Challenges of Local Human Capacity Development In Nigeria's Maritime Industry.

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ABSTRACT

This research evaluated the Development of Local Human Capacity in the Nigerian Maritime Sector. Relevant literatures on human capital development indicators and its effects on the supply of maritime labour proxied by the number of seafarers' onboard vessels operating in Nigerian coastal waters were reviewed. Secondary data were obtained from World Bank database, NPA annual bulletins, Nigerian Maritime Safety and Administration Agency (NIMASA) and Maritime Academy Nigeria (MAN) Oron. A time-series data (2002 - 2014) on student enrollment in MET, human capital formation, student graduation from MET and number of Nigerian seafarers onboard Cabotage vessels (local and foreign) were analyzed using the Ordinary Least Square (OLS) methodology of the Multi linear Regression analysis with the aid of Statistical Package for Social Scientist (SPSS V.20). From the result of the Regression analysis, there was a direct proportionate effect on the independent variables such that the Supply of maritime labour (number of Nigerian seafarers onboard Cabotage vessels (local and foreign)) in Nigerian maritime industry will increase by; 0.746% for a percent increase in X_1(human capital formation in maritime studies), increase by 58.9% for a percent increase in X_2(Hunan capital formation) and Demand for maritime labour will increase by 1.218% for a percent increase in X_2(Supply of maritime labour) and Supply of maritime labour will increase by 2.121% for a percent increase in X_3 (the number of graduates from Maritime Education and Training (MET) institutes) in Nigeria. In conclusion, the Supply of indigenous maritime labour was not statistically significant in relation to the human capital indicators analyzed. It was however, recommended that; The federal government must through NIMASA put in place a robust human capital development strategy aimed at developing new skills through education and training, strengthening of existing skills and improving on institutions, like Federal University of Technology Owerri (FUTO), Maritime Academy Oron, Nigeria Institute of Transport Technology (NIIT), Zaria etc.

INTRODUCTION
1.0. Background Information

Shipping is the heart of global economy and the maritime industry which is a sub-sector of the transport sector, accounts for nearly 90 percent of transport requirement of the world (Ikokide and Aro, 2000). Maritime industries include all enterprises engaged in the business of designing, constructing, manufacturing, acquiring, operating, supplying, repairing and/or maintaining vessels, or component parts thereof: of managing and/or operating shipping lines,

and customs brokerage services, shipyards, dry docks, marine railways, marine repair shops, shipping and freight forwarding services and similar port side enterprises (Purba, 2015).

Developing local human capacity in the Nigerian maritime industry is great important due to the position of the industry in the national economy.

The dearth of qualified indigenous seafarers should necessitate the need to improve measures and ensure stricter measures related to accreditation systems for maritime schools in Nigeria. There also existed partnerships between members of the industry associations, international shipping industry, maritime colleges and training centers to invest in education, training and scholarships for the development and sustainability of a stable pool that could meet skills competency needs of the global industry and Nigerian maritime sector in particular.

Every economic activity in any nation is directly or indirectly linked with the activities in the maritime sector.

It is widely believed that knowledge, in terms of human and social capital, is the main production factor in today's economic environment (Almeida, et al. 2014).

One of the most prominent problems facing the transport industry is the lack of adequate human resource to service the industry (Okeudo and Ogwude, 2012). They further opined that, the human factor is the most sensitive and volatile of all factors of input in production and therefore requires proper handling so that the other factor inputs can be properly harnessed to the utmost advantage of all in the industry.

Economists regard education as both a consumer and capital good, because it offers utility (satisfaction) to a consumer and also serves as an input to develop the human resources necessary for economic and social transformation. The focus on education as a capital good related to the concept of human capital, which emphasizes that the development of skills is an important factor in production activities (Almendarex, 2010).

