



# A Study on the Importance of the Blue Economy Education to all Citizens of Zanzibar

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## ARTICLE HISTORY

*Received 2 January 2023*

*Accepted 28 May 2023*

## KEYWORDS:

*Blue economy*

*Blue economy education*

*Economic development*

*Zanzibar.*

## ABSTRACT

The concept of blue economy is an emerging idea that has yet to be well understood. More efforts are needed in the understanding of the concept to fully derive benefits from the blue economy. This study examines the importance of the blue economy education in Zanzibar Islands. The study used qualitative approach where questionnaires, interviews as well as documentary reviews were employed. A population of 200 respondents were chosen to answer the four research questions of this study to meet the objectives. Purposive sampling was used to select participants with regard to their positions and the required information. Findings reveal that 70% of citizens have very little knowledge on the concept of blue economy while 90% of respondents believe that education on the concept of blue economy is mandatory. On the other hand, 55% of the respondents understand that resources within the ocean can provide respectable and better jobs. The research concludes that, knowledge of blue economy from reliable sources could empower citizens explore opportunities offered by the ocean to sustain life and for economic development of the nation.

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## 1. Introduction

Blue economy emphasizes on the use of resources that are found in the ocean for economic growth and ideal living conditions for the citizens without ignoring environmental protection of the ocean and its resources (UN, 2020). Blue economy therefore is an effort to generate activities related to the exploitation of water body resources to make inclusive and progressive economic health without violating the goals of sustainable environmental development (Spalding, 2016). It can also be argued that blue economy is an idea and technique of protecting oceans in the world and their resources (Lee, et al., 2020). There are two important aspects that carry the weight of the concept of blue economy; first, economic development and second, is protection of the ocean and its sources. These two aspects are closely related and underscore the need for use of the ocean for sustainable economic purposes. The United Nations (UN) Agenda 2030 on sustainable development targets on eliminating poverty, protecting the planet earth and to ensure all human beings live in peace and prosperity. Therefore, to take actions on life underwater (Goal 14) is one way of approaching to the plans of the goals of sustainable development (NEPAD, 2019). Although ocean presents wider opportunities for development, there

is several coastal states and small Island states like Zanzibar that are still living in poverty.

At the continental level, the African Union has developed a plan for sustainable development with the aim of accelerating Africa's economic growth in a sustainable manner as contained under Agenda 2063 (AU, 2013). This is a fifty (50) years goal plan which was named, "the Africa we want", which started in 2013. The agenda of Africa is based on emphasizing on the use of the ocean for development of economy of the member countries. These guidelines light a way in forming and implementation of the plans for sustainable development of the blue economy in Zanzibar. As Zanzibar embarks on sustainable use of the ocean for human and economic development, it is important to examine the importance of knowledge of blue economy to Zanzibaris so that they participate fully. When one looks at psychological perspective, education is a needed factor for behaviour change (Arlinghaus, & Johnston, 2018). Lack of knowledge on blue economy could hinder the implementation of the government's development plans. The wish of knowledge, like the thirst of resources, increases ever with the achievement of it (Sterne, 2014). In response to the global and continental initiative of blue economy, the Government of Zanzibar has developed a new Zanzibar Blue Economy Policy (ZPC, 2020).

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The policy aims guiding and promoting socio-economic development through better and sustainable use of the ocean and related resources. The study was guided by four specific objectives: to measure the knowledge of the Zanzibaris on the concept of blue economy; the need for education about the blue economy; availability of decent job opportunities in the blue economy sectors and the issues of blue economy. The significance of this study lay on the fact that its results are expected to create new knowledge to the citizen and students at all levels of formal education from primary school for their future quality life and sustainable development of the country that will come from the blue economy. The study findings can further stimulate reflections and discussions for further research among mariners, policymakers, psychologists, educators, employers, counsellors, social security schemes, as well as financial bodies in satisfying the needs and wants of the employment market and government's efforts in alleviating poverty among citizens of Zanzibar. Recommendations based on the study findings could also form a basis for future research.

