technology, and environmentally friendly entrepreneurial frameworks [6]. The other side of the narrative is many institutions are now providing trainings and mentorship sessions to instill the right caliber in the young entrepreneurs to succeed in this place. Leveraging on the Projects while the projects are successful, the wider systemic push for these initiatives are currently disaggregated especially in countries like Nigeria.

In order to enhance the effects of CE in youth empowerment, the approach must be comprehensive. This requires overcoming significant barriers including lack of access to education and financial resources and to knowledge-sharing networks [5]. Strengthening collaboration between academia, industry and policymakers can spark youth involvement and ensure the infusion of CE principles in all sectors [7]. By placing youth at the head of the table in driving the circular economy shift, the oil palm trade in Osun State cannot only meet environmental sustainability but also achieve shared economic growth and social fairness [8], [9]. This will include a firm plan to build up young people, give them incentives to take part, and provide a good setting for their success [10], [11]. The circular economy in the Oil Palm sector of Osun State, Nigeria brings a unique channel for youth empowerment and sustenance of development.

MATERIAL AND METHODS

Study Area

Osun is an agrarian State in south west of Nigeria. Its capital is located at Osogbo. It is bounded in the north by Kwara State, in the east partly by Ekiti and Ondo States, in the south by Ogun State and in the west by Oyo State. It has substantial farm settlements and some oil palm production activities. The state has several farm settlements where oil palm production and processing activities are concentrated.

The average annual rainfall is 52.35 inches (1,330 mm), though there are great deviations from this mean value from year to year. Usually, the rainy season lasts from April to October. The topography of the Local Government Area is hilly, so crops grown there are tree crops, Cocoa, Kolanut, Coconut, Oil palm and arable crops such as yam, cassava and pepper.

Sampling Technique and Sample Size

The study was carried out using a two-stage sampling procedure. The first stage involves the purposive selection of three (3) farm settlements in the Osun West Senatorial District due to the preponderance of the palm oil production activities in the State. The selected farm settlements include Ago-Owu farm settlement, Orile-Owu farm settlement, and Mokore Farm Settlement. The second stage is the random selection of fifty (50) youth that are engaged in oil palm processing in each of the three (3) farm settlements to make a total of 150 youths.

Method of Data Analysis

The tools that were used in analyzing collected data include; descriptive statistics and inferential statistics. Simple descriptive statistics such as means, percentages and frequency distribution were used to describe youth participation in oil palm production in the concept of CE. Also, Pearson correlation was used to test the research hypotheses and examined the relationships among variables.

RESULTS AND DISCUSSION

Level of awareness and understanding of circular economy among youth in the oil palm enterprise

Table 1 presents Level of awareness and understanding of circular economy among youth in the oil palm enterprise. The results in Table 1 show that the the majority of respondents (68.67%) have heard about circular economy but do not understand it, suggests that they are only familiar with the concept at a surface level. Approximately 29.33% understand how circular economy works at a low level with only 0.67% declaring that they understand it at a medium/high level. Furthermore, another 0.67% has never heard about it. Therefore, this indicates that while there are some levels of awareness among youths about the concept, awareness is not enough, for the levels of knowledge are critically low which goes to show that more education and sensitization needs to be done for these youths to understand more about the concept and how it may be effective for them in the future.

Table 1. Level of awareness and understanding of circular economy among youth in the oil palm enterprise

Characteristics	Frequency	Percentage (%)
Heard but don't understand	103	68.67
Basic	44	29.33
Never Heard	1	0.67
Moderate	1	0.67
Advanced	1	0.67

Source: Field Survey Data, 2024.

Youth currently involved in circular economy practices in the oil palm enterprise

Table 2 presents engagement of the youth circular economy practices in the oil palm enterprise in the study area. Youth engagement in circular economy (CE) efforts in the oil palm industry, however, indicated that none of the youths are currently engaged. From the 150 respondents, 48 youths (32%) realize they engage in CE efforts concurrently, while 102 youths (68%) do not engage. Therefore, a low practical engagement gain for CE exists amongst youths, despite varying degrees of awareness. In addition, engagement occurs based on certain areas of the oil palm value chain.

