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THE ROLE OF COASTAL INDIGENOUS COMMUNITIES IN CIRCULAR ECONOMY PRACTICES

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Circular Economy (CE) is now seen as transformative approach to addressing environmental and economic challenges. While most of the attention is placed on industrial and large-scale operations, coastal indigenous communities have been upholding circularity for decades through indigenous knowledge systems that emphasise environmental stewardship and regeneration resources. This paper explores the role of coastal indigenous communities in circular economy practices. A great emphasis is placed on the importance of traditional knowledge in sustainable management of resources. The paper highlights the longstanding integration of circular economy principles within indigenous livelihoods and explores how the modern circular economy can benefit from these practices. The paper adopts a qualitative approach to identify key themes such as ocean pollution, policy frameworks, economic growth and the potential of recognising indigenous knowledge CE perspectives into sustainability strategies. The key findings of the paper lay out the importance of policy support in recognising indigenous knowledge contributions and the necessity for a bottom-up approach in implementation.

[Keywords] circular economy, pollution, waste management, coastal, indigenous communities

I INTRODUCTION

Marine pollution has been a global phenomenon for decades. One of the notable factors that contributes to this issue is increasing human populations. As the global populations rises, the demand for necessities from food to energy resources have largely contributed to the high volumes of marine pollution. The high levels of ocean pollution expose the shortcomings of the linear model which is based on a take-make-dispose approach resulting in excessive resource depletion, pollution

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and environmental degradation. The circular economy model has been seen as a possible solution to sustainability.¹

South Africa faces a number of complex challenges that hinder its economic development, including widespread inequality, energy insecurity and significant environmental issues such as pollution and resource depletion. According to Godfrey,² the traditional linear economic model has contributed to these problems, as it promotes unsustainable consumption patterns and waste generation. In contrast, circular economy principles advocate for the sustainable usage of resources, waste reduction and the regeneration of natural systems, offering a pathway to address some of these pressing challenges. The South African government has recognised the importance of transitioning to a circular economy as part of its broader strategy for sustainable development. The Department of Forestry, Fisheries and the Environment (DFFE) has developed guidelines aimed at facilitating this transition, particularly within the waste sector. These guidelines emphasise the need for a systemic approach to resource management, focusing on materials flow and the value chain to maximise resource recovery and minimise waste³. While much attention has been given to large industrial practices and businesses, the sustainable waste management strategies that have been historically practised by coastal indigenous communities is often overlooked.

For decades, Coastal indigenous communities have practised circularity that is similar with circular economy principles. These groups have always depended on marine resources for livelihoods, using knowledge aligned with environmental protection and sustainable development. However, the contributions of these communities remains underrepresented in mainstream circular economy research and development.⁴

¹ M Geissdoerfer, S N Morioka, M M de Carvalho & S Evans 'Business models and supply chains for the circular economy' (2018) 190 *Journal of Cleaner Production* 712–721.

² L Godfrey 'African challenges for achieving the Sustainable Development Goals (SDGs) and the role of knowledge transfer' (paper presented at Africa-Europe Dialogue Symposium on Innovation for Sustainable Development, Pretoria (29 November 2017)).

³ Department of Environment, Forestry and Fisheries: A circular economy guideline for the waste sector (2020).

⁴ P K Mukherjee et al 'Socio-economic sustainability with circular economy – An alternative approach' (2023) 904 *Science of The Total Environment*.

The aim of this paper is to discuss the contribution of coastal indigenous peoples towards advancing circular economy (CE) practices with a specific focus on how traditional knowledge can be used to promote the sustainable management of resources. This analysis considers Indigenous ways of living as they have always included the principles of a circular economy, and evaluates the possibility of integrating these practices into modern models of sustainability. Using a qualitative research methodology, this article identifies major themes including marine pollution, policy structures, economic development and the opportunities and challenges of considering indigenous perspectives of the circular economy. Ultimately, the paper highlights the necessity of policy support and a bottom-up implementation approach to ensure that indigenous knowledge (IK) is meaningfully incorporated into circular economy discourse and practice. To achieve this, the paper conducts a SWOT analysis to assess the strengths, weaknesses, opportunities and threats associated with integrating indigenous knowledge into CE frameworks. Furthermore, it proposes a pathway framework that outlines key strategies for effectively embedding indigenous coastal knowledge within mainstream sustainability and economic policies.

This paper has the following structure: Section two initiates an integrated literature review on the definition of Circular Economy, indigenous knowledge systems, and some cases where indigenous circular approaches has been applied. Section three highlights the methodology used in the paper. In Section four, the results are provided in terms of themes, accompanied by the SWOT matrix and the proposed integration framework. Finally, conclusions in terms of recommendations on the integration of indigenous knowledge systems in CE strategies are provided in the last section.

II BACKGROUND AND LITERATURE

(a) Defining circular economy (CE)

The circular economy model is often communicated as the new kid on the block. However, digging back to the work of Boulding published in 1966, it is stated that humanity must position itself in a cyclical ecological system which is capable

of continuous reproduction of materials.⁵ Later, further clarification was provided by Stahel. Stahel and Reday, in a 1976 a research report titled *The Potential for Substituting Manpower for Energy* put forth a circular economy vision and its implications for job creation, economic growth, resource utilisation, and waste minimisation.⁶ In the recent years, the concept was popularised by the definition provided by the Ellen MacArthur Foundation. The foundation defines circular economy (CE) as a system whose design is restorative and regenerative to keep products, components and materials at their optimum usability.⁷

Additionally, Zils⁸ provides an elaborative definition of CE. He states that CE ‘aims to eradicate waste – not just from manufacturing processes, as lean management aspires to do, but systematically, throughout the life cycles and uses of products and their components.’ This opinion suggests that a linear economy follows the take-make-dispose model and wastes materials, energy and labour, while the circular economy adopts tight cycles of components and products, use and reuse, supported by the product design.⁹ Furthermore, unlike the traditional linear economic model based on a ‘take-make-consume-throw away’ pattern, a circular economy is based on sharing, leasing, reuse, repair, refurbishment and recycling, in an almost closed loop, where products and the materials they contain are highly valued. In practice, it implies reducing waste to a minimum.

(b) Historic context of indigenous circularity

As the concept of a circular economy is increasingly becoming a key political agenda, it must be acknowledged that circularity has been practiced for decades by indigenous communities. These

⁵ K E Boulding ‘The Economics of the coming spaceship earth’ in H Jarrett (ed) *Environmental Quality in a Growing Economy* (1966) 3–14.

⁶ Ibid.

⁷ Ellen MacArthur Foundation Circular Economy: Concept (2017) available at <https://www.ellenmacarthurfoundation.org/circular-economy/overview/concept>

⁸ M Zils, M Howard & P Hopkinson ‘Circular economy implementation in operations & supply chain management: Building a pathway to business transformation’ (2023) 36(4) *Production Planning & Control* 501–520.

⁹ Ibid.

communities possess critical knowledge as the custodians of the environment surrounding them. However, the gap that must be challenged is how mainstream development strategies can recognise and learn from these frontline grassroots communities as well as systematically document and integrate traditional knowledge into policies for the benefit of the broader society.¹⁰

Indigenous forms of waste management played an important role in the prevention, disposal, reduction, and recycling of trash in indigenous societies before colonialism. Indigenous environmental waste management techniques have always been practised in sustainable environmental policy in indigenous societies before the building of mainstream sciences facilitated by colonial means.¹¹ Indigenous peoples all over the world are completely aware of the dangers and consequences of inefficient waste management procedures among their populations but are typically not well resourced to address them. To counter the impacts associated with this, indigenous communities proactively innovate ways to manage waste by utilising indigenous knowledge.

Falsarone¹² states that for prolonged periods of time, coastal and indigenous communities have engaged in resource management systems that align with the principles of a circular economy, which emphasises sustainability, waste reduction, and resource regeneration. This author notes that despite comprising only five percent of the global population, indigenous communities manage lands that harbour approximately 80 per cent of the world's biodiversity. Their practices are rooted in a deep understanding of ecological balance, where every resource is utilised judiciously to ensure its regeneration for future generations.¹³

¹⁰ A Assuah "“A lot of people ignore our culture when it comes to waste management”: Examining the impacts of culture on solid waste management in two Canadian First Nations’ (2023) 19 *AlterNative: An International Journal of Indigenous Peoples* 466–474.

¹¹ Ibid.

¹² A Falsarone *A Week of Circularity: Indigenous Perspectives* (2021).

¹³ Ibid.

(c) The circular economy-IKS nexus

Even though the concept of a circular economy is often described within an innovative framework aimed at tackling present-day environmental issues, a detailed examination would disclose a great similarity with indigenous knowledge built up over the millennia with regard to handling some of the limitations seen within the implementation of a circular economy concept.¹⁴ As discussed in the previous section, indigenous societies have always used a cyclical economy; however, below we take a look at its relation to the existing concept of a circular economy.

