



---

## **Artificial Intelligence and Indigenous Knowledge Systems for Enhanced Environmental Journalism in Akwa Ibom State, Nigeria**

**Patience S. Essien**

Faculty of Communication and Media Studies  
University of Uyo, Uyo

**Iniobong C. Nda**

Faculty of Communication and Media Studies  
University of Uyo, Uyo

and

**Akanimo C. Attang**

Faculty of Communication and Media Studies  
University of Uyo, Uyo

### **Abstract**

With the prevalence of challenges such as climate change, biodiversity loss, resource depletion, and environmental degradation, the role of environmental journalism has become increasingly crucial in shaping public discourse and informing policymakers. This study investigated the artificial intelligence and indigenous knowledge systems for enhanced environmental journalism in Akwa Ibom State, Nigeria. Four specific objectives and four research questions guided the study. A cross sectional survey research design was adopted for the study using the population of 855 journalists in Akwa Ibom State and the sample of 86 journalists from the study area. The participants of this study were selected using simple random sampling technique. Data were collected using a structured questionnaire titled "Artificial Intelligence and Indigenous Knowledge Systems for Enhanced Environmental Journalism Questionnaire (AIIKSEEJQ)." The instrument was validated by three experts and had a reliability coefficient of 0.78 with Cronbach Alpha statistics. The researcher and trained research assistants visited the selected vending clusters to administer the questionnaire. Data collected were analysed using mean statistics. Findings of the study indicated that the extent of integration of AI environmental journalism was low while the extent of

integration of IKS was high. Furthermore, both AI and IKS were perceived to be highly beneficial to environmental journalism in Akwa Ibom State. It was concluded that although Artificial intelligence (AI) is lowly integrated and indigenous knowledge systems (IKS) is highly integrated for enhanced environmental journalism, both AI and IKS hold immense potential for enhancing the sustainability of environmental journalism, particularly in Akwa Ibom State, Nigeria. It was recommended, among others, that journalists should establish collaborative platforms that bring together indigenous communities, researchers, technology experts to gain adequate knowledge for effective reportage on environmental related issues.

**Keywords:** Algorithmic Reporting, Indigenous Epistemologies, Climate Communication, Knowledge Sovereignty, Digital Tools.

### **Introduction**

Globally, environment and environmental issues have become increasingly prominent and major concerns for all. The interconnectedness of these environmental components such as the lithosphere, hydrosphere, biosphere, anthroposphere and atmosphere have become increasingly evident in recent years. Environmental challenges, such as climate change, biodiversity loss, and resource depletion, cannot be addressed in isolation, but rather require an integrated, holistic approach that considers the complex interactions and feedbacks among these components (Kumar, 2018). With the prevalence of challenges such as climate change, biodiversity loss, resource depletion, and environmental degradation, the role of environmental journalism has become increasingly crucial in shaping public discourse and informing policymakers. Addressing these interconnected environmental challenges requires not only an integrated understanding of ecological systems but also effective communication among the diverse actors responsible for environmental governance and sustainable development. Environmental journalism can serve as a vital bridge between indigenous communities, technology experts, and policymakers, facilitating the exchange of knowledge and perspectives. As the interface between scientific knowledge, policymakers, and the general public, journalists have the power to shape public discourse, raise awareness, and influence decision-making processes that can lead to meaningful environmental action. Deuze and Witschge (2018) note that environmental journalism can serve as a watchdog, holding governments, corporations, and other stakeholders accountable for their environmental practices and policies. Additionally, environmental journalists can play a crucial role in highlighting the interdisciplinary nature of the integration of indigenous knowledge, scientific expertise, technological innovation, and environmental policymaking, and foster collaborations and knowledge-sharing

among various fields, such as environmental science, technology, anthropology, and policymaking (Mocatta, 2024). By facilitating cross-disciplinary dialogues and showcasing innovative case studies, journalists can catalyze the broader adoption and adaptation of these integrated approaches. Traditional or indigenous knowledge systems and advanced technologies, such as artificial intelligence (AI), have emerged as a promising approach to enhance the sustainability of environmental management practices.

