



ADVOCACY FOR OCEAN LITERACY AS A FUNDAMENTAL REQUIREMENT IN HUMANITIES SCIENCES GLOBALLY FOR SUSTAINABLE AND EFFECTIVE OCEAN GOVERNANCE

KARANJA Ciku Wanjiku¹

¹World Maritime University, Fiskehamnsgatan 1, 211 18 Malmö, Sweden

*“As Blue Planet Dwellers, Not Just Earth-Dwellers & Ocean-Users,
‘Blue Stewardship’ Is Our Collective Responsibility.”*

C. Wanjiku Karanja

*“Bahari ni uhai, matumizi ambayo itatustawi au itatuangamiza.” [The ocean is life, the use of which will
either support us or destroy us all.]*

Eliud A. Karanja 1940-2006

Abstract : The implementation of UN [1] Sustainable Development Goals, specifically Goal 14, and the UN Decade of Ocean Science for Sustainable Development 2021- 2030, (UNESCO, 2021), has generated global interest in ocean literacy, albeit without corresponding formal impetus for formal adoption of the concept - as is the case for many developing countries. This paper explores the inextricable links between Sustainable Development Goals (SDGs) 14, 4 and 17. Ocean literacy is needed as a fundamental human science requirement for student and youth learning, across geographies, languages and curricula. Evidently, there are global examples of successful OL [2] initiatives which have been shown to be effective tools in creating unique, immersive, life-impacting learning experiences about the marine environment for both learners and educators. (Mann-Borgese et al., 2018) (Fauville et al., 2018a) Cognisance is also given to the current period of the UN Decade of Indigenous Languages 2022 – 32 (Martin, 2017), aptly displayed in the translation of the International Ocean Literacy Survey [3] (IOLS) framework into 16 international languages. (Fauville et al., 2018) The introduction of learner-friendly material, including in story-telling formats, is proposed as an effective learning tool for young learners. One such example is a cartoon publication in story format, illustrating ocean-literate choices based on IMO principles, translated by this paper’s author, into Africa’s most widely spoken Sub-Saharan language, Swahili,[4] – with relevance of indigenous languages. (Salawu, 2006). This submission advocates for learning systems that define relevant content and introduce ocean pedagogies aimed as empowering learners by establishing ocean literacy as a fundamental human science. The ability to effect positive and self-driven personal behaviour creates the best defence for ocean and planet sustainability by enhancing learners’ familiarity with ocean literacy principles, creating or strengthening the people-planet relationship, affect paradigm shifts in anthropogenic activities and inclusion of alternative marine environment education. (Watanabe, 2020). A collaborative approach amongst all stakeholders is necessary for the sake of the planet, people and progress.

Key words : Advocacy, development, goals, governance, humanity, marine environment education, Ocean Literacy Survey, principle, tool.

1. INTRODUCTION

The Education plays a vital role in the development of knowledge, attitudes, values, career choices and ultimately behaviour of future generations, towards ocean science, ecosystems, health and sustainable practices. The relationship between the ocean and human livelihood has always been interlinked and yet the status of the continuous declining health of ocean ecosystems

has been of great importance, not least dispelling the myth that the ocean is limitless in its ability to absorb without much detriment, the activities of mankind. Continued unabated, these activities will present dire consequences for humanity and the planet. [5]

3.2 billion people worldwide depend on the ocean, which provides numerous critical functions and services to life both below and above water.[6]

Definitions of ocean literacy are a little varied, yet similar. The concept itself was manifested in the United States of America in 2002; subsequently leading to the implementation of United Nations Sustainable Development Goal 14 in 2017. Research has shown that the scope of Ocean Literacy has been defined as the cultivation of a meaningful, emotional attachment to the ocean, promoting positive behavioural change. Further, it supports the premise that comprehension of ocean matters forms an essential tool for marine information dissemination, fostering interpersonal relationships and motivating people and communities towards sustainable actions for the betterment of the marine environment.[7],[8],[9]

- *Ocean Literacy Principles*

1. The Earth has one big ocean with many features.
2. The ocean and life in the ocean shape the features of Earth.
3. The ocean is a major influence on weather and climate.
4. The ocean made the Earth habitable.
5. The ocean supports a great diversity of life and ecosystems.
6. The ocean and humans are inextricably interconnected.
7. The ocean is largely unexplored.