The symbiosis between the concept of a circular economy and indigenous knowledge is neither coincidence nor just a passing fad but an expression of rudimentary principles discerned in the past and present relation of mankind with nature itself. However, it is pertinent to note that the conceptual execution of a mainstream approach and a mainstream understanding of a circular economy may often undermine itself because of some conceptual overlaps and gaps, which have always been covered in indigenous knowledge systems with a set of values and mores embedded within indigenous culture itself.¹⁵

Table 1 below aligns key principles of a circular economy with mainstream gaps in implementation and shows how indigenous knowledge systems offer holistic solutions with a potential that Western industry has failed to reach. From this table, it's clear that indigenous knowledge is not only supplementary to a circular economy, but rather it is key in terms of shaping a conceptual framework for its delivery.

¹⁴ A Khajuria *Nexus of Circular Economy and Industry 4.0 to achieve the UN Sustainable Development Goals* (2021) 10. 30–34, available at <https://doi.org/10.9790/1813-1012013034>

¹⁵ N Flores *Indigenous Wisdom and Circular Economy: When Indigenous Relational Economy Theory Meets Western Sustainability and Circular Economies* (2024).

Table 1: Case studies of CE practices in coastal communities

Circular economy principle	Gap in mainstream CE implementation	How indigenous knowledge systems address this gap	Example from practice
Waste minimisation	Focuses primarily on technological solutions and end-of-pipe recycling; treats waste as a technical problem rather than systemic issue.	Embedded cultural prohibition against waste; traditional practices utilise entire resources with zero-waste orientation.	Indigenous fishing communities use every part of the fish – flesh for food, bones for tools, scales for decoration, waste for fertiliser. ¹⁶
Resource regeneration	Short-term economic incentives prioritise extraction over regeneration; quarterly profit cycles conflict with ecological timeframes.	Intergenerational thinking embedded in decision-making: ‘seven generations ahead’ principle ensures resources for descendants.	Rotational harvesting systems that allow ecosystems to recover; leaving portion of catch to reproduce. ¹⁷
Closed-loop systems	Implemented primarily at industrial scale; disconnected from local ecosystems and community needs.	Community-based reciprocity systems create natural closed loops; resources circulate within communities based on need rather than profit.	Gift economies and sharing systems ensure tools, knowledge, and resources circulate; redistribution practices prevent accumulation. ¹⁸

¹⁶ Op cit note 12.

¹⁷ F Berkes, C Folke & J Colding *Linking social and ecological systems: Management practices and social mechanisms for building resilience* (2000).

¹⁸ Ibid.

Circular economy principle	Gap in mainstream CE implementation	How indigenous knowledge systems address this gap	Example from practice
Sustainable consumption	Relies on consumer behaviour change campaigns and individual responsibility frameworks	Cultural values transmitted inter-generationally create innate understanding of limits; consumption embedded in spiritual and social frameworks.	Traditional stories and ceremonies teach taking only what is needed; consumption practices tied to seasonal cycles and ecological awareness. ¹⁹
Product longevity and repair	Planned obsolescence remains economically incentivised; repair infrastructure underdeveloped.	Cultural emphasis on maintenance, repair, and multi-generational use of tools and materials.	Fishing equipment, boats, and tools maintained and passed down through generations; repair knowledge considered valuable cultural capital.
Systems thinking	Siloed sectoral approaches dominate policy; economic systems treated as separate from ecological systems.	Holistic worldviews that recognise the inseparability of ecological, social, economic, and spiritual dimensions.	Indigenous resource management integrates ecological knowledge, social relations, spiritual practices, and economic activities as a unified system. ²⁰

¹⁹ R Heaslip ‘Monitoring salmon aquaculture waste: The contribution of First Nations’ rights, knowledge, and practices in British Columbia, Canada’ (2008) 32(6) *Marine Policy* 988–996.

²⁰ F Capra & P L Luisi *The Systems View of Life: A Unifying Vision* (2014).

Circular economy principle	Gap in mainstream CE implementation	How indigenous knowledge systems address this gap	Example from practice
Local resource utilisation	Global supply chains prioritised; local resources undervalued in economic terms.	Deep knowledge of local ecosystems enables optimal use of locally available materials.	Use of indigenous materials for construction, medicine, food that require minimal processing and have minimal environmental footprint. ²¹
Adaptive management	Rigid regulatory frameworks slow adaptation to changing conditions.	Flexible knowledge systems that evolve with ecological changes while maintaining core principles.	Traditional ecological knowledge continuously updated through observation; practices adapt while maintaining sustainability principles. ²²

A study conducted by Heaslip²³ looked into monitoring salmon aquaculture waste and the contribution of indigenous communities’ rights, knowledge and practices in Canada. The study highlights that the fish farm waste is managed through the integration of the values, knowledge and stewardship practices of indigenous communities. The author reiterates that healthy traditional diet sources are important to coastal indigenous communities and therefore, the management and monitoring of fish-farm waste is prioritised. This study, however, also mentions that are challenges that hinder the integration of traditional knowledge and stewardship practices with science-based marine environmental protection. The major limitation is

²¹ Op cit note 19.
²² Op cit note 17.
²³ Op cit note 19.

always the difficulty in translating indigenous knowledge and science into forms that are mutually intelligible, in ways that make it accessible to policy makers. The study recommends that the process of implementing an aquaculture management system goes beyond the participation indigenous people, it must integrate traditional knowledge holders from the onset.²⁴

The oceanic society provides another example where circular economy is seen through eco-tourism. The report dates back to 2008 when plastic waste threatened both the environment and the economy in a small coastal town in Kenya called Watamu, known for its beaches. The report estimates that approximately 37 tons of plastic pollution washed onto the shore per year which had a huge impact its on coral reefs, polluting beaches and ultimately driving away tourists and affecting the small businesses that depended on them.²⁵ The biggest issue that was noted was the lack of balance between local economic and environmental protection. The Watamu community experienced competition over marine resources where local fishermen prioritised fishing coral reefs for livelihoods, while dive operators prioritised the protection of the reefs for ecotourism purposes. This resulted in the engagement of various stakeholders, including local businesses, environmentalists, and tourism operators, who convened to deliberate on the challenges posed by plastic waste and to explore potential solutions. The outcome of these discussions was the implementation of a strategy focused on the removal of plastic waste from the coastline, its repurposing for productive use, and the concurrent protection of the environment. This approach not only aimed at environmental conservation but also sought to generate job opportunities for the local community.²⁶

This is one of the success stories because it demonstrates the effective integration of circular economy principles into coastal waste management. As Trott noted, 'Our big focus is on plastic, as plastic has a high value and... is the big problem.'²⁷ Since the implementation of these initiatives, over 500 community

²⁴ Ibid.

²⁵ Z Theiler 'Circular economy protects nature and tourism in Kenya' (2024) *Oceanic Society* available at <https://www.oceanicsociety.org/program-updates/circular-economy-protects-nature-and-tourism-in-kenya/> (accessed 18 March 2025).

²⁶ Ibid.

²⁷ Ibid.

members in Watamu have gained a source of income by collecting and selling plastic waste to the Watamu Marine Association (WMA). This initiative has resulted in the removal of approximately 10 to 20 tons of plastic from the coastline each month. Additionally, hotels that previously restricted local vendors have now become active participants in waste management efforts by sponsoring beach-cleaning programmes, reinforcing the link between environmental sustainability and economic development in the region.²⁸

A specific example is the Wild Coast in South Africa's Eastern Cape Province, where the customary management of marine resources in areas like Pondoland and Dwesa-Cwebe can be seen to be governed by customary law related to 'forest hunting, fishing, and shellfish gathering' with a history that is 'the oldest dating back centuries' to the settlement of key locations 'such as the Mbashe River'. The question of whether these customary management systems correspond with those of a circular economy within the ordinary understanding is one that is left unanswered here. It is important to note that these 'are Indigenous knowledge systems derived within specific cultural contexts' rather than 'reflecting a defined conceptual framework' and 'are conceived within an entirely different paradigm' from a circular economy, because 'they may look similar on a conceptual level which includes 'resource use efficiency, waste reduction, and cyclical thinking.'²⁹

The communities face a series of challenges currently. It is evident from empirical research that the density of plastic waste in South African beaches is always high in areas close to urban areas despite affecting distant areas within South African coasts.³⁰ However, the loss of shipping containers in recent times has increased the presence of pharmaceutical bottles and other waste materials within Eastern Cape beaches, including Port Alfred, Kenton-On-sea, Cannon Rocks, and Boknes beaches.³¹ Climate change further alters the existing traditional knowledge

²⁸ Ibid.

²⁹ S Tsawu *Traditional Authorities and Co-Management of Protected Areas in South Africa: The Case of Dwesa-Cwebe Nature Reserve in the Eastern Cape* (2022).

³⁰ P G Ryan 'The transport and fate of marine plastics in South Africa and adjacent oceans' (2020) 116(5–6) *South African Journal of Science* 1–9.