Indigenous knowledge systems (IKS) refer to the accumulated knowledge, skills, and practices developed by indigenous or local communities over generation that reflect their unique cultural, environmental, and historical contexts. These knowledge systems are often orally transmitted and embedded within the traditional beliefs, values, and livelihood practices of indigenous peoples worldwide. According to the United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2017), indigenous knowledge systems comprise the understandings, practical skills, and philosophical worldviews that communities develop through long-term interaction with their natural environments. This indigenous knowledge, rooted in cultural traditions and lived experiences, has the potential to complement and enrich scientific knowledge, leading to more holistic and contextually-relevant strategies for environmental stewardship.

Nigeria is a country with rich tapestry of indigenous knowledge systems which are instrumental in shaping sustainable land use, water management, and biodiversity conservation practices. Indigenous knowledge is a local knowledge that is peculiar to a particular society. It is referred to as folk knowledge, people's knowledge, traditional science or traditional wisdom. According to Agada *et al.* (2022), indigenous knowledge is usually generated and transmitted by communities, in an attempt to solve their own societal challenges such as ecological and socio-economic problems. Indigenous knowledge is passed from generation to generation, usually by word of mouth and cultural rituals, and has been the basis for agriculture, food preparation and conservation, health care, education, and a wide range of other activities that sustain a society and its environment in different parts of the world for many centuries.

In Nigeria, the diversity in indigenous communities and their corresponding knowledge systems offer a unique opportunity to explore the synergies between traditional ecological wisdom and technological advancements. Nigeria's rich natural resource base, ranging from vast agricultural lands to extensive forest ecosystems and abundant water resources, underscores the importance of developing sustainable management strategies that draw upon both indigenous and scientific knowledge. Ens *et al.* (2015) note that IKS can offer valuable insights into sustainable resource management practices, such as rotational farming, selective hunting, and controlled burning, which have been developed and refined over centuries of

coexistence with the land. These traditional practices often stand in contrast to the resource-intensive and environmentally damaging approaches promoted by dominant economic and political systems, as highlighted by Mistry and Berardi (2016). Agada et al. (2022) reiterate that the sustainable development and management of resources cannot be achieved unless members of society have equal access to knowledge, a view that underpins the concept of the knowledge society for sustainable development. Sustainable development emphasises progress across all aspects of human life that promote long-term sustainability, while emerging technologies such as Artificial Intelligence have been introduced to facilitate sustainable processes.

Globally, AI is employed in diverse domains such as healthcare, finance, manufacturing, transportation, retail, and entertainment. Artificial Intelligence facilitates disease diagnosis, drug discovery, personalized treatment plans, and predictive analytics for patient outcomes in healthcare. Financial institutions utilize AI for fraud detection, risk assessment, algorithmic trading, and customer service automation. Artificial Intelligence enhances production efficiency, quality control, predictive maintenance, and supply chain optimization in manufacturing. Transportation sectors leverage AI for autonomous vehicles, traffic management, route optimization, and logistics planning (Kapatamoyo, 2024). Artificial Intelligence's advanced analytics, machine learning algorithms, and predictive modeling capabilities enable organizations to make data-driven decisions and optimize processes (Agrawal *et al.*, 2023). By automating repetitive tasks, AI enhances efficiency and productivity while fostering innovation in product development and service delivery. Moreover, AI aids in risk management by detecting anomalies and predicting potential risks, supports regulatory compliance through automated monitoring and reporting of compliance requirements, and facilitates workforce transformation by automating routine tasks, enhancing decision-making, and enabling employees to focus on more complex and creative responsibilities. Agrawal *et al.* (2023) add that by framing AI within the context of digital transformation, organizations, and governments can harness its potential to drive strategic insights, anticipate market trends, and adapt to changing business landscapes, ultimately driving growth and competitiveness in today's digital era.