## 2. Methodology

This study used qualitative method to investigate the importance of education on blue economy to citizens and students from primary school to higher learning level in Zanzibar. The study was conducted on a sample of participants from Dar es Salaam, Mainland and Unguja, Zanzibar. The study targeted groups were the citizens and students from primary school to universities. A sample of 200 participants from public sectors, private sectors, and maritime sectors stakeholders comprise the participants of the study (Table 1).

**Table 1.** Sample Selection of the 200 Participants of the Study.

Sectors	Males	Females	Total	Percentage (%)
Stakeholders	40	20	60	30
Seafarers	30	30	60	30
Scholars	40	40	80	40
Sum	110	90	200	100

In data collection, three approaches were applied including questionnaire, interview, and documentary review. The study used questionnaires for gathering data focusing on the objectives of the study. The questionnaires comprised both open and close-ended questions on blue economy. Most of the questions were the same for all categories of participants, except for specific social and demographic characteristics. Seafarers and scholars' questionnaires had additional items that were not included in the stakeholders' questionnaires. Additionally, Interviews were used to generate data which would supplement primary data from questionnaires to seek for clarification on key issues. Both structured and semi-structured interview questions were used in this study. Face to face semi structured interviews were conducted with both respondents. Some organized questions were considered valid for this study as they provided an opportunity to probe further issues, which needed more information. In the same vein, documentary review was used in gathering background material, provided information in developing other data collection tools for evaluation and document review guides the process of compiling documents relevant to the evaluation of the study. Moreover, documentary review was used in gathering background information in developing other collected data for evaluation. Data were analyzed to obtain descriptive data such as frequencies and percentages through Statistical Package for Social Sciences (SPSS). The research employed inductive phenomenological

analysis of which data from specific to general so that exact case is observed and then combined into a larger whole or general statement in a meaningful way. The researcher followed five inductive steps as follow; first step is open coding, second was coding sheet, third a grouping (utilization), fourth was interpretation, and fifth step researcher came to the writing stage whereby the narratives with respect to research objectives and questions were written.

## 3. Literature Review

### 3.1 Theoretical Review

This study investigates the importance of the blue economy education to the citizens of Zanzibar. Two theories are discussed in this study of which, one is related to psychology and another one with blue economy; each theory discuss the purpose of the research. These theories are; Theory of Planned Behaviour (TPB) (Ajzen & Fishbein, 1980) and Steps Toward Blue Economy (STBE) (Gurumo & Mitula, 2018) respectively. George (1964) elaborates that theory is made of ideas that are retrieved from the research and prognosis of what will happen in the future. Schmallegger (2009) contends that despite their variations, all current theories share similar objectives that lay the groundwork for implementation. Self-efficacy is a key concept in the social learning theory and is linked to behaviour modification (Kwasnicka, Dombrowski, White, & Sniehotta, 2016). The impression that actions will have results and the belief in one's own capacity to carry out those actions successfully make up self-efficacy. Education plays a role in both components of self-efficacy.

#### *i. Theory of Planned Behaviour (TPB)*

TPB is a theory which foresees deliberate behaviour because actions can be deliberate and planned (Ajzen, et al. 1980). Mental preparation is essential to know that reaching the goal of sustainable economy of Zanzibar blue economy is obligatory and therefore blue economy education is a must, this behaviour should be adopted for the purpose. Kwasnicka et al. (2016) argues that behaviours are corporeal events that happen in the body and are controlled by the brain. Planning behaviour can be viewed as a specific method of goal setting because it must be ingrained. Zanzibar's residents had lived in poverty for a long time. Although they had no intention of failing, they neglected to make plans for how to use the plentiful resources available in the nearby ocean to boost their economy. The most important determinants of an individual's behaviour are their intention to engage in the behaviour, not their attitudes toward behaviours. According to the TPB, people are more likely to engage in a behaviour if they think it will result in specific outcomes they value, if they think people whose opinions, they value think they should do it, and if they think they have the resources to do it. The background aspects for TPB are listed by Azjen (2005) and include: *Individual*, which includes personality, mood, emotion, intelligence, values, stereotypes, general attitudes, and experience; *Social*, covering education, age, gender, income, religion, race, ethnicity, and culture; *Information*, which are knowledge, media, and intervention. Thus, TPB includes attitude toward the behaviour and subjective norm, and it adds the concept of perceived behavioural control (Fig. 1). Perceived behavioural control is a belief that the individual can carry out a particular behaviour based upon a consideration of internal control factors (such as skills, abilities, information) and external control factors (such as obstacles, opportunities) both of which reflect experience. The goal is to make people of Zanzibar have boldness toward the emerging blue economy.