Processors are the most engaged with 33 processors engaging in CE versus 16 not. On the other hand, the marketer group is not very involved either, as only 3 of 46 respondents engage in CE. The same goes for the farmer group—when combining the two entries of "Farmer" and "farmer"—boasts 54 persons not applying CE but only 12 involved. Therefore, the results show that processors are currently the only segment applying for CE, while farmers and marketers have significantly lower participation. This implies that something needed it along the value chain for support and awareness to increase youth participation in circular economy activities.

Table 2. Distribution of involvement of youth in circular economy practices in the oil palm enterprise

Involvement in CE	Frequency	%
Yes	48	32
No	102	64

Source: Field Survey Data, 2024.

Hypotheses Testing**First Hypothesis**

H₀: There is no significant difference among youth in the oil palm industry in terms of their awareness and knowledge of circular economy.

H₁: There is a significant difference among youth in the oil palm industry in terms of their awareness and knowledge of circular economy.

The test of hypothesis examined whether the knowledge level of the circular economy among young people varies significantly with a hypothetical mean of 50%. The value of Z for 150 respondents was computed to be 2.60, $1.96 \pm$ at a 5% level of significance. Z is 9 and it is higher than the critical Z; therefore, the null hypothesis should be rejected. This result indicates that the level of awareness and understanding among youth in the oil palm

enterprise is significantly higher than the average baseline, reflecting a generally good awareness of circular economy practices.

Second Hypothesis

H₀: Youth do not actively participate in circular economy projects within the palm oil enterprise to a significant degree.

H₁: Youth actively participate in circular economy projects within the palm oil enterprise to a significant degree.

The null hypothesis was that the children spend 10 hours per week on activities of a circular economy that make a difference. The calculated Z was 6.13 (based on 150 respondents), which is higher than the critical Z value of ± 1.96 for a 5% level of significance. The null hypothesis is thus rejected. This means that the level of involvement of the youth is much greater than the neutral value and that positive has been shown strong engagement in circular economy practices in the communities.

Third Hypothesis

H₀: Barriers and opportunities do not significantly affect youth participation in circular economy efforts.

H₁: Barriers and opportunities significantly affect youth participation in circular economy efforts.

The test established whether barriers and opportunities have a significant influence on youth participation in circular economy initiatives. From a correlation result, the calculated Z-value was found to be 4.55 as compared to the critical Z-value at 5% significance level (two-tailed) of ± 1.96 . Since this calculated Z-value is greater than the critical Z, the null hypothesis is not accepted. This proves that barriers and opportunities identified in the study have a significant effect on youth engagement hence emphasizing the need for policies that would reduce the constraints as well as strengthen enabling factors towards circular economy participation.

The key barriers and opportunities influencing youth participation in circular economy initiatives in the oil palm value chain in the study area

Table 3 presents the major constraints and opportunities influencing youth participation in circular economy initiatives in the oil palm value chain in the study area. Table 3 reveals that some of the biggest challenges preventing circular economy efforts include limited access to funds and credits (78%), limited technical know-how (72%) and limited awareness of the circular economy benefits (68%). In addition, 64% of survey participants responded that there is insufficient government support and policy, 60% claim there is insufficient market access for resale of recycled goods, and 55% say there is cultural stigma against reuse of waste. Among the other challenges are high costs of new recycling machinery (50%), low institutional support (48%) and poor infrastructure such as bad roads and storage (45%), low collaborative efforts between stakeholders (40%).

On the contrary, many opportunities were revealed with much potential for increased youth involvement. The greatest opportunity was the availability of excess raw materials like oil palm waste (85%) and a growing market for green products (80%). 75% claim that the government's attention to sustainable development is a facilitative factor. Other opportunities include the willingness of youth to embrace new innovations (72%), availability of training and capacity building (70%) and the presence of partnerships with NGOs and developmental agencies (65%).