The integration of indigenous knowledge with emerging technologies, such as AI, holds immense potential for enhancing the sustainability of natural resource management. AI-powered tools can facilitate the documentation, analysis, and integration of indigenous knowledge, enabling the co-creation of innovative solutions that are tailored to local environmental and socio-cultural conditions. Moreover, the pivotal role of environmental journalism in fostering environmental management using various forms of media channel ranging from traditional media such as newspapers, magazines and television, to online platforms and social

media, and the types of publications in them, including: special columns, programmes, news articles, blogs and online portals cannot be over emphasized.

Alimzhanova *et al.* (2025) note that environmental journalism exerts impact on public consciousness, including informing policymakers, raising awareness and empathy, changing readers' behaviour towards the environment, promoting sustainable practices and influencing corporate behaviour. Diakopoulos (2019) investigated the application of AI-powered fact-checking and verification tools in journalism. The findings indicated that the use of these technologies enabled journalists to combat the spread of misinformation and ensure the integrity of their reporting, particularly in the context of rapidly evolving environmental crises. Similarly, Thurman *et al.* (2019) explored the impact of AI-driven personalization and targeting on audience engagement in news consumption. Their findings suggest that the use of AI algorithms to tailor content to individual preferences and interests can foster greater audience involvement and reach, which is crucial for environmental journalism seeking to engage diverse stakeholders. The extant literature has substantially advanced understanding of environmental journalism, artificial intelligence, and indigenous knowledge systems within their respective domains. However, the existing body of knowledge indicates that these concepts have predominantly been examined from separate perspectives rather than as complementary approaches to sustainable environmental management. For example, Diakopoulos (2019) focused on the application of artificial intelligence in journalism through AI-powered fact-checking and verification tools to improve the credibility of news reporting, while Thurman *et al.* (2019) examined the use of AI-driven personalisation to enhance audience engagement in news consumption. Similarly, Oyindoubra Timi-Wood (2025) explored the role of journalism in mediating indigenous knowledge within Nigeria's digital transformation. Although these studies have contributed significantly to the understanding of their respective subject areas, they provide limited evidence on how environmental journalism can facilitate the integration of artificial intelligence and indigenous knowledge systems for sustainable environmental management. This gap is particularly evident in the Nigerian context, especially in Akwa Ibom State, where empirical evidence on the convergence of environmental journalism, artificial intelligence, and indigenous knowledge systems remains scarce. It is this conceptual and contextual gap that the present study seeks to address by examining the nexus between environmental journalism, artificial intelligence, and indigenous knowledge systems in promoting sustainable environmental management in Akwa Ibom State.

## **Theoretical Framework**

### **Technological Determinism Theory by Marshall McLuhan (1962)**

The theory was developed by Marshall McLuhan in 1962. Technological Determinism Theory posits that communication technologies shape how individuals think, feel, and act, as well as how society functions. The theory further maintains that as societies transition from one technological age to another, such as the tribal, literate, print, electronic, and Internet ages—the ways in which people communicate, interact, and organise social life are transformed (Tribal–Literate–Print–Electronic–Internet). The core premise of the theory is that technology is not merely a neutral tool, but rather a force that shapes and transforms the way individuals, organizations, and societies function.

The technological determinism theory is relevant to the present study in that it provides a valuable lens through which to examine the potential impact of integrating AI technologies with indigenous knowledge systems on natural resources management and environmental journalism in Nigeria. It highlights the transformative potential of AI technologies in the realm of natural resources management. As AI-powered systems become increasingly integrated with traditional indigenous knowledge, they have the capacity to revolutionize the way environmental data are collected, analysed, and utilised for sustainable decision-making. This technological integration can lead to more efficient, data-driven approaches to resource allocation, conservation, and environmental protection, ultimately shaping the socio-economic and environmental landscape of Nigeria.