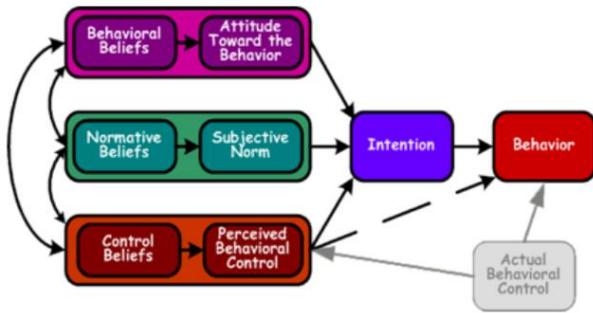


Fig. 1. The Theory of Planned Behaviour (Ajzen, 1991).

ii. Steps Toward the Blue Economy (STBE)

STBE is a theory that evolve around steps in achieving sustainable development, whereas each step goes through several practical functions (Fig. 2). It is strategic way of fighting against poverty, underdevelopment, and non-employment. The completion of one role creates results which lead the next step. The success of all steps leads to promotion of social welfare, sustainable development, and environmental preservations. It is a foundation of using traditional methods to achieve blue economy, while motivating participation of all stakeholders. Steps toward the development of the blue economy are closely related in a way that every next step is dependent to the previous step and failure to observe the previous step hinders the efforts to reach the target. Before the implementation of the steps toward blue economy, the planners are supposed to evaluate the existing resources of this blue economy, to evaluate what is found in the ocean, lakes, and rivers, to evaluate the current economic status of the blue economy and the awareness of the people with regards to blue economy (UNECA, 2018).

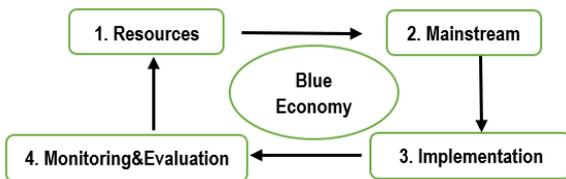


Fig. 2. Steps Toward the Blue Economy (Gurumo et al., 2018).

3.2 Synthesis of Reviewed Literature and the Research Gap

Based on the analysis of the literature, Zanzibar's blue economy has several difficulties, which has an impact on the sector's expansion. The main issue, compared to the others, is that stakeholders, especially regular residents, don't fully understand the advantages of the blue economy, necessitating the promotion of awareness among Zanzibaris. Other challenges to the growth of blue economy were found to be environmental pollution; safety and security of the ocean and its activities; backwardness in technology and lack of skills among stakeholders; inadequate laws and enforcement of the same; inadequate capital to venture for blue economy projects; poor linkage between some coastal and land areas to take advantage of the benefits and yields of the blue economy in the value chain. For education to increase awareness, it must provide an individual with a better understanding of the personal relevance of the information (Kwasnicka et al., 2016). The reviewed literature has shown the true picture regarding the importance of the education of the blue economy. The lack of this education to the people of Zanzibar could jeopardize the development of the country and the wellbeing of citizens in a country that is striving for economic growth.

Numerous studies originating from abroad have extensively addressed and examined the significance of blue economy education, arguing that it is necessary to prevent its negative impacts on individuals' psychological, financial, and physical well-being (Lai, 2019; Tocino-Smith, 2019; Grey, 2018; EWOS, 2018; UNCTAD, 2018; FAO, 2018; European Union, 2018; Attri, 2016; Kwasnicka et al., 2016 & Latham, 2013). The fact remains that the study of other countries may not necessarily provide the same results as the study conducted in Zanzibar. Few studies in Tanzania have looked at economic issues but not the blue economy education, this is because the blue economy in a way is a new concept being introduced in the country. Zanzibaris have not been using the ocean for economic revolution but rather for their daily bread and solve the problems of life with the limited income they earn (Gurumo, 2021; Mitula, 2020; & KAS, 2019). Therefore, the literatures reviewed in this study, especially in Tanzania, leave some questions unanswered about the importance of blue economy education to the people of Zanzibar; i. What do they know about the concept of a blue economy? ii. Do they realize that the blue economy is a certain legacy and a pillar of their nation's development? iii. Do they realize that the blue economy could provide them with better and more reverent jobs? and iv. Do they realize that a range of the activities that provide them with income in one way or another meet with blue economy through the value chain? This shows that knowledge and literature about the reasons for having a blue economy education do not exist. This is the gap that has led to the author of this article to look at the situation in Zanzibar.

3.3 Conceptual Framework

The Conceptual framework is an explanation in the form of a diagram with basic elements about the study of the importance of blue economy education for citizens and students (Punch, 2000). The conceptual framework has collected four fundamental factors about the blue economy; in the context of this study, these factors have been used in relation to blue economy to achieve research prospects where everything leads to success in the blue economy. These factors are personal understanding; the habit of using the ocean economically; the education on blue economy which is available from various sources of knowledge and demography (Fig. 3). People tend to maintain their behaviour if at all the behaviour is corresponding with their identity, beliefs, and values as well as if are satisfied with behavioural outcomes (Kwasnicka et al., 2016). There are numerous kinds of knowledge; universal knowledge or information, knowledge that increases individual awareness and knowledge that increases skills (Arlinghaus et al., 2018).

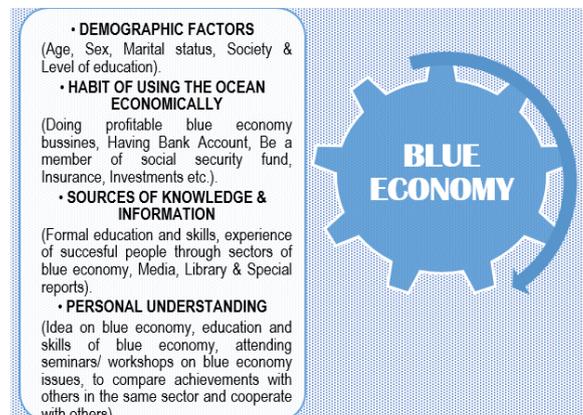


Fig.3. Conceptual framework.

## 4. Results and Discussion

### 4.1 Understanding the Concept of Blue Economy

Activities of blue economy are such as shipping and transportation, fishing activities, beach tourism, mining, oil and gas, ocean sports, renewable energy, medicine, and cosmetics (Bradshaw & Graff, 2018). They state that, oil is one of the most traded goods in the world, product called oil which is one of the products of blue economy has great significance as a source of energy in the world. Transportation by way of ocean is regarded as spinal cord of the global economy because ninety percent of cargo shipments is estimated to be transported by way of water (Nagurney, 2021). Transportation through water (shipping) as part of the blue economy is very important for business, industries, generating foreign income, cargo shipments and jobs.

#### *The concept of the blue economy for citizens in Zanzibar*

This conclusion emphasizes the critical necessity for stakeholders, particularly learners who are citizens, to get knowledge about the blue economy. The efforts towards sustainable growth will undoubtedly be hindered if the issue is not resolved. It was discovered that the majority of Zanzibaris are only familiar with three sea-related concepts: boats, fishing, and transportation. They disregard the blue economy sector of seaweed farming, which is currently quite well-liked in Zanzibar. Citizens of Zanzibar were required to alter their attitudes and behaviours from the old concept on how to approach the new blue economy from the old one, the ocean economy, because behaviour is everything that a person does in reaction to whether internal or external events (Kwasnicka et al., 2016).

**Table 2.** The Concept of the Blue Economy for Zanzibaris.

Evaluation	Participants	Percentage (%)	Key
Most Understood	0	0	71-100 (Should)
Understood	20	10	51-70 (Average)
Slightly understood	140	70	31-50 (Weak)
Not understood	40	20	0-30 (Poor)
Total	200	100	Education is urgently needed

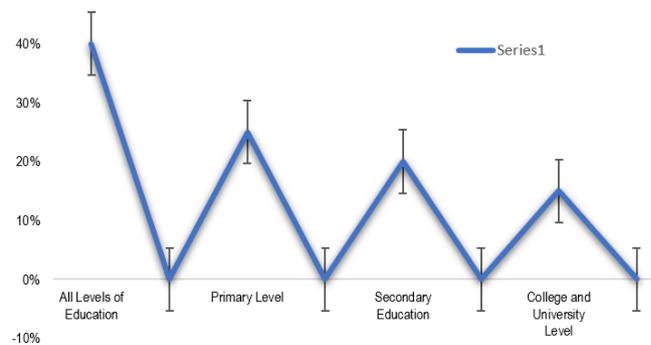
### 4.2 Blue Economy Education

It is necessary to invest in new blue occupations and skills to realize the full potential of the blue economy. However, according to the findings, the public at large lacks knowledge of the sea in general. The sea is sometimes imagined as an unending expanse that can be used for transportation of commodities and as a rich source of fish. Leisure activities can be enjoyed along the coast, but the underwater world is beyond comprehension. Research, creativity, and education has a great contribution to the transition period towards full blue economy in planning for the safety of the ocean environment and in protecting coastal creatures and even in other existing water bodies like lakes and rivers (EU, 2020).

#### 4.2.1 The need of blue economy education for citizens

The study demonstrated that there are many knowledge gaps, especially when it comes to understanding on marine-based resources, ocean health, biodiversity challenges, marine and aquatic life, and the effects of pollution and land-based industrial discharge on marine habitats and ecosystems. The

results revealed that most respondents to the survey felt that the country should provide blue economy education to attract more people to the industry. All the participants agreed that the blue economy training should be recognized as formal education and made available to schools for coming generations to acquire this knowledge. Knowledge and education are frequently theoretically used interchangeably. Knowledge is the facts, information, and skills that a person learns via practise or education, as such, knowledge is the expected objective of education (Arlinghaus et al., 2018). Education is a thorough process of receiving/giving ordered teaching or enlightening experience. Most participants, according to the research, want blue economy education to be available at all levels of formal education in the entire country, from primary school to university (Fig. 4).



**Fig. 4.** The Need for Blue Economy Education in Zanzibaris.

Regarding this, 40% of participants declared that this education should be made a subject and taught at all levels of formal education in the entire country, 25% claimed that blue economy education should begin in elementary school, 20% stated it should begin in secondary school, and 15% declared it should begin in higher education. Primary elementary school studies of the blue economy is anticipated to provide a strong basis for their future. A person's future is not built in the future, but before he or she gets there and that is why this education should be taught. However, Greenhill, et al., (2015) argue that blue education needs to be there to develop knowledge to support the transition to the blue economy. In this perspective, education must look at the ideas of blue economy, the opportunities that exist in the economy and the challenges that arise in areas with blue economy potential. They suggested the presence of marine sciences in the curriculum at primary, secondary and tertiary level.

### 4.3 Employment Opportunities through the Blue Economy

Findings indicate that the majority of Zanzibaris [120 out of 200 (60%)] are aware that marine resources have the potential to create jobs (Table 3). On the other hand, a few of them declared that they are unaware that the ocean can provide better jobs for them through the blue economy [80 out of 200 (40%)]. The blue economy offers employment opportunities in the fields of navigation, inspection, education, and training, architecture, construction, maintenance, mechanical operations, diving, port work, fishing and fish farming, fish business, water tourism, ocean animal exhibits, and industrial development and investment (Gurumo, 2021). Therefore, it is crucial to educate the public about the value of the ocean, potential for economic growth through wise use of the ocean and its resources, and advantages of marine environment protection for sustainable use.

**Table 3.** Employment Opportunities through the Blue Economy.

Argument	Assessment	Participants	Percentage (%)
Do citizens recognize marine resources have potential to give them better and decent jobs?	Yes	120	60
	No	80	40
<b>Total</b>		<b>200</b>	<b>100</b>

#### 4.5 Relationship between Blue Economy Education and Sustainable Development Goals

According to the study, Tanzania, like other countries around the world, has been promoting the blue economy agenda as an emerging concept that encourages more effective management of blue resources. The encouragement of a sustainable way of life below the water's surface is carried out in accordance with Sustainable Development Goals (SDG) 14, which emphasizes the relationships between water resources, climate change, and the general well-being of neighborhoods that reside near the ocean, lakes, and rivers. The findings of the study demonstrate that blue economy is closely connected to several development goals. For instance, SDG 1, SDG 2, SDG 4, SDG 5, SDG 6, SDG 7 and SDG 14 are highly connected to the blue economy. A more equal health standard, reduced emissions, and participation in the campaign against climate change can all be achieved through the Blue Economy. Developing sectors within the energy industry linked with the blue economy have risen dramatically in recent years. Oceans are ideal locations for renewable energy sources like wind, wave, and tidal power. Rivers with running water serve as potential hydro energy sites as well, further emphasizing the importance of the blue economy to the energy industry. Moreover, SDG 8, SDG 9, SDG 12, SDG 13, and SDG 15 are also connected to blue economy. The findings are also backed by several articles Lee et al. (2020) published between 1998 and 2018 that revealed a close relationship between the blue economy and the UN Sustainable Development Goals. In the same vein, Gurumo (2021) established that the blue economy is a powerful driver of social and economic change in the nation, which aids in the achievement of sustainable development goals. With these facts, it is important to provide blue economy education to the citizens of Zanzibar to allow them exploit much of the marine resources and be able to link the blue economy and other sector of the economy. Meanwhile, international organizations including the UN and various countries have developed a long-term strategy to support facilitate sustainable ocean-based economic benefits by enacting climate-resilient and inclusive blue economy policies that minimize human impact. In addition, several countries have taken it upon themselves to put initiatives and regulations that promote the Blue Economy into place. Tanzania is one of them, and it has a distinct emphasis on the blue economy.

## 5. Conclusion

Based on the results of this study it can be concluded that knowledge of blue economy from reliable sources such as education sector, economic sector and the media could result into increased confidence among citizens regarding the use of the ocean to sustain life and for economic development of the nation. The study has found that to introduce blue economy concept itself to citizens is an important matter to take them onboard in implementing development plans. Citizens need to be prepared

psychologically so that they knowingly take blue economy opportunities, participate in investment, and prepare the future generation in blue economy education to achieve an economic revolution of Zanzibar. This study comes with the Blue Economy Education "BEE" which is focused on understanding all aspects of a better life through blue economy; to prepare citizens including students psychologically, economically, and socially. In this way, working for the BEE will raise awareness of poverty eradication, reducing unemployment rate, eradicating hunger, and reducing unnecessary premature deaths among citizens due to poor quality of life. Only the blue economy education has the potential to rise and bring economic growth in one's understanding of entering the blue economy productively. On the other side, the study suggests forming a group of researchers, educators, and other experts to develop appropriate curriculum for blue economy education and awareness. Further investigation into blue economy education for residents and students at all grade levels is advised.

## Acknowledgements

The author wishes to acknowledge Dar es Salaam Maritime Institute (DMI) for its support in publishing this work.

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