³¹ Sustainable Seas Trust 2024. *Shipping containers cause environmental disaster on the South African coastline*. Press release, 30 October.

concerning the best times and locations for fishing purposes. This occurs despite the issue being rather complicated within existing theoretical frameworks related to Satellite L-band radiometer observations within South African coasts. These considerations were introduced within 2014 climate change policies and statements due to a lack of awareness concerning climate change within South African fisher communities.³²

While indigenous coastal communities have demonstrated innovative ways to incorporate circular economy principles into their livelihoods, they continue to face significant challenges posed by ocean pollution. The increasing accumulation of plastic waste and other pollutants threatens not only marine ecosystems but also the rights and traditional practices of these communities.³³

III OCEAN POLLUTION AND INDIGENOUS COASTAL COMMUNITIES' RIGHTS

The issue of ocean pollution is a complex challenge like the rest of global challenges. Ocean pollution does not only threaten livelihoods of communities who depend on marine resources for a living, it also results in different health issues for communities who consume seafood affected by toxic micro- and nano-plastics.³⁴ UNDP³⁵ states that human rights are impacted at every stage of the plastic lifecycle. Some of these impacts include litter mismanagement, exposure of consumer plastics to toxic additives, toxic pollutants emitted in production, disinformation campaigns regarding the dangers of plastic and pollution solutions. Human rights standards are therefore instrumental in enabling warranted and effective actions.

(a) Right to health

Pollution hinders the ability of indigenous communities to enjoy high standards of health, as it negatively impacts marine life, upon which these communities are dependent for a source of food and nutrition as well inputs for indigenous

³² Ibid.

³³ Ibid.

³⁴ United Nations Development Programme (UNDP) Circular economy available at <https://climatepromise.undp.org/what-we-do/areas-of-work/circular-economy> (accessed 4 March 2025).

³⁵ Ibid.

medicines and supporting services, such as atmospheric oxygen production. According to research, marine plastics may lower atmospheric oxygen production by preventing *Prochlorococcus*, a photosynthetic microorganism that generates about 10% of atmospheric oxygen, from growing and functioning. They may also affect regulating services, like the sequestration of carbon, which controls atmospheric greenhouse gas emissions, and cultural services, like the mental health benefits of marine biodiversity and clean beaches.³⁶

(b) Right to food

Though microplastics are now widespread in food that is ingested by humans, the implications for human health have yet to be fully studied. Plastic particles have been discovered in the intestines of fish from various oceans and even in such products such as sea salt. Standardised procedures for determining the health risk of plastic particle ingestion do not yet exist. For fish at least, people do not normally consume their digestive tract where plastic is likely to accumulate, so ingestion is likely to be limited. Where people consume whole organisms, i.e., mussels and oysters, rates of ingestion could be higher.³⁷

Marine pollution has the potential to decrease the feasibility and profitability of indigenous communities' economic activities that depend on marine ecosystems. This may be caused by a decrease in the available marine resources or by diminishing the ecotourism business in response to the ecological and aesthetic effects of plastic litter. The economic and social effects of marine litter involve indirect impacts, for instance, interference with recreational activities, tourism, and small-scale fishing.³⁸ Such costs are not typically measured; however, they have the potential to impact disproportionately on individuals whose livelihoods are directly linked to coastal activities.

³⁶ Ibid.

³⁷ P J Landrigan et al 'Human health and ocean pollution' *Annals of Global Health* 2020 December 3:86.

³⁸ Ibid.

(c) Right to culture

Plastic pollution can have a detrimental impact on human rights related to culture by reducing access to coastal areas and resources that are necessary for cultural activities. These also include indigenous groups whose cultural activities are key to their identity and well-being. Recycled ocean plastic can also become an object of material culture and may displace ‘traditional’ and more eco-friendly heritage artifacts.³⁹

The sections discussed above make it clear that effective solutions must not only address environmental protection but also the rights and knowledge systems of communities that are most affected by these issues.

IV INTEGRATION OF INDIGENOUS KNOWLEDGE INTO MAINSTREAM FRAMEWORKS

An elder once taught: ‘Pay attention to intention. There are many big, shiny, and new things, but most of them are just reinventions of the same old.’ ‘The same old’ is the centuries-old intent and mindset to remove and exploit. It might be dressed in shiny packages, but the core of it has remained the same – extractive. Most indigenous cultures teach from childhood to only take what is needed, leave a little behind so that it can replenish itself, and think for future generations. Traditional stories which hold this knowledge and teach the fundamental principles of living in balance with nature, self, and others are handed down from one generation to another. In the majority of indigenous worldviews, sharing, giving back, and regeneration are the paramount ideas of sustainable and peaceful existence.⁴⁰

Many indigenous cultures, teach from childhood to take only what you need, leave some behind so it can regenerate itself, and to think seven generations ahead. Traditional stories that encapsulate this wisdom and teach the basic principles of living in harmony with nature, yourself, and others are passed on from generation to generation. In many indigenous

³⁹ G Holly, A Rey da Silva & J Henderson et al ‘Utilizing marine cultural heritage for the preservation of coastal systems in East Africa’ (2022) 10(5) *Journal of Marine Science and Engineering* 693.

⁴⁰ *Cultural Survival Returning to circular economies rooted in Indigenous values* available at <https://www.culturalsurvival.org/publications/cultural-survival-quarterly/returning-circular-economies-rooted-indigenous-values> (accessed 4 March 2025).

worldviews, regeneration, sharing, and giving back are at the core of harmonious and true sustainable living.⁴¹

This study makes reference to systems thinking theory as a conceptual framework to unpack ways in which indigenous circular economy principles can be integrated into mainstream discourse. The systems thinking theory is known for providing an understanding of the complex and interconnected nature of economic, environmental, and governance systems. It also provides a holistic approach that moves beyond linear policy development, recognising that indigenous sustainability practices operate within dynamic and interdependent ecological and social systems. The adoption of this theoretical lens allowed the study to recommend a pathway to include indigenous circular economy principles into contemporary policy frameworks.⁴² This approach highlights the need for systemic transformation that not only acknowledges indigenous knowledge but also embeds it into sustainable economic models at national and global levels.

Systems thinking is a theoretical perspective that views the world as an interconnected web of relationships, emphasising the interactions and feedback mechanisms that shape systemic behaviour.⁴³ This perspective is particularly relevant for this study as indigenous knowledge systems inherently embrace a cyclical and regenerative understanding of resource use, land stewardship and economic exchange.⁴⁴ Indigenous economies traditionally operate on principles of reciprocity, minimal waste and environmental regeneration, values that align with contemporary sustainability goals but are often overlooked in mainstream economic policies. A key challenge is that dominant policy structures tend to be rooted in linear economic models that prioritise extraction and consumption over regeneration. Systems thinking provides a pathway to bridge these two paradigms by restructuring policy frameworks to accommodate indigenous knowledge and ensure its meaningful application in national and international sustainability strategies.⁴⁵

⁴¹ Ibid.

⁴² D H Meadows *Leverage points: Places to intervene in a system* (Sustainability Institute 1999).

⁴³ K Raworth *Doughnut economics: Seven ways to think like a 21st-century economist* (2017).

⁴⁴ Op cit note 17.

⁴⁵ Op cit note 42.

This argument is supported by the Ellen MacArthur Foundation, who state that systems thinking is key in achieving circularity as discussed in the previous sections. It is a foundation for identifying issues and better action-suitable solutions, and it provides the lens through which circular economy is conceptualised and understood. The systems perspective allows for a more accurate and nuanced understanding of the economy as one part of a much larger whole. It enables a more precise and sophisticated comprehension of the economy as being part of a significantly larger system. Further, it does away with the notion that we are completely in charge of economic forces. The living-systems metaphor offers a new metaphor, likening the economy not to a machine but to a forest. Instead of only quantifying how much material is being processed – it considers recycling and the transport of material that allows life to be maintained, organisms to grow, perish, and then their nutrients are cycled back into the system to nourish subsequent generations. The health of a forest is not measured by its constant increase in dimensions but by whether it can reach maturity and exist in balance with its surroundings.⁴⁶

It is worth noting that both indigenous and coastal communities have been practising successful circularity for numerous generations. Both academic communities and international organisations like the UN Development Programme have, in recent years, turned to indigenous knowledge to learn about the environment, including climate change and natural resource management. In 2020, a special issue of indigenous interpretations of ‘sustainability’ was published in the journal: *Current Opinion in Environmental Sustainability*. A significant result of this project is the variability of views, approaches, and experiences among indigenous peoples on matters of sustainability. Nonetheless, one observation they share is that indigenous views possess a natural conflict towards market systems.⁴⁷

The integration of indigenous knowledge into contemporary sustainability frameworks should also recognise the conceptual alignment between indigenous principles, circular economy strategies, and global sustainability policies. Many CE tenets, such as resource efficiency, regenerative design, and waste

⁴⁶ Op cit note 7.