First, bridging the gap between inadequate educational curriculums on ocean literacy and international guidelines on the principles and fundamental concepts of ocean science is necessary.[10] Several countries success stories come to mind; Portugal's blue school program (MIONI, 2022), South Africa's two oceans aquarium, Sweden's marine knowledge centre, to name a few.

Secondly, the necessity of exploring possibilities of enhancing ocean literacy for young learners via non-curricula alternatives such as creating an ocean literacy centre(s) or creating an "Adopt-a-school" campaign for private sector stakeholders to create, carry out and own ocean educational social responsibility programs for young learners in catchment area of their business operations. Similarly, like in the case for the WIO (*Western Indian Ocean*) region, students will be likely beneficiaries of school organized "Adopt-a-BMU" programs for hands-on learning of ocean affairs touching on fishing, marine habitats, climate change impacts, human impact, etc.

Third, the use of child-friendly material like the cartoon book translation of an IMO-based publication is referenced as an educational tool for young learners, the focus being the sustainable journey based on the UNDOS (*United Nations Decade of Ocean Science*) theme, 'the science we need for the ocean we want', from the UN General Assembly Resolution A/RES/72/73. The English to Swahili translation has been undertaken by the author of this paper (Fig. 1). Many other publications, movies, TV shows and gaming have been used for young learners' world over, like: '*Finding Nemo*', '*Baby Shark*' song & dance, and J.

Cameron's '*Avatar: Way of the Water*.'(Various productions, movies based on the ocean theme - all rights & protocols reserved).

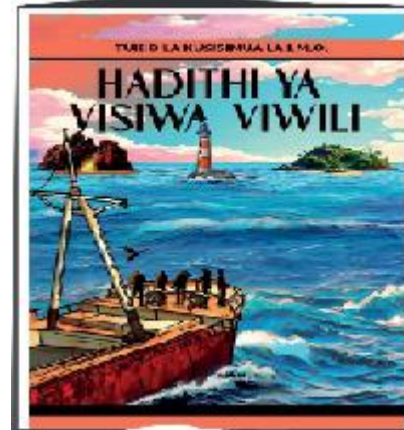


Figure 1 Cover page of the IMO Epic Adventure, "A Tale of Two Islands" Swahili Translation by Karanja, C.W

Lastly, the ethos of international partnerships and cooperation cannot be ignored. It is only through leveraging of UN SDG 17, that links SDG 4 and SDG 14, that promotes public, public-private, and civil society collaborations to realize sustainable development (Fig. 2).



Figure 2 SDGs 4 and 14, UN Decade Themes relating to Ocean Science Learning

More research is needed to provide insight into the potential impact of integrating ocean literacy into the educational curriculum as a means of promoting quality education and lifelong learning, a UN SDG 4 goal. The development of new and enhancement of current initiatives of scientific knowledge aimed at mitigating and preventing negative effects of anthropogenic activities on the marine environment, create partnerships to achieve understanding and harness benefits of the

ocean - are enumerated in the aspiration of Agenda 2030.[10]

Furthermore, creating impetus for learners towards ocean-based career opportunities in a wide range of areas; research, marine ecosystems, innovative 'blue' engineering and architectural solutions, advocacy for fairer, 'greener', sustainable ocean practices, and forms the cornerstone of all other aspects of this workshop's topics – navigation, economics, engineering, technologies, telecoms, security, safety and energy. More in-depth, wider studies are recommended going forward.

The use of globally applicable practices provides pathways to the successful introduction and enhancement of Ocean Learning Curricula in developing, less developed and small island states, as a marine educational tool for future ocean environmental management, conservation, and social initiatives. For example, in my country Kenya, the inadequacy of Ocean Literacy was witnessed through the rejection of a motion to the County Assembly by MCA Mwavula, Bamburi Ward, to include blue economy lessons into schools' curriculum for Mombasa County.[11]

Viewed positively, it is a potential area for developing educational interventions, formally or otherwise.