### **Statement of the Problem**

The need for effective and impactful environmental journalism in Nigeria is paramount, as the country faces a myriad of pressing environmental challenges, including deforestation, pollution, climate change, and the depletion of natural resources (Adedeji et al., 2019; Akpan & Effiong, 2020). However, the current state of environmental reporting in Nigeria has been criticized for its limited reach, lack of in-depth analysis, and failure to adequately engage with local communities and their knowledge systems (Olusegun & Babarinde, 2020; Nnamani & Ogbodo, 2019).

Despite the advancements in artificial intelligence (AI) and the growing recognition of the value of indigenous knowledge systems (IKS) in addressing environmental issues, the integration of these two domains within the context of environmental journalism in Nigeria remains largely unexplored. The potential synergies between AI and IKS, such as enhanced data analysis, improved community engagement, and culturally-relevant reporting, have not been fully harnessed to strengthen environmental journalism in the study area. It is against this backdrop that the study aims to investigate the potential of the intersection between artificial

intelligence and indigenous knowledge systems for improved environmental journalism in Akwa Ibom State, Nigeria.

### **Objectives of the Study**

The main purpose of this study was to determine the artificial intelligence and indigenous knowledge systems for enhanced environmental journalism in Akwa Ibom State, Nigeria. The study specifically aimed to determine:

- i. The extent artificial intelligence is being integrated into environmental journalism practices in Akwa Ibom State, Nigeria.
- ii. The extent indigenous knowledge system is being integrated into environmental journalism practices in Akwa Ibom State, Nigeria.
- iii. The perceived benefits of incorporating artificial intelligence into environmental journalism in Akwa Ibom State, Nigeria.
- iv. The perceived benefits of incorporating indigenous knowledge system into environmental journalism in Akwa Ibom State, Nigeria.

### **Research Questions**

The following research questions guided the study:

- i. To what extent is artificial intelligence being integrated into environmental journalism practices in Akwa Ibom State?
- ii. To what extent is indigenous knowledge system currently being integrated into environmental journalism practices in Akwa Ibom State, Nigeria?
- iii. What are the perceived benefits of incorporating artificial intelligence into environmental journalism in Akwa Ibom State, Nigeria?
- iv. What are the perceived benefits of incorporating indigenous knowledge system into environmental journalism in Akwa Ibom State, Nigeria?

### **Research Methods**

#### **Research Design**

The study adopted a cross sectional survey research design. This design seek to collect data from a sample in order to describe characteristics, perceptions and behavioural patterns of a population as they occur naturally without manipulation (Creswell and Creswell, 2023). It is particularly suited to studies examining real-world utilization of digital tools for environmental journalism, as it allows for the aggregation of respondents' views and behaviours in a systematic and quantifiable manner. In this study, the design enabled an assessment of the level of awareness and utilization of AI and IKS for enhanced environmental journalism in Akwa Ibom State.

### **Area of the Study**

The study was conducted in Akwa Ibom State, Nigeria. Akwa Ibom State is located in the southern part of Nigeria, along the coast of the Atlantic Ocean. It is situated within the Niger Delta region and shares borders with Cross River State to the east, Abia State to the north, and Rivers State to the west. Akwa Ibom State has a rich cultural heritage, with a vibrant tradition of arts, music, and storytelling. Agriculture, fishing, and small-scale industries are the mainstays of the state's economy, with a growing service sector, including tourism and information technology. While the state has made strides in infrastructure development and social services, challenges such as limited access to healthcare, education, and basic amenities remain prevalent, particularly in rural areas. Environmental issues, such as oil spills, deforestation, and coastal erosion, also pose significant challenges for the state's sustainable development. This diverse physical, demographic, and socio-economic landscape of Akwa Ibom State presents both opportunities and challenges for the integration of artificial intelligence and indigenous knowledge systems in environmental journalism in the study area.

### **Population of the Study**

The target population of the study comprised of 855 journalist in Akwa Ibom State (National Union of Journalists, Akwa Ibom State Chapter, 2025).