⁴⁷ J Konietzko, A Das & N Bocken ‘Towards regenerative business models: A necessary shift?’ (2023) *Sustainable Production and Consumption*.

minimisation, parallel indigenous approaches to environmental stewardship and long-term ecological balance. These shared principles are further reinforced by international sustainability frameworks, particularly the United Nations Sustainable Development Goals (SDGs), which advocate for responsible consumption and production, climate action, and inclusive economic growth.⁴⁸

At the core of the circular economy is the principle of sustainable consumption and production, which seeks to decouple economic growth from resource consumption. This approach speaks to the United Nations Sustainable Development Goals (SDGs), particularly Goal 12, which emphasises sustainable consumption and production patterns.⁴⁹ The circular economy model encourages industries to design longevity cantered products. This not only reduces waste but also creates new economic opportunities. It is globally recognised that humanity's unsustainable patterns of consumption and production are the main factors contributing to the triple planetary crisis: climate change, waste and pollution, and biodiversity loss. As mentioned in the sections above, the current linear economic system is based on a model of extracting raw materials from nature, turning them into products to be consumed, and then discarding them as waste. According to the UNDP currently, only 7.2 per cent of used materials are cycled back into the economies after usage. This has a significant impact on the environment and contributes to environmental issues such as climate, waste, pollution and biodiversity crises. It also increases competition over resources, exacerbating existing social, economic and environmental challenges.⁵⁰ This, in turn, can contribute to insecurity at local, national, regional and global levels.

Contrary to this, circular economy approaches are designed to reduce waste and pollution, keep materials and resources in use for a long time and regenerate natural ecosystems and various CE practices have been notable in different sectors such as fashion, textiles, buildings and construction.⁵¹

⁴⁸ Ibid.

⁴⁹ Gaia Education 'SDG 12 – Responsible Consumption and Production explained' (2025).

⁵⁰ Op cit note 34.

⁵¹ Op cit note 34.

V THE GOVERNMENT OF SOUTH AFRICA'S CIRCULAR ECONOMY POLICY FRAMEWORK

While it has been widely emphasised that indigenous knowledge (IK) has historically been overlooked in policy and development frameworks, there have been notable efforts by the South African government to recognise and integrate IK into various sectors. These initiatives include the Protection, Promotion, Development and Management of Indigenous Knowledge Act 6 of 2019.⁵² This Act aims to:

[P]rovide for the protection, promotion, development and management of indigenous knowledge; to provide for the establishment and functions of the National Indigenous Knowledge Systems Office; to provide for the management of rights of indigenous knowledge communities; to provide for the establishment and functions of the Advisory Panel on indigenous knowledge; to provide for access and conditions of access to knowledge of indigenous communities; to provide for the recognition of prior learning; to provide for the facilitation and coordination of indigenous knowledge-based innovation; and to provide for matters incidental thereto.⁵³

(a) Methodology

This paper followed a systematic qualitative approach to examine the role of coastal indigenous communities in circular economy (CE) practices. The methodology consists of three key phases: literature extraction and assessment, heuristic analysis, and iterative validation.

Phase 1: Literature extraction and assessment

To answer the research question on the role of indigenous and coastal communities in circular economy practices, the paper employed a structured literature review. The main concepts of the search included key terms such as coastal communities, waste generation and waste management, ocean pollution,

⁵² J H Mzimela & I Moyo 'On the efficacy of indigenous knowledge systems in responding to the Covid-19 pandemic: Unsettling coloniality' (2024) *International Journal of Environmental Research and Public Health* 21, no. 6: 731 available at <https://doi.org/10.3390/ijerph21060731>

⁵³ Ibid.

indigenous knowledge, human rights, sustainable livelihoods and circular economy. Data was systematically documented using a data extraction template which highlighted the different studies, authors, time periods and the key outcomes and arguments.

Phase 2: Heuristic analysis

A qualitative heuristic approach was used to discover trends and debates about circular economy within the context of indigenous and coastal communities. During this phase, the paper highlighted the relationship between circular economy and ocean pollution, particularly emphasising the opportunities of which coastal and indigenous communities have taken advantage. These opportunities include the rise of informal waste picking as a strategy that minimises wasted while maintaining livelihoods in a sustainable way. patterns and relationships between indigenous-led CE practices and sustainability objectives.

Phase 3: Iterative validation and reliability measures

To improve accuracy and minimise bias, data was looked at from different lenses that added more literature. The data was validated through rounds of internal peer review by other researchers and reassessment was conducted to ensure consistency.

VI FINDINGS AND DISCUSSION

This section brings together the discussions noted in the previous sections to dissect the key findings and discussions that came from the research. The analysis of this paper pulled out key thematic areas that serve as findings. This paper emphasised that circular economy principles are embodied by traditional knowledge systems and day-to-day practices of coastal and indigenous communities.⁵⁴ However, this body of knowledge is usually underrepresented in mainstream research and policy frameworks.⁵⁵ As mentioned, the findings are

⁵⁴ S Shaffer, M Ruckstuhl & M Amlin et al 'Island and Indigenous systems of circularity: How Hawaii can inform the development of universal circular economy policy goals' (2024) 28(1) *Ecology & Society* 9.

⁵⁵ N Flores *Indigenous Wisdom and Circular Economy: When Indigenous Relational Economy Theory Meets Western Sustainability and Circular*

presented around five thematic areas, namely, (1) indigenous knowledge and CE practices; (2) ocean pollution and waste management; (3) integration of traditional knowledge; (4) community engagement; and (5) economic resilience and policy considerations.

(a) Indigenous knowledge and CE practices

Although circular economy is universally posed as a new or modern strategy for sustainability, its original underlying principles have existed and been adhered to by indigenous people and coastal communities.⁵⁶ This paper argues that, despite these decades-old practices, indigenous knowledge is most often avoided by mainstream modern circular economy debates and discourses.⁵⁷ Such debates revolve mostly on technological and industrial advancements, in total disregard to indigenous centred alternatives to solutions for sustainability. This paper recognises the need for a more general circular economy conversation and the incorporation of indigenous knowledge into policy responses.⁵⁸

In order to determine the contribution of indigenous coastal communities to circular economy activities, SWOT analysis was employed.⁵⁹ This systematic method describes the major Strengths, Weaknesses, Opportunities, and Threats for the incorporation of indigenous knowledge into sustainable economic systems. The analysis gives a broad outlook on

Economies (Interview: Kogod School of Business, American University, 17 December 2024) available at <https://kogod.american.edu/news/indigenous-wisdom-and-circular-economy/> (accessed 5 February 2026).

⁵⁶ Cultural Survival 'Returning to Circular Economies Rooted in Indigenous Values' (June 2022) *Cultural Survival Quarterly* available at <https://www.culturalsurvival.org/publications/cultural-survival-quarterly/returning-circular-economies-rooted-indigenous-values> (accessed 5 February 2026).

⁵⁷ B Donovan 'Unlocking Indigenous potential in mining regions: Circular economy' (OECD *Cogito Blog*, 19 October 2023) available at <https://oecdcoigito.blog/2023/10/19/unlocking-the-potential-of-indigenous-knowledge-in-mining-regions-circular-economy/> (accessed 5 February 2026).

⁵⁸ United Nations Development Programme (UNDP), A Craigen 'For a truly circular economy, we need to listen to indigenous voices' (*UNDP Blog*, November 2021) available at <https://www.undp.org/blog/truly-circular-economy-we-need-listen-indigenous-voices> (accessed 5 February 2026).

⁵⁹ S Sharma, B C Chattopadhyay & T Sharma 'Indigenous knowledge systems and sustainable development' (2021) *Current Science*.

determinants of initiatives for an indigenous-driven circular economy and their long-term sustainability, as indicated in Figure 1 below.

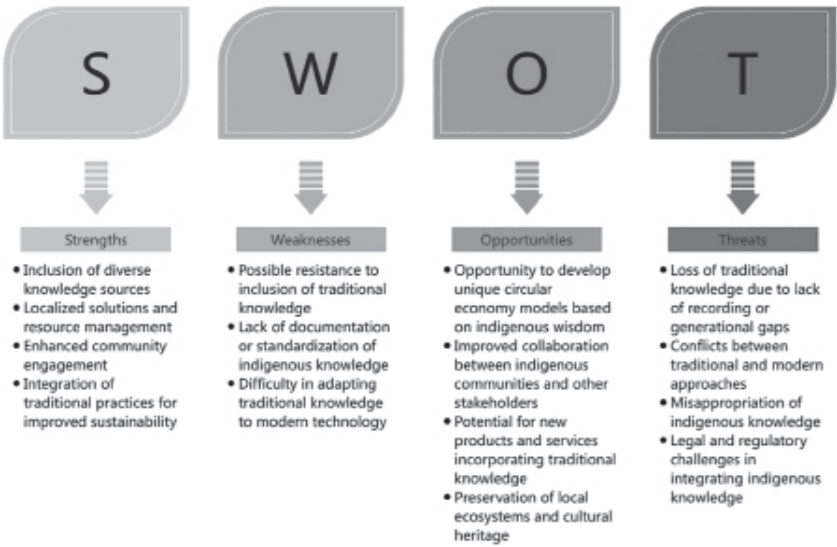


Figure 1: SWOT analysis for the incorporation of indigenous knowledge into sustainable economic systems

(b) Ocean pollution and waste management

Coastal and indigenous communities are faced with ocean pollution, which is a threat to marine life and community livelihoods. To mitigate this, an opportunity for informal waste pickers has emerged.⁶⁰ This practice is strongly linked to circular economy practices because it involves the process of collecting, sorting, and repurposing waste materials.⁶¹ This form has become a reliable form of income generation. This however often lacks support and recognition in formal waste management systems.⁶²

⁶⁰ WIEGO Waste Pickers (2025) available at <https://www.wiego.org/informal-economy/occupational-groups/waste-pickers/> (accessed 5 February 2026).