We therefore need to examine ocean literacy knowledge levels of students worldwide through established standards of the global IOLS framework, adopted in 24 countries and translated into 16 languages courtesy of comprehensive, far-reaching research by Geraldine Fauville and team. [9]

- *What outcomes should we expect from Global Ocean Literacy Advocacy?*

Integrating OL concepts for young learners could help many countries to develop specialized learning material, facilities and programs for school-aged children thus raising literacy levels, allowing for ocean-centric solutions to challenges of human-generated damage to ocean ecosystems, ensuring better management of ocean resources by coastal communities, while supporting both ocean and human livelihoods.

Thematically, we could draw further synergies by using OL as a bridge between maritime and marine sectors to effectively address the challenges of climate crisis, pollution and biodiversity loss and damage. A perfect example is a simple one. Create a bridge between marine and maritime sector initiative, actions and programs. This synergistic approach comes from a student-based group of young, forward-thinking, and proactive ocean-industry professionals currently studying at the World Maritime University in Malmo under their self-initiated auspices of GOL I (Global Ocean Literacy Initiative) (Fig. 3), aimed at promoting sustainable stewardship of the ocean across their multi-national spaces.



Figure 3 Photo courtesy of WMU S24 GOL I student founder members at HSR, Malmo, Sweden

Additionally, periodic re-evaluations of IOLS (International Ocean Literature Survey) studies may provide useful trend analysis over time.

Finally, the ability to incorporate this study's outcome as a tool for learning into regional and continental programs - like on my continent - within the African Union, AfCFTA sea ports development, and a UNEP toolkit may be explored for the added advantage of applicability to Africa's overall strategic interests.[12]

The advances made in this respect in the global North ought to be replicated in the global South, if at all we intend to "leave no one behind".

2. THE CASE FOR UNIVERSAL ADOPTION FOR IOLS PRINCIPLE

2.1 Complementary of the Sciences:

Different "sciences" provide complimentary rather than divergent views. Testament to this is the on-going workshop of Constanta Maritime University. Kudos to the Romanian Ministry of Education and the University for this scientific workshop, collating maritime transport, economics, engineering, environmental, humanities, technological-AI-security, and emergent energy aspects for us all.

2.2 The International of Ocean Literacy:

Though the IOLS framework appears to have been centred around Europe and Global Northern states, it does not preclude the Global South from instituting mechanisms of implementing this tool.

The initiative to develop a standard toolkit for ocean literacy was the impetus that gave rise to the current OL movement that since then, has spread round the world. [13]

In 2018, it led to evaluating the need for OL in **South Africa**. [14]

In **China**, the COLS framework was adopted to survey high school students using psychometric properties of the OL scale. [15]



It is credited as the beginning of marine sustainability initiative using preliminary results of measuring students' marine knowledge levels in Taiwan.[16]

Earlier research in **America** and **Portugal** showed ocean literate individuals as more willing to adopt more sustainable knowledge and technology. Possible abilities of IOLS toolkit include “*OL will embrace all subjects, not only science, but also art, music, archaeology, culture, geography*”.[17] It aided adoption of climate initiatives by farmers [18] in the **UK**, and the furtherance of IOLS adoption in understanding OL and ocean climate-change related behaviour change.[19]

Adoptive alternative learning methods outside of formal educational curriculums and win mind sets, affect behaviours and breed a more knowledgeable future cohort of blue engineers, green architects, AI-program literate technical experts, adequately trained seafarers handling MASS vessels, better equipped researchers and a plethora of ocean-based career technocrats.

Not only has IOLS affected positive change across countries and continents in ocean literacy levels but is also credited with extending IOLS-based teaching methodologies into the realms of non-traditional avenues, such as, cartoon and other student-centric reading materials; encouraged the exploration of gaming as a new literacy mechanism; and influenced the examination of Twitter (now “X”), as having great potential to increasing OL levels.[20] It appears that the possibilities are endless.

3. GOVERNANCE TOOLS & IMPACTS

Ocean education is a powerful tool and of critical relevance to all states. Empowering learners to take informed decisions, responsible actions for environmental integrity, economic viability, and a just society: will help us *achieve the Ocean Decade societal goal of an inspiring and engaging ocean*, for all the benefits we derive from our marine resources. The difficulty of ocean governance and clarity for future generational capabilities is paramount.[21]

Indigenous content in learning environments will greatly enhance learners' affinity and (relatability) relationship to the subject; knowing that such teaching ‘is embellished in the heart’ and is lasting.[22]