### **Sample and Sampling Technique**

The sample of 86 journalists being 10% of the population was used for the study. This is supported by Saunders et al. (2016) who asserted that a sample size of 10% of the population can be considered appropriate, particularly in situation where the population is large and the desired level of precision is not extremely high. Simple random sampling technique was adopted to select for participants for the study.

### **Instrumentation**

The instrument for data collection was a structure questionnaire titled "Artificial Intelligence and Indigenous Knowledge Systems for Enhanced Environmental Journalism Questionnaire (AIKSEEJQ)." The questionnaire was divided into two sections. Section A elicited information on extent of integration of Artificial Intelligence into environmental journalism, Section B contained items measuring the extent of integration of Indigenous Knowledge system, Section C elicited information on perceived benefits of Artificial Intelligence while Section D contain items on perceived benefits of IKS for enhanced environmental journalism. Items in Section A and B were developed on a four-point Likert-type scale ranging from: Very High Extent (4), High Extent (3), Low Extent (2), Very Low Extent (1)

while items in Section C and D were structure with the response option of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD).

### Validation and Reliability of the Instrument

The instrument was validated by three experts in Faculty of Communication Art, University of Uyo, Uyo. Their comments and corrections guided the refinement and alignment of items with constructs, and improvement of wording to ensure comprehensibility.

The reliability of the instrument was established through a pilot test conducted with 30 journalists outside the study area to avoid contamination of the main sample. Data from the pilot study were analyzed using Cronbach's alpha statistical tools. A reliability coefficient of 0.78 was obtained across the subscales, indicating that the instrument possessed good internal consistency according to acceptable research standards (Tavakol and Dennick, 2021).

### Method of Data Collection

The researcher and trained research assistants visited the selected vending clusters to administer the questionnaires. The purpose of the study was clearly explained to each respondent, and confidentiality was assured. Questionnaires were distributed and retrieved on the spot to reduce loss and non-response.

### Method of Data Analysis

Data collected were analyzed using mean statistics. Mean score of 2.50 and above was interpreted to be 'High Extent' and 'highly beneficial' while mean score below 2.50 was said to be 'Low Extent' and 'lowly beneficial' respectively.

## Results and Analysis

### Research Question 1

To what extent is artificial intelligence being integrated into environmental journalism practices in Akwa Ibom State?

**Table 1: Mean Statistics showing the extent is artificial intelligence being integrated into environmental journalism practices in Akwa Ibom State n= 86**

s/n	Items	Mean	SD	Remarks
1	Utilizes Artificial Intelligence (AI)-powered tools in the editorial processes	2.68	0.55	High Extent
2	Leverages AI-driven data analysis to enhance the presentation of complex environmental issues	2.21	0.80	Low Extent
3	Incorporates AI-based language processing	2.28	0.49	Low Extent

	technologies to facilitate automated content creation			
4	Employs AI-powered verification and fact-checking tools to address misinformation	2.45	0.52	Low Extent
5	Integrates AI-based technologies into newsroom policies for environmental reporting practices	2.40	0.66	Low Extent
	<b>Grand Mean</b>	<b>2.40</b>	<b>0.60</b>	<b>Low Extent</b>

Table 1 shows the extent to which artificial intelligence is integrated into environmental journalism practices in Akwa Ibom State. It indicates that the mean values of four items are below 2.50 indicating low extent while mean value of one item is above 2.50 indicating high extent. The grand mean of 2.40 implies that to a low extent artificial intelligence is integrated into environmental journalism practices in Akwa Ibom State.

### Research Question 2

To what extent is indigenous knowledge system currently being integrated into environmental journalism practices in Akwa Ibom State, Nigeria?