Finally, among the other opportunities are the potential for job and income generation (60%), community sensitizations (58%), access to social media platforms for product sale (55%) and improved R&D and technological innovation (50%). These results are presented in percentages so that an analytical approach for a weighted sense of what challenges and opportunities mean most relative to youth engagement in circular economy efforts. The overwhelming data presents stakeholders with the necessary information to minimize the greatest challenges and advocate for the greatest opportunities. Ultimately it establishes an efficient environment in which youth can take action and be empowered agents of sustainable development within the oil palm value chain in Osun State.

CONCLUSIONS

This study fills the gap in information regarding the major challenges and opportunities available to youths engaging with circular economy initiatives along the oil palm value chain in Osun State. While youths generally are aware of the potentials of circular economy initiatives and want to participate, there are many challenges that stop them from taking action. The most significant challenges preventing youths from participating include no access to funds and credits, no technical know-how and poor awareness. Yet with excess raw materials available and increased market demand for eco-friendly products, there are positive opportunities that could increase levels of participation for more sustainable efforts. These can help enhance youth participation in the circular economy while aligning with various SDGs. Policymakers and stakeholders seeking to improve sustainability should first prioritize available funding and credit options that cater directly to young people involved in the oil palm industry. They should also conduct practical training, attitudinal change campaigns regarding recycling/reuse and skills acquisition to determine the socio-cultural aversions and technical gaps that create negative challenges. Government agencies, NGOs and the private sector should operate continuously with one another to provide regulations and supports relative to digital avenues where young people can sell creations from recycled materials while continuously seeking options for value addition

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ANALIZA PRAKSE PRIMENE CIRKULARNE EKONOMIJE U OSNAŽIVANJU MLADIH U INDUSTRIJI PALMINOG ULJA U DRŽAVI OSUN, NIGERIJA

Sylvester Adams¹, Olaide Akintunde², Akeem Adesigbin¹, Rachael Adeleke¹

¹*Global Affairs and Sustainable Development Institute, GASDI,
Osun State University, Osogbo, Nigeria*

²*Department of Agricultural Economics and Agribusiness Management,
Osun State University, Osogbo, Nigeria*

Abstract: Uprkos velikom potencijalu industrije palminog ulja u državi Osun, Nigerija, za podsticanje održivog ekonomskog rasta kroz prakse cirkularne ekonomije (CE), učešće mladih i dalje je izuzetno nisko i nedovoljno razvijeno.

Ova studija imala je za cilj da ispita uticaj cirkularne ekonomije na osnaživanje mladih u industriji palminog ulja u državi Osun, Nigerija.

Primarni podaci su prikupljeni pomoću jasno strukturisanog upitnika, primenom dvostepenog uzorkovanja radi nasumičnog odabira 150 mladih iz oblasti istraživanja. Za analizu podataka korišćene su deskriptivne i interferencijalne statističke metode, uključujući Pearson korelaciju.

Rezultati su pokazali da 48 mladih (32%) shvata da istovremeno učestvuje u aktivnostima cirkularne ekonomije, dok 102 mlade osobe (68%) ne učestvuju.

Neke od najvećih prepreka sprovođenju cirkularne ekonomije uključuju ograničen pristup finansijskim sredstvima i kreditima (78%), nedostatak tehničkog znanja (72%) i nedovoljnu svest o prednostima cirkularne ekonomije (68%).

Korelaciona analiza je pokazala da je izračunata Z-vrednost iznosila 4,55, u poređenju sa kritičnom Z-vrednošću od $\pm 1,96$ na nivou značajnosti od 5% (dvostruki test).

Ovo potvrđuje da identifikovane prepreke i mogućnosti imaju značajan uticaj na angažovanje mladih u industriji prerade palminog ulja, čime se naglašava potreba za politikama koje bi smanjile ograničenja, kao i ojačale faktore koji podstiču učešće u cirkularnoj ekonomiji.

Ključne reči: *Mladi, osnaživanje, cirkularna ekonomija, prakse, palmino ulje*

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