Adoption: The challenge of governance may be rooted in the inadequacy of formal adoption of an ocean literacy framework, per international standards, for countries yet to adopt this voluntary instrument. For many developing, LDCs and SIDs budgetary limitations detail the reality of inadequate funding and development of marine-related requirements.[23]

Research shows that OL improves decision-making, informs blue infrastructural investment policy, science, meaningful and impactful research, improves effectiveness of conservation measures, elevates sustainable livelihoods and contributes to economic growth. Increased coverage of marine protected areas

globally improved from 1.79 million km² to 28.05 million km² in the last 2 decades.[24]

Leaners Rights: Students' world over will need to be adequately prepared for future ‘blue careers’, taking cognizance of advances in marine technology, green energy, shifts in ocean-related skills, smarter fishing techniques, medical benefits, seabed minerals, conservation of endangered species, pollution prevention and many more.[25]

More recently, students in parts of the world have been agitating for their voices to be heard and for lessons to incorporate climate education.[26],[27]

Smart Regulation, an emerging regulatory instrument uses a mix of tools with minimal intervention, encourages participants to act as surrogate regulators (banks, shippers, communities), and strives towards integrated solutions that benefit nature, society, and the economy for a win-win outcome.[28]

4. NOTES OF BACKGROUND & HISTORY: RESEARCH LITERATURE AND APPLICATIONS

Research methodology is the has been defined as the pursuit of answers to questions through the application of scientific process.[29]. The quantitative approach has been used to aid various approached- inferential, experimental and simulation.[30]

By investigating and understanding the inter-twined relationship of earth and ocean, young learners understand their environments, the emergent challenges, and proposed solutions for better planetary governance. These are increasingly relevant in the social, legal and environmental aspects of today's vagaries of floods, heat waves, cyclones, snowstorms, draughts affecting schooling hours and access.

The research ‘*Development of the International Ocean Literacy Survey: Measuring knowledge across the world*’, captures the understanding of ocean literacy from collection of data based on investigations around the world. Repeat testing using the outcome of the study – *International Ocean Literacy Principles* – have been adopted and are now used worldwide as a tool for ocean literacy surveys. The study's translation of the IOLS tool into 16 languages is a powerful testament to its global applicability.

Other articles ‘*Youth and the Sea, Ocean Literacy in Nova Scotia, Canada*’, measured ocean valuation, knowledge interaction, and interest in a student population, and how this impacts the correlation between students and the ocean; and ‘*Insights and recommendations for involving young people in decision making for the marine environment*’, illustrates clear articulation of the correlation between young learners understanding, engagement and ultimately public participation in the stewardship of marine issues. Use of International Ocean Literacy principles proved the hypothesis of strong linkages between environmental

and economic benefits in relation to enhanced ocean literacy levels.[31] ,[32]

These findings and conclusions drawn are then used to drive policy generation and decision making in educational curricula, infrastructure, environmental management and planning, societal investment decisions, future strategic investments, among others. Responsible behaviour and actions amongst young citizens are also inculcated early enough to impact life-long positive learning.[9]

5. CONCLUSIONS

Conclusion text Innovative and inclusive global ocean learning ought to be leveraged to advance the universality of ocean knowledge acquisition for young learners who are *future blue-planet stewards*. A common global education tool can standardize learning frameworks. This is key in sustainable environment-commercial-social balanced approaches to tackling the triple-planet threats and meeting UN SDG Goals (Fig.4)[33].

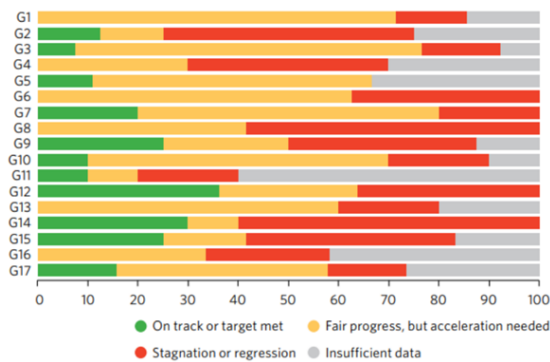


Figure 4 Progress assessment graph for the 17 Goals sourced from UN Sustainable Development Goals Report 2023

A key lesson from a humanities science perspective is that the human-social aspect is important in contributions to science, policy formulation, life-long education, and the protection of natural resources.[34]

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