**Table 2: Mean Statistics showing the extent is indigenous knowledge system being integrated into environmental journalism practices in Akwa Ibom State n= 86**

s/n	Items	Mean	SD	Remarks
1	Environmental journalists collaborates with indigenous communities to represent traditional ecological knowledge in media coverage	3.18	0.61	High Extent
2	Environmental journalists source information from IKS to provide a culturally-relevant understanding of environmental phenomena	2.94	0.44	High Extent
3	Journalists highlight the contributions of indigenous ethic of environmental stewardship in their reporting on environmental management strategies	2.80	1.01	High Extent
4	Newsroom policies emphasizes the importance of integrating spiritual dimensions of the human-environment relationship into environmental reporting	3.03	0.84	High Extent

	practices			
5	Integrates the cultural dimensions of the society into environmental reporting practices	2.79	0.68	High Extent
<b>Grand Mean</b>		<b>2.95</b>	<b>0.72</b>	High Extent

Table 2 shows the extent to which indigenous knowledge system is integrated into environmental journalism practices in Akwa Ibom State. It indicates that the mean values of four items are above 2.50 indicating high extent while mean value of one item is below 2.50 indicating low extent. The grand mean of 2.95 implies that to a high extent indigenous knowledge system is integrated into environmental journalism practices in Akwa Ibom State.

### Research Question 3

What are the perceived benefits of incorporating artificial intelligence into environmental journalism in Akwa Ibom State, Nigeria?

**Table 3: Mean Statistics showing the perceived benefits of incorporating artificial intelligence into environmental journalism in Akwa Ibom State, Nigeria n= 86**

s/n	Items	Mean	SD	Remarks
1	The use of AI-powered data visualization tools can enhance the interpretation of complex environmental data	2.99	1.03	High Extent
2	AI-driven language processing capabilities can assist environmental journalists in improving the speed of coverage of environmental issues.	3.11	0.53	High Extent
3	AI-based fact-checking technologies can help environmental journalists address misinformation related to environmental topics	3.08	0.28	High Extent
4	The integration of AI in environmental journalism can lead to more informative reporting that resonates better with the audience	2.85	0.65	High Extent
5	Environmental journalists collaborations with AI experts contribute to the development of more innovative environmental reporting	2.82	0.44	High Extent
<b>Grand Mean</b>		<b>2.97</b>	<b>0.59</b>	High Extent

Table 3 shows the perceived benefits of incorporating artificial intelligence into environmental journalism in Akwa Ibom State, Nigeria. It indicates that the mean values of all the items are above 2.50 indicating that respondents agree to the items. The grand mean of 2.97 implies that journalists perceived that incorporating artificial intelligence into environmental journalism in Akwa Ibom State, Nigeria is highly beneficial.

#### Research Question 4

What are the perceived benefits of incorporating indigenous knowledge system into environmental journalism in Akwa Ibom State, Nigeria?

**Table 4: Mean Statistics showing the perceived benefits of incorporating indigenous knowledge system into environmental journalism in Akwa Ibom State, Nigeria n= 86**

s/n	Items	Mean	SD	Remarks
1	IKS provides a more culturally-relevant understanding of environmental issues	3.31	0.48	Agree
2	Incorporating their traditional ecological knowledge can lead to more contextually-grounded environmental reporting	3.05	0.55	Agree
3	The contributions of IKS in environmental management strategies can foster greater public engagement on environmental issues	2.92	0.91	Agree
4	The integration of IKS into environmental journalism can complement Western scientific knowledge	2.98	0.45	Agree
5	Incorporating IKS into environmental journalism training programs helps cultivates a more inclusive environmental discourse	3.50	0.63	Agree
<b>Grand Mean</b>		<b>3.15</b>	<b>0.60</b>	<b>Agree</b>

Table 4 shows the perceived benefits of incorporating indigenous knowledge system into environmental journalism in Akwa Ibom State, Nigeria. It indicates that the mean values of all the items are above 2.50 indicating that respondents agree to the items. The grand mean of 3.15 implies that journalists perceived that incorporating indigenous knowledge system into environmental journalism in Akwa Ibom State, Nigeria is highly beneficial.

## Discussion

Result indicated that to a low extent artificial intelligence is integrated into environmental journalism practices in Akwa Ibom State. The low level of integration of AI may be attributed to the fact that most journalists in Akwa Ibom State are not skilled and proficient at the use of AI-driven data analysis, AI-based language processing technologies and AI-powered verification and fact-checking tools for effective journalism. However, integrating AI-powered tools would increase the efficiency in verifying the accuracy and reliability of information related to environmental issues, helping to combat the spread of misinformation and ensure the integrity of their reporting. The finding is in agreement with the finding of Agrawal *et al.* (2023) who reported that by framing AI within the context of digital transformation, organizations, and governments can harness its potential to drive strategic insights, anticipate market trends, and adapt to changing business landscapes, ultimately driving growth and competitiveness in today's digital era.

Finding also revealed that to a high extent indigenous knowledge system was integrated into environmental journalism practices in Akwa Ibom State. This may be triggered by the fact that environmental journalists mostly depend on indigenous communities to provide culturally-relevant insight and valuable ethics of environmental management strategies information which aids reporting. The finding is in-line with the finding of Ens *et al.* (2015) who noted that IKS can offer valuable insights into sustainable resource management practices, such as rotational farming, selective hunting, and controlled burning, which have been developed and refined over centuries of coexistence with the land. By showcasing these traditional approaches, journalists can present alternative models to the resource-intensive and environmentally damaging practices that are often promoted by dominant economic and political systems (Mistry & Berardi, 2016).

It was found that journalists perceived that incorporating artificial intelligence into environmental journalism in Akwa Ibom State, Nigeria is highly beneficial. This points to the fact that journalists in Akwa Ibom State have recognized the potential of AI to process and analyze vast amounts of environmental data from various sources, verifying the accuracy and reliability of information related to environmental issues, helping to combat the spread of misinformation and ensuring the integrity of environmental journalism in Akwa Ibom State. This is particularly valuable in the context of rapidly evolving environmental crises, where timely and trustworthy information is crucial (Diakopoulos, 2019). It affirms the submission of Thurman *et al.* (2019) who reported that harnessing the analytical capabilities of AI help journalists to uncover insights and patterns that may have been overlooked through traditional reporting methods thereby fostering a more inclusive and participatory environmental discourse, empowering diverse voices and perspectives.

Finding further indicated that journalists in Akwa Ibom State, Nigeria perceived that incorporating indigenous knowledge system into environmental journalism is highly beneficial. Journalists have recognized the potential value of IKS in conveying the emotional, aesthetic, and intrinsic importance of the natural world, which may be underrepresented in conventional environmental reporting. The integration of IKS into environmental journalism practices has been perceived as a means of amplifying the voices and perspectives of marginalized indigenous communities in Akwa Ibom State. This implies that the integration of IKS can contribute to more contextually relevant, holistic, and solutions-oriented reporting, ultimately leading to the development of more effective and culturally appropriate environmental policies and interventions. The finding aligns with Agada *et al.* (2022) who noted that sustainable development and management of resources cannot take place without member of the society being able to have equal access to knowledge gave birth to the idea of the knowledge society for a sustainable development.

### **Conclusion**

Although Artificial intelligence (AI) is lowly integrated and indigenous knowledge systems (IKS) is highly integrated for enhanced environmental journalism, both AI and IKS hold immense potential for enhancing the sustainability of environmental journalism particularly in Akwa Ibom State, Nigeria. Hence, developing AI systems and IKS becomes very vital in understanding, handling and reporting the complexities of environmental challenges.

### **Recommendations**

Based on the discourse, the following recommendations are made

- i. Journalists should establish collaborative platforms that bring together indigenous communities, researchers, technology experts to gain adequate knowledge for effective reportage on environmental related issues.
- ii. Ministry of Information should organize training and workshops for journalists on AI-powered systems for environmental journalism to enhance their knowledge and skills for effective integration of AI for quality service delivery.
- iii. Journalists should leverage the power of media, both traditional and new, to disseminate information, foster public dialogue, and raise awareness about the importance of integrating AI and IKS for sustainable natural resource management.
- iv. Information technologists should develop AI-based decision support tools that seamlessly integrate indigenous knowledge, scientific data, and real-time monitoring, enabling adaptive and responsive natural resource management strategies.

---

**References**

- Adedeji, O. H., Olorunfemi, F. B., and Adebayo, A. M. (2019). The impacts of deforestation on climate change in Nigeria: A review. *International Journal of Environmental Protection and Policy*, 7(1), 12-22.
- Agada, G., Agada, E. O., and Abu, S. (2022). Indigenous knowledge in the context of knowledge societies as a tool for sustainable development in Nigeria. *Library Philosophy and Practice (e-journal)*. 6984.
- Agrawal, R., Majumdar, A., and Kumar, A. (2023). Integration of artificial intelligence in sustainable manufacturing: current status and future opportunities. *Oper Manag Res* 16, 1720–1741
- Akpan, W., and Effiong, E. L. (2020). Fossil fuel dependence, environmental degradation, and the dilemma of development in the Niger Delta region of Nigeria. *Development in Practice*, 30(2), 197-211.
- Alimzhanova, A. B., Abdikappar, M., Karimova, B., and Nurmanova, M. (2025). Sustainable Development and Environmental Journalism: Implementing Societal Progress in Kazakhstan. *Evergreen*, 12 (02) 1310-1321.
- Deuze, M., and Witschge, T. (2018). Beyond journalism: Theorizing the transformation of journalism. *Journalism*, 19(2), 165-181.
- Diakopoulos, N. (2019). Automating the news: How algorithms are rewriting the media. Harvard University Press.
- Ens, E. J., Pert, P., Clarke, P. A., Budden, M., Clubb, L., Doran, B., Douras, C., Gaikwad, J., Gott, B., Leonard, S., Locke, J., Packer, J., Turpin, G., & Wason, S. (2015). Indigenous biocultural knowledge in ecosystem science and management: Review and insight from Australia. *Biological Conservation*, 181, 133-149.
- Kapatamoyo, M. (2024). Artificial Intelligence in Natural Resources Management: Selected Case Studies from Africa, 24th Biennial Conference of the International Telecommunications Society (ITS): "New bottles for new wine: digital transformation demands new policies and strategies", Seoul, Korea, 23-26 June, 2024, International Telecommunications Society (ITS), Calgary
- Kumar, A. (2018). Brief introduction of environment, ecology and environmental pollution. *Inspira- Journal of Modern Management & Entrepreneurship (JMME)*, 8(1), 314-322
- Mistry, J., and Berardi, A. (2016). Bridging indigenous and scientific knowledge. *Science*, 352(6291), 1274-1275.
- Mocatta, G. (2024). *Journalism for the climate and biodiversity crises*, In: Palgrave Handbook of Science and Health Journalism, pp. 273–293. Cham: Palgrave Macmillan, 2024.

- Nnamani, C. V., and Ogbodo, J. N. (2019). Environmental journalism and sustainable development in Nigeria: An analysis of media coverage of environmental issues. *Journal of Environmental Management and Safety*, 10(1), 1-14.
- Olusegun, O. A., and Babarinde, K. (2020). Environmental journalism and the challenges of environmental reporting in Nigeria. *Journal of Communication and Media Research*, 12(1), 67-79.
- Saunders, M. N., Lewis, P., and Thornhill, A. (2016). *Research method for business students* (7<sup>th</sup> ed.) Harlow, United Kingdom: Pearson Education.
- Thurman, N., Moeller, J., Helberger, N., and Trilling, D. (2019). My friends, the algorithms: News recommendation systems and the (re)production of old and new patterns of news selectivity. *Digital Journalism*, 7(8), 1146-1164.
- UNESCO (2017). *Local and Indigenous Knowledge Systems*. UNESCO general conference, Paris: UNESCO