⁶¹ M A Wilson, C Howarth & C Sova ‘From waste pickers to producers: an inclusive circular economy solution through development of cooperatives in waste management’ (2021) 13(16) *Sustainability* 8925.

⁶² United Nations Development Programme (UNDP), S Chen ‘Unsung heroes: Four things policymakers can do to empower informal waste workers’ (*UNDP Blog*, December 2023) available at <https://www.undp.org>.

The paper argues that the formal inclusion of informal waste pickers has the potential to enhance environmental protection while maintaining sustainable livelihood. To achieve a holistic approach to minimising marine pollution through the principles of circular economy, this paper recommends integrating informal practices and indigenous knowledge into national waste management frameworks.⁶³

(c) Policy considerations for an inclusive circular economy

As briefly mentioned above, the findings of this study highlight the necessity of policy frameworks that reflect traditional waste management practices and knowledge.⁶⁴ The current state of knowledge often prioritises industrial and large-scale solutions with little to no presence of grassroots innovations. This paper recommends a shift towards a more participatory and bottom-up approach to close the gap.⁶⁵ A bottom-up approach is a key approach for achieving circularity, there is evidence that when local communities are seen as important role players in any development approach, the results always yield a sense of ownership and stewardship.⁶⁶

org/blog/unsung-heroes-four-things-policymakers-can-do-empower-informal-waste-workers (accessed 5 February 2026).

⁶³ S Baidoo & C Aidoo 'Indigenous traditional knowledge for cleaner waste systems and sustainable waste management system in Ghana' (2024) *ScienceDirect* available at <https://www.sciencedirect.com/science/article/pii/S277291252400037X> (accessed 5 February 2026).

⁶⁴ United Nations Development Programme (UNDP) 'How indigenous communities in Chile can inspire global action on the circular economy' (UNDP News, June 2022) available at <https://www.undp.org/news/how-indigenous-communities-chile-can-inspire-global-action-circular-economy> (accessed 5 February 2026).

⁶⁵ Institute for Global Environmental Strategies Bottom-up global environmental governance (submission to UNFCCC Standing Committee on Finance, 2019) available at <https://unfccc.int/sites/default/files/resource/Institute%20for%20Global%20Environmental%20Strategies.pdf> (accessed 5 February 2026).

⁶⁶ CircularEconomyAlliance 'Building Sustainable Communities: Engaging and Mobilising for Circular Practices' *Circular Economy Alliance* (4 September 2023) available at <https://circulareconomyalliance.com/cea-blogs/building-sustainable-communities-engaging-and-mobilising-for-circular-practices/> (accessed 5 February 2026).

(d) Economic resilience and policy considerations

Circular economy practices have been praised for providing economic opportunities through job creation in recycling, sustainable product development, and eco-tourism.⁶⁷ Most coastal communities have created marketable goods using recycled materials and generating income while minimising waste.⁶⁸

This paper urges policymakers to support these small and indigenous-centred business initiatives. There are many ways in which the government could promote and support these initiatives such as funding, skills development and capacity building programmes and fair-trade certification for eco-friendly products.⁶⁹

VII PROPOSED FRAMEWORK FOR INCORPORATING INDIGENOUS COASTAL KNOWLEDGE INTO MAINSTREAM FRAMEWORKS

This research presents a conceptual model with the intention to incorporate indigenous coastal knowledge into general sustainability and circular economy models.⁷⁰ This proposed framework identifies the underlying elements, enabling factors, and anticipated results of such integration efforts. It takes into account indigenous practices, values, and environmental knowledge and also considers policy impact, economic condition, and environmental factors. The interlinked elements of this framework are presented in Figure 2 below.

⁶⁷ M L Gall, M J K Wiener & F Chagas de Oliveira et al 'Exploring the integration of urban organic waste into local, decentralized recycling systems in Kenya' (2020) *Journal of Cleaner Production*.

⁶⁸ Global Solutions Initiative, A Phillips & Y Nkgowe 'Leveraging Indigenous Knowledge for a Resilient Circular Economy: Lessons from Rwanda's Circular Economy for a Resilient Future' (April 2025) available at <https://www.global-solutions-initiative.org/article/leveraging-indigenous-knowledge-for-a-resilient-circular-economy/> (accessed 5 February 2026).

⁶⁹ The Circulate Initiative 'From exploitation to empowerment: Ensuring fair compensation for informal waste workers' (26 August 2025) available at <https://www.thecirculateinitiative.org/blog/from-exploitation-to-empowerment-ensuring-fair-compensation-for-informal-waste-workers/> (accessed 5 February 2026).

⁷⁰ R K Beamer 'A brief history of Hawaiian political economy' in R K Beamer *No Mākou Ka Mana: Liberating the Nation* (2020) 31–52.

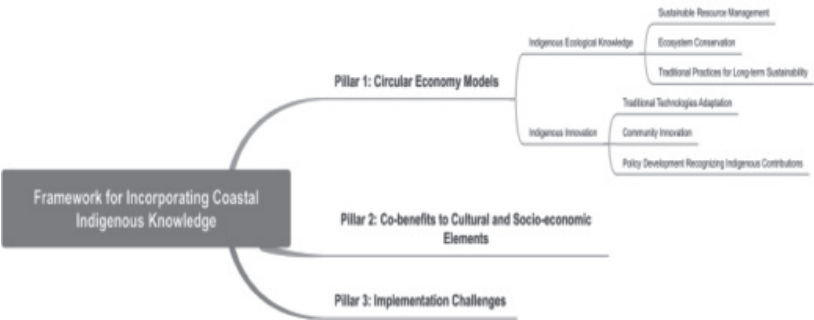


Figure 2: Proposed framework for incorporating coastal indigenous knowledge into mainstream policies

Figure 2 illustrates the framework for the orderly incorporation of coastal indigenous knowledge into modern environmental and economic systems. The framework is supported by three pillars: circular economy models; co-benefits to cultural and socio-economic elements; and implementation challenges. The circular economy model stresses the significance of indigenous ecological knowledge, indigenous innovation, and their incorporation into mainstream processes in the quest for sustainability.⁷¹ Traditional ecological knowledge is key to sustainable resource management, ecosystem conservation, and traditional practices that promote long-term natural resource sustainability.⁷² Indigenous innovation encompasses the innovation of traditional technologies as an adaptation measure to evolving environmental conditions, community innovation, and policy development that recognises indigenous contributions to sustainability. Additionally, mainstream inclusion is needed in terms of extensive social acceptance and necessitates indigenous and non-indigenous stakeholders uniting, policy alignment, and education actions towards the

⁷¹ United Nations Development Programme Ghana, C Adodoadji-Dogbe & F Farouta ‘Harnessing innovation and indigenous knowledge for zero waste’ (UNDP Ghana Blog, March 2024) available at <https://www.undp.org/ghana/blog/harnessing-innovation-and-indigenous-knowledge-zero-waste> (accessed 5 February 2026).

⁷² L Bansal, M Jain, I Garg & M Srivastava ‘Indigenous communities and sustainable development: A review and research agenda’ (2024) 43 *Global Business and Organizational Excellence* 1–17.

facilitation of heightened awareness of indigenous knowledge systems.⁷³

Apart from the environmental gains, the incorporation of IK offers significant cultural and socio-economic benefits to coastal communities. Foremost among these are enhanced livelihoods, primarily through sustainable harvesting, Indigenous crafts, and eco-tourism ventures, all of which enhance economic growth while conserving cultural heritage.⁷⁴ Second, this integration prioritises cultural identity through language reclamation and social unity among indigenous communities.⁷⁵ The concepts of empowerment and capacity development are at the core of this process, as they strengthen local leadership, encourage self-sufficiency, and enable communities to play active roles in decision-making processes that influence their environment and socio-economic well-being. Collectively, these elements determine the resilience and sustainability of indigenous coastal communities.

There are many obstacles to indigenous knowledge being properly incorporated into mainstream environmental and economic frameworks. Institutional and legal impediments, such as land rights and the acknowledgement of indigenous systems of governance, still restrict the full participation of indigenous peoples in environmental management. Moreover, conflicts between traditional life and contemporary development trends, including resource development and mega-infrastructure projects, also threaten traditional livelihoods and environmental balance greatly. Global warming intensifies the issues since increased sea levels, coastal erosion, and habitat decline endanger indigenous life. Meeting these challenges requires the development of inclusive policy frameworks, legislative recognition of IK systems, and cooperation among indigenous communities, policymakers, and stakeholders.

⁷³ T Wadhvani *Using old learnings for a new thriving economy* (ACE Hub, March 2023) available at <https://acehub.org.au/news/using-old-learnings-for-a-new-thriving-economy> (accessed 5 February 2026).

⁷⁴ British Columbia Yukon Textbooks 'Circular economy and life cycle approach – greening and indigenizing the carpentry trade' available at <https://pressbooks.bccampus.ca/cicancarpentryproject/chapter/circular-economy-and-life-cycle-approach/> (accessed 5 February 2026).

⁷⁵ Ibid.

VIII CONCLUSION

There's a longstanding legacy of inequitable distribution of ocean management strategies' benefits and opportunities. Research shows indigenous and local communities are often disadvantaged, with policies denying their fishing rights, restricting their access to coastal areas due to growing tourism and economic development and excluding them from ocean decision-making.⁷⁶ These inequities persist due to active political and economic marginalisation, reinforced by legal and governance frameworks. Policymakers also tend to prioritise economic and scientific views over indigenous and traditional knowledge systems.⁷⁷ Not only are these realities unjust, but they are also in direct conflict with sustainable and equitable ocean planning.

The significant role of indigenous and traditional knowledge systems in stewarding the ocean cannot be ignored. Many indigenous peoples have a deep connection to their surrounding environment that has been developed and verified over millennia.⁷⁸ Indigenous knowledge systems often reflect a holistic and systematic way of thinking based on intimate relationships between humans and other species. These aspects of co-existing with the marine environment are essential for halting extractive or overly exploitive approaches to ocean governance.⁷⁹

The role of coastal indigenous communities in circular economy practices is multifaceted. This paper has showed that they offer key insights into sustainable resource management that have the potential to influence global strategies.⁸⁰ However, indigenous and coastal communities continue facing challenges such as systemic barriers that minimises the full realisation of these practices. To promote the effectiveness of circular economy initiatives, policymakers need to prioritise the importance of collaboration with indigenous and coastal

⁷⁶ E Spann 'Participatory action research with Indigenous communities' (2018) *Social Justice Research*.

⁷⁷ Ibid.

⁷⁸ Op cit note 39.

⁷⁹ L Hiwasaki *Indigenous Knowledge Is Key to Better Ocean Management* (2024) World Resources Institute.

⁸⁰ R Browning, T J Beymer-Farris & J Seay 'A local decentralized circular economy of the material commons: The emerging waste picker formalization landscape in the Global South' (2021) 156 *Journal of Cleaner Production* 127069.

communities, ensuring their voices are included in decision-making processes through a bottom-up approach.

The findings presented stress that a circular economy is not a novel concept for coastal indigenous communities. Most principles of contemporary circular economy frameworks have long been a part of traditional practices for decades. Instead of introducing entirely new systems, there should be focus on amplifying and integrating these existing approaches.

NOTES TO CONTRIBUTORS

I INTRODUCTION

The editors of *Journal of Ocean Governance in Africa (JOGA)* – *Amalwandle Ethu* ('Our Seas' in isiXhosa) under the editorship of the South African International Maritime Institute (SAIMI), welcome the submission of manuscripts in English for publication, provided that the topic under discussion relates to ocean governance, including the law of the sea and maritime law, as it applies either in the whole African continent, in a specific African region or in one or more African States.

JOGA accepts manuscripts of four types. These are:

- (a) **Articles.** Articles are the feature pieces of each issue of *JOGA*. They provide a detailed analysis of the topic under discussion. Articles should not exceed 12 000 words (including references). Longer manuscripts will only be considered in exceptional circumstances. All references must be footnoted. Each article must be accompanied by an abstract of not more than 200 words. The abstract should summarise rather than introduce the article. In addition, the article should include appropriate keywords.
- (b) **Notes.** Notes are shorter, more focused pieces. They may discuss any specific issue, development, event, instrument or decision of interest to ocean governance in Africa. Notes should be between 3 000 and 8 000 words long. Longer notes are not considered. Notes do not include an abstract or keywords. All references must be footnoted.
- (c) **Updates and reports.** Updates are brief descriptions of legal or policy developments which have taken place at the continental, regional or domestic level. Reports are brief summaries of events that have taken place or research that has been undertaken or is in progress. Updates and reports should not exceed 3 000 words. They do not include an abstract or keywords. All references must be footnoted.
- (d) **Book reviews.** Book reviews are critical discussions of scholarly books on any topic relating directly or indirectly to ocean governance as it applies either in the whole African continent, in a specific African region or in one or more African States. Reviews should be between 2 000 and 5 000 words long. Longer reviews are not considered. All references must be footnoted.

A manuscript will be considered for publication:

- (a) only on the assurance that it has not, in whole, in part or in substance, been published or submitted for publication elsewhere;
- (b) on the understanding that it may be submitted in confidence to at least two expert referees for evaluation; and
- (c) on the understanding that the editors reserve the right to make whatever changes they consider desirable:
 - (i) to bring the manuscript into the house style of *JOGA*;
 - (ii) to eliminate errors of typing, grammar, syntax, punctuation, spelling, idiom and the like;
 - (iii) to eliminate ambiguity, illogicality, tautology, circumlocution and redundancy;
 - (iv) to produce accuracy and coherence;
 - (v) to improve the mode of expression and style of writing; and
 - (vi) to avoid possible criminal or civil liability.

Authors are required to prepare their manuscripts very carefully to avoid the need for the editors to exercise extensively their right to make changes. In particular, authors are asked to acquaint themselves with the house style of *JOGA* and to check their manuscripts carefully against the guidelines that follow.

NOTE: Regrettably, a manuscript that does not accord with the house style of *JOGA* will be returned to the author(s) immediately, with a request that the manuscript be amended to conform to the house style. The quality of the piece will normally not be assessed before this has occurred.

II HOUSE STYLE

(a) General

What follows in this document are the stylistic requirements that most commonly require the attention of the authors and editors of *JOGA*. This document is merely a general guide because it is not possible to cover every possible referencing and stylistic issue. Where this document does not provide assistance, authors are requested to either:

- (i) consult previous issues of *JOGA* and to see how a similar stylistic issue has been dealt with;

- (ii) consult the main *House Style for Juta Publications*, which may be found at <https://www.jutajournals.co.za/jolga-style-guide/>; or
- (iii) contact the editors for advice at Joga@saimi.co.za (the email address for the editing team).

(b) Matters of presentation and layout

(i) Page layout

The page should have 2.54 cm margins all round (top, bottom, left, right). Line spacing should be 1.15. The text must be right-justified.

All paragraphs (including those that come after long quotations) should be indented except the very first paragraph of a piece and any paragraph appearing immediately after a heading, subheading or sub-subheading.

There is no space after each paragraph except when the paragraph is followed by a heading (in which case there must be two line spaces after the paragraph) or a subheading or sub-subheading (in which case there must be one line space after the paragraph).

(ii) Font and type

A Times New Roman font is used by JOGA. The text must be in 12 point font. An 11 point font must be used for all indented quotations, ie long quotations of more than 40 words, which are preceded and followed by a 6 point space. Footnotes must be in 10 point font, with line spacing being 1.00 and the text being right-justified.

Italics are used for emphasis, for case names, names of journals and titles of books, plays, operas and films, names of ships and the titles of paintings and other works of art as well as for web sites and other electronic references. Italics are *not* used for foreign words. All italics in direct quotations are reproduced, however.

(iii) Titles of articles, notes, updates and book reviews

Titles of articles are in italics, right-aligned and always in caps in 14 point font. A line is left between the title and the author's initial(s) and surname, which are not in italics, are right-aligned and in 12 point font. The author's degrees are given in a footnote to the symbol † (and, in the case of a second author, ††) and

may be followed, in a separate sentence, by acknowledgements. The author's designation and affiliation appear immediately under his or her name, in italics, 12 point font and sentence case.

Titles of notes are in caps with, if applicable, case names in italics on a separate line. A line is left between the title and the author's initial(s) and surname, which are again in caps. The author's designation appears immediately under the name, in italics and sentence case. Degrees are not given but acknowledgements may be made in a footnote to the symbol † appearing after the author's surname.

Titles of updates are left-aligned and in bold. The first line indicates the relevant State, region or organisation in caps. The second line is in sentence case and contains the title of the update, which may be limited to the title of the relevant legal or policy instrument(s). The author's initial(s), surname, designation and affiliation are given in a footnote to the symbol †.

Titles of book reviews are left-aligned. The first line contains the title of the review in sentence case and in bold. The second line contains the reference to the book reviewed in sentence case and in the format in which the reference would appear if it were in a footnote with, in addition, the thirteen digits ISBN number. The initial(s), surname, designation and affiliation of the author of the review are given in a footnote to the symbol †.

(iv) Headings

All headings are left-aligned (other than headings of sections of *JOGA*). Main headings are in caps and bold. The headings in articles are numbered in roman numerals (e.g. 'I INTRODUCTION'). Subheadings and sub-subheadings are in sentence case. (a), (b), (c) are used for subheadings, which must be in bold. (i), (ii), (iii) are used for sub-subheadings, which must be in italics. Authors should avoid, wherever possible, going beyond sub-subheadings.

(v) Lists

(a), (b), (c) should be used for a list under a main heading and (i), (ii), (iii) should be used for a list under a subheading. Bullet points should only be used under sub-subheadings. Full sentences should start with a cap and end with a full stop. Phrases must start with lower case and end with a semi-colon (and a full stop right at the end of the list).

We use ‘first’ (not firstly); thereafter ‘secondly’, ‘thirdly’.

(c) Spelling, grammar and other related matters of style or convention

(i) Spelling and capital letters

JOGA uses the ‘s’ form of English spelling (e.g. recognise, emphasise, analyse, realise, organisation, but assets are ‘realized’). We say ‘in so far as’ and not ‘insofar as’; ‘moneys’ and never ‘monies’.

Capital letters are used in all proper names (e.g. South Africa, Constitutional Court). They are also used in the English official title of legislation and international instruments as well as to distinguish between two different meanings of a word (e.g. ‘Act’ (the statute) and ‘act’ (the deed); ‘Agreement’ (the treaty) and ‘agreement’ (the act of agreeing); ‘Constitution’ (the supreme statute) and ‘constitution’ (the act of constituting); ‘Convention’ (the treaty) and ‘convention’ (the general agreement); ‘Protocol’ (the treaty) and ‘protocol’ (the formalities of a procedure); ‘State’ (the country) and ‘state’ (the condition or position)). Finally, capital letters are used by tradition in a few other cases, such as ‘Parliament’ (the highest legislative body) and ‘President’ (the head of a State).

Please note: Caps are not used for court, appeal court, judge, judge of appeal, committee, board, council, municipality, province, premier, etc. (When in doubt, use lower case.)

Examples:

The appeal was upheld by the Supreme Court of Appeal in 2011.

It is likely that the appeal court will turn down the appeal. In terms of art 3 of the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water,

...

The Nelson Mandela Bay Municipality is facing a number of challenges. Nevertheless, the Municipality has recorded several successes. Likewise, most other municipalities have ...

... within the jurisdiction of the Minister of Home Affairs. No other minister may ...

... the already-ratified Conventions could be given effect
...

... there has been a 'follow-up' agreement to the 1990 Treaty in the form of the 1998 Protocol ...

(ii) Numbers, dates, percentages, currencies

Use words for all numbers between one and twenty and for all approximations ('about two hundred years', 'a thousand ways'). Numbers higher than twenty must be in figures.

All numbers in tables and graphs are in figures. So are legislative provisions ('par 4'), ages ('5 years old'), percentages (*JOGA* uses the words 'per cent' in the text ('10.4 per cent'), and only uses the figure % in footnotes, tables and when it appears in a quote) as well as measurements, quantities and amounts ('12 nm', '6 cm', '40 km', 'ZAR 5 million'). It is advisable also to use figures where a lot of numbers appear in a piece, as a consistent style looks better. A space (not a comma) is used in large numbers, as for instance in '42 567'. Where a 'rand and cents' figure is used, the cents should be connoted by a short hyphen ('ZAR 456-45'). For other currencies, use USD, GBP, €, ¥.

A sentence should never begin with figures, ie recast the sentence or use words.

Dates and centuries: 'on the 4th of July 2008' (but 'on 4 July 2008' in Internet references and 'of 4 July 2008' in references to legal instruments); 'in the 1980s' (not 1980's – there is no apostrophe); 'in the 20th century'.

JOGA uses the long dash – (known in the publishing trade as the 'em rule') where the author wishes either: (i) to tack a word, phrase or clause onto the end of a sentence for emphasis; or (ii) to mark off a 'by the way' remark in much the same way as a parenthesis, but generally to give it greater emphasis.

Examples:

His expertise and loyalty are available – at a price.

A policy shift is necessary to protect third parties – possibly unsophisticated entrepreneurs – who enter into pre-incorporation contracts.

In other circumstances, the short hyphen [-] must be used.

Examples:

Jean-Jacques.

Seven-year-old boy.

(iv) Quotations

Quotations are reproduced exactly, including all original italics and original punctuation, notwithstanding that the original forms might not comply with the *JOGA* style.

Quotations appear in single quotation marks. Quotations within quotations appear in double quotation marks. Back to single for the rare quotation within a quotation within a quotation.

Short quotations appear as part of the text. Long quotations, ie quotations of more than 40 words, are isolated from the text by being indented from both the left margin and the right margin.

Whenever a quotation is introduced by other words, the quotation should start with lower case (using square brackets to indicate an alteration where necessary). Ellipses need not be used at the start of a quotation but must be used in the middle and at the end of a quotation to indicate missing words. We use three dots for any missing word(s). We do not include in a quotation of up to 40 words the full stop at the end of that quotation. (Thus ‘right [...]’. and not ‘right [...].’)

(d) Requirements for referencing standard legal sources*(i) International instruments*

A reference to an international instrument must include the year of adoption and official name of the instrument (if not mentioned in the text) as well as the reference to where the instrument has been published, including the *UNTS*, *ILM* and *LOS* references, if applicable. (See below for referencing style in the case where the instrument is only available on the Internet.) In addition, the reference must mention: the date of adoption (date, month and year); the date when the instrument came into effect or the fact that the instrument has not come into effect (‘EIF: not yet’); and the status of the instrument with regard to the State(s) concerned (e.g. ‘signed in 2002’ or ‘ratified in 2010’). In footnotes, ‘UNGA’ is used instead of ‘UN General Assembly’ and ‘UNSC’ instead of ‘UN Security Council’.

Examples:

1982 UN Convention on the Law of the Sea [1833 *UNTS* 3, (1982) 21 *ILM* 1245; adopted: 10 December 1982; EIF: 16 November 1994]. South Africa ratified the Convention in 1997.

2000 Constitutive Act of the African Union [2158 *UNTS* 3; adopted: 11 July 2000; EIF: 26 May 2001]. South Africa ratified the Act in 2003.

Please note: The title of a Protocol must include the title of the instrument to which the Protocol constitutes an addition (e.g. ‘the 2008 Protocol to the 2000 Constitutive Act of the African Union on the Statute of the African Court of Justice and Human Rights’).

Please also note: Do not abbreviate the word ‘section’ when it is used to refer to: (a) a division within one of the seventeen parts of the UN Convention on the Law of the Sea; or (b) any similar division within another instrument.

(ii) Cases

All case names are to appear in italics. A shortened name should be used consistently in the main text, with the full name and citation being given in a footnote the first time the case is referred to. Additional parties are referred to using ‘and Another’ or ‘and Others’).

Examples:

M/V ‘Saiga’ (No 2) (Saint Vincent and the Grenadines v Guinea) 1999 ITLOS Reports 10 at 23.

Broad (Pty) Ltd v Thin 2008 (4) SA 456 (SCA) 15.

Page references (with marginal letters) may be given. Paragraph references must be provided when paragraphs are numbered. If the case is not reported in a published set of law reports (either at all, or has not as yet been published in this manner due to the decision being very recent), the author should please provide some form of citation for the purposes of reference. This could be a JOL or JDR citation, or a neutral citation used by the courts and SAFLII.

With the proliferation of electronic databases and neutral citations, there is less and less call for an author to refer to a case as being unreported. However, where it is necessary to do so, the *JOGA* uses two basic styles for unreported cases, the date being the date of judgment: '*Dlamini v Jacobs* (NPD) unreported case no 98/05 of 3 August 2006' or '*Dlamini v Jacobs* (NPD) unreported case no 98/05 (3 August 2006)'. In addition, the placement of the word 'unreported' may be varied in accordance with the structure of the sentence, e.g. 'in the unreported case of *Dlamini v Jacobs* (NPD) case no 98/05 of 3 August 2006 ...'.

A full set of standard case abbreviations and citations may be found in the *House Style for Juta Publications*.

(iii) Books

All the author's initials and surname must be given as they appear on the title page of the book or on the title page of the chapter / relevant page of the article. For instance, 'John D Smith' must appear as 'J D Smith' and not as 'John D Smith' or 'J Smith'.

In a reference, the co-authors of any work (book, article, chapter, whatever) take an ampersand (e.g. 'J Smith & M Dlamini'). We cite up to three authors (e.g. 'J Smith, M Dlamini & R Pillay'). Thereafter use 'et al' (e.g. 'J Smith et al'). Avoid as much as possible to refer to authors in the text (rather give whatever credit is required in a footnote).

If the named persons are the authors of the book, then no more need be said. But if these are the editors, then the abbreviation (ed) or (eds) must appear after the last surname.

Book titles take the title case and appear in italics. If it is the first edition of the book, then no edition need be referred to; it will be assumed that it is the first edition. If the book is in an edition after the first, the number of the edition must appear after the title ('2 ed', '3 ed', '4 ed', not '2nd ed', '3rd ed', '4th ed').

The year of publication must appear in brackets after the title (in the case of first editions) or edition.

The precise page number(s) where the authority was found comes next, if necessary. If the book operates by numbered paragraphs (which may be connoted either by 'par' or by '\$'), then this will be a sufficient reference. If it is necessary to refer to both paragraph and page, then do so as follows: 'par 27 at 160'. This latter method should be used only where absolutely necessary. Where the reference is generally to a chapter in

the book, this should be indicated by using the whole word (not 'ch').

Examples:

John D Smith & Sipho Dlamini *Hand's Law of Arbitration* 5 ed (2006) 115.

P Q R Boberg *The Law of Delict: Aquilian Liability* (1984) chapter 3.

(iv) *Chapters in books*

Where an author refers to a chapter in a book written by a specific author (most commonly in a book constituted of chapters by experts on a common theme and which have been collected and edited by a general editor or editors), then both the chapter and the book must be referenced in full the first time the work is cited.

The author must be referred to exactly as he or she was in the book and the titles of chapters in collections are always in sentence case and roman. The book is to be cited as above.

Example:

M Bear & D Bear 'Too hot, too cold, just right?' in M Goldilocks (ed) *The Politics of Cookery* 3 ed (2004) 23–27.

Some works (especially encyclopaedias and loose-leaf books) can give problems. Try to follow this style:

A J Kerr 'Lease' in W A Joubert (founding ed) *The Law of South Africa* (1999) XIV first reissue par 164.

Joe Bloggs 'Executive government' in S Woolman et al (eds) *Constitutional Law of South Africa* 2 ed (Service 12) 6-18.

(v) *Journal articles*

All the author's initials and surname must appear exactly as they appear in the journal being cited (the rules apply as for books).

The title of the article must appear in sentence case, in roman, and within single inverted commas.

The year (in brackets, except where there is no volume number), the volume (where relevant), the issue (in brackets and only where page numbers start again at page 1 in each

issue) and the title of the journal must be supplied. The title of the journal must be in italics.

The names of journals should only be abbreviated in the following cases:

AGR	African Geographical Review
AJICL	African Journal of International and Comparative Law
AJIL	American Journal of International Law
AJLS	African Journal of Legal Studies
AJMS	African Journal of Marine Science
ASR	African Security Review
AYIL	African Yearbook of International Law
CILSA	Comparative and International Law Journal of Southern Africa
EJIL	European Journal of International Law
ICLQ	International and Comparative Law Quarterly
IJMCL	International Journal of Marine and Coastal Law
ILM	International Legal Materials
JAL	Journal of African Law
JAUS	Journal of African Union Studies
JIML	Journal of International Maritime Law
JMA	World Maritime University Journal of Maritime Affairs
JMLC	Journal of Maritime Law and Commerce
JSAS	Journal of Southern African Studies
LA	Law in Africa
LMLJ	Loyola Maritime Law Journal
MLJ	Maritime Law Journal
MP	Marine Policy
OCLJ	Ocean and Coastal Law Journal
OCM	Ocean and Coastal Management
ODIL	Ocean Development and International Law
OY	Ocean Yearbook
RAAMT	Revue Africaine des Affaires Maritimes et des Transports
SAJIA	South African Journal of International Affairs
SAJMET	South African Journal of Maritime Education and Training
SAJMS	South African Journal of Marine Science
SAYIL	South African Yearbook of International Law

TMLJ Tulane Maritime Law Journal
 UNTS United Nations Treaty Series

The numbers of the first and last pages always need to be indicated, followed, if applicable, by the number of the page(s) being referred to.

Examples:

G Abraham 'Lines upon maps: Africa and the sanctity of African boundaries' (2007) 15 *AJICL* 61–82.

E de Coning & E Witbooi 'Towards a new "fisheries crime" paradigm: South Africa as an illustrative example' (2015) 60 *MP* 208–215 at 211.

(vi) *Theses*

D B Hamman *River and Maritime Boundaries between South Africa and Namibia* (unpublished PhD thesis, University of Cape Town, 1991) 134.

(vii) *Newspapers*

Angela Jones 'Nuclear reactor in trouble' *The Star* 24 May 2005 at 2.

(viii) *White papers, etc*

The White Paper on Energy Policy (GN 3007 in *GG* 19606 of 17 December 1998).

(ix) *Law Commission papers*

South African Law Commission Issue Paper 20 (Project 123) *Protected Disclosures* (2002) par 3.

South African Law Commission Discussion Paper 107 (Project 123) *Protected Disclosures* (2004) par 56.

South African Law Commission (Project 123) *Report on Protected Disclosures* (2007).

(x) *The South African Constitution*

The long citation (used when referring to the Constitution for the first time) is simply 'Constitution of the Republic of South Africa, 1996'. The interim Constitution is 'the Constitution of the Republic of South Africa Act, 1993 (Act 200 of 1993)'.

(xi) Legislation

Give the short title and year in the text (e.g. ‘the Maritime Zones Act, 1994’ or ‘the Maritime Zones Act, 1994 (MZA)’ (when you are referring to the Act and/or its specific provisions more than once)) and indicate the number and year of the statute in a footnote (e.g. ‘Act 15 of 1994’). Thereafter, use the acronym (e.g. ‘Section 4 of the MZA’, ‘See s 5–6 of the MZA’).

Use abbreviations for ‘section’, ‘subsection’, ‘paragraph’, ‘subparagraph’ and ‘article’ (but never at the start of a sentence): section = ‘s’, subsection = ‘ss’, paragraph = ‘par’, subparagraph = ‘subpar’, article = ‘art’. The abbreviations are the same for the plurals. Please note that the above words are not abbreviated when they are not referring to a legislative provision.

Use ‘annex’, ‘appendix’, ‘chapter’, ‘part’, ‘schedule’ and ‘title’.

(xii) Delegated legislation

A proclamation is cited as follows: Proc R46 in GG 24567 of 31 January 2003.

Regulations are cited by referring to the notice in which they appear, e.g. ‘the Merchant Shipping (Navigation Bridge Visibility) Regulations, 2004 (GN R1199 in GG 26878 of 15 October 2004)’. A regulation is abbreviated to reg, as in reg 5(1) (but not at the start of a sentence).

(xiii) Internet references

Wherever possible, a published and authoritative source should form the basis of a reference. When it is not possible, authors may refer to websites, provided that the authors consider carefully how authoritative the source of the information is before using it.

Where an Internet reference is to be used, it must appear as follows:

Example:

African Union ‘Decision on maritime security in Africa’ (AU Doc. EX/CL/Dec. 60 (III) 2003, available at [http://www.au.int/en/sites/default/files/ex%20CL%20DEC%2020%20-%2074%20\(III\)%20_E_0.pdf](http://www.au.int/en/sites/default/files/ex%20CL%20DEC%2020%20-%2074%20(III)%20_E_0.pdf), accessed on 16 September 2013).

North Atlantic Treaty Organisation *Operation Ocean Shield Fact Sheet* (2012) (available at http://www.nato.int/nato_static/assets/pdf/pdf_topics/1889-12_Factsheet_OOS_en.pdf, accessed on 17 December 2013).

Please note: the URL must appear in italics, in black and must NOT be underlined.

When it is not possible to ascertain the date of the document or page to which one refers, '(no date)' must be used after the title of the document or page.

Where an author has accessed a published source on the Internet (e.g. a journal article accessed through WestLaw), the original citation should be given, and there is no need to refer to the URL. The exceptions to the above rule are newspaper articles accessed from the Internet, or resources such as law commission reports etc. from other countries, which may not be obviously or easily accessible to interested readers. For convenience, authors are strongly encouraged to give a URL reference over and above the reference to the published source.

(e) The use of footnotes

Authors are encouraged to use footnotes to elaborate on points that would otherwise clutter the main text of the contribution. The other important purpose of footnotes is to provide the relevant references without cluttering the text.

In footnotes, a reference to any authoritative source (which must comply with the house style described above) is given once in full. Apply the relevant requirements for referencing standard legal sources (see (d) above).

Thereafter a book, chapter, journal article, newspaper article, law commission report, thesis will be cited by author(s) and a cross-reference (using 'op cit') to the FIRST footnote, where the full reference appeared. An abbreviated reference to the work may be used to provide further guidance where appropriate (e.g. several of an author's works are cited sporadically in an article).

Examples:

Smith & Dlamini op cit note 5 at 67.

Dugard *International Law* op cit note 13 at 234.

See Ali op cit note 14 at 33, who expresses

Cases are also cited using the cross-referencing method, but ‘supra’ is used.

Examples:

Nottebohm supra note 12 par 34.

Supra note 16 at 365G–H.

For consecutive references to the same work, ‘ibid’ is used with or without a page number or paragraph reference as appropriate.

Examples:

Ibid.

Ibid at 45.

Ibid par 45.

(f) Miscellaneous

A name should appear in full before any acronym is used for it. The acronym must be introduced immediately after the full name it is referring to (e.g. ‘the Benguela Current Commission (BCC) governs ...’). (*JOGA* uses ‘LOSC’ for the 1982 UN Convention on the Law of the Sea and ‘UNCLOS I’, ‘UNCLOS II’ and ‘UNCLOS III’ for the UN conferences on the law of the sea.) However, this does not apply, in the footnotes, to acronyms that are very well known (e.g. AU, BRICS, EAC, ECOWAS, EEZ, EU, FAO, ICJ, ILO, IMO, ITLOS, NGO, OAU, PCA, SADC, UN, UNEP and US or USA).

If at all possible, avoid starting a sentence with an acronym or any other kind of abbreviation.

Where an entire sentence appears in parentheses, the full stop is placed inside the second bracket. (Here an entire sentence is bracketed.)

When giving starting and ending page numbers and paragraph numbers, do not remove figures (e.g. ‘34–35’ and not ‘34–5’).