The maritime industry requires full development of capacities such as human capacity, infrastructures, technology, integrated transport system etc. Such a valued industry deserves well developed man-powers to handle the affairs of the industry in accordance with the international standard and practices. Right now, the present state of Nigerian maritime industry in relation to human capacity affects its productivity, policies, principles, standards and practices. The human capacity development in the industry is appalling in such a way that, the industry record results such as increase in ship-turnaround time, congestion due to complexity in documentations, poor stevedoring activities, high port charges, foreign dominations, pilferages etc. These could be as a result of absent of adequate human capacity to critically organize and harmonize the process of ship calling at port and its departure. Developing human capacity in the industry is paramount to surmount the problems confronting the industry especially the work of un-

professionals and encouraging the employment of our locally trained professionals from our local institutions to take control of the industry as stipulated in the cabotage policy enacted in 2003 (Ikokide and Aro, 2000). This study evaluates the present situation in the industry such as poor level of human capacity and the effects of this human capacity in the operational modality in the industry. McConnell, (2002: 624) in his paper Capacity building for a sustainable shipping industry: a key ingredient in improving coastal and ocean and management opined that "*education does not per se determine attitudes, values and practices it is clear that it can have a significant shaping effect*". This implies that, education is needed to ensure the development of capacity to working in new ways and, in particular, to work in an integrated way in connection with coastal and ocean activity management.

It is also to note that, in maritime industry, human capacity development and capacity building are important in the areas of manning, ownership and operations of ships in cabotage trade (Ndikom, 2004). Without the acquisition of a ship, a local operator would not be able to build local capacity in the art of Technology transfer, and also in the technicality and management of ships (Ndikom, 2004). Government under the administrations of NPA, NIMASA need to encourage the training of maritime workers locally in our institutions in the practice of shipping and genuinely implement the Cabotage Act. Igbokwe (2006) stated that, for Nigeria to be self-sufficient in the maritime industry as intended by the Act, the country should look from the macro level, at human capacity development for the sake of manning, shipbuilding, operational modalities, management and ownership from the scratch. Nigeria government's repeated call for the

continue stay of foreign shipping companies and institutions in Nigeria and its nonchalance towards the country's self-sufficiency in the marine industry are threats to the objectives of the Act. Due to this inconsistent behavior on the part of government, foreign shipping companies believe that foreign owned ship and manpower are needed to run Nigeria Economy. This study is of the opinion that, as the nation gradually develops its capacities (human, infrastructures etc) the presence of foreign-owned, built and crewed ships would reduce and gradually disappear from the nation's maritime industry thereby encourages local participations and investment.

The Human Capital Index explores the contributors and inhibitors to the development and deployment of a healthy, educated and productive labour force (HCR, 2013).

The components of this study starts from the introduction, relevant literature works in subsequent chapter, methodology in chapter three and the data presentation and analysis in chapter four while chapter five shows the findings, summary, conclusion, suggestion of the way-forward and contribution to knowledge.

1.1. Problem Statement

Nigerian maritime industry is the second in revenue generation to the Nigerian government after oil. The shortage in human resource, foreign dominations in manning and supplies of crew men in the Nigerian maritime industry poses a lot of challenges to the growth and development of this sector. The key issues that necessitated this study include; depletion of skilled human capital in the industry without adequate replacement, neglect of locally trained professionals, lack of competencies of

our local Marine Education and Training (MET) institutions that trained these "professionals", lack of adequate training and instructional materials for maritime cadets, unemployment of seafarers, lack of a national carrier and lack of sea-time training for the cadets. These above stated problems affect the quality of the maritime sector labour force, decency in marine business, hope of young professionals in schools etc. Inadequate human capacity in the industry and the depletion of maritime professionals and operators are major threats to the maritime industry and the nation's economy. The maritime industry worldwide represents a vital area of economic activity, which plays an overwhelming role in any nation's economy. Apart from focusing on being a major foreign exchange earner, the maritime industry of any nation should generate substantial employment opportunities and boost national income and GDP (Rasheed, 2013).

Another core problem facing the Nigerian Maritime, Education and Training (MET) system is that after nearly 20 years in business, the arrangements to enable the certificate of competency examinations to be conducted in Nigeria is yet to be finalized. Normally the conduct of these examinations lies in the hand of the GIS, and to assist it in this task, a Nigerian Maritime Examination Board was formed by the Federal Ministry of Transport. Whatever may be the problems of this bodies and the reasons for the delay in conducting the Certificate of Competency (COC) examinations in Nigeria, the result is glaring: most nautical and marine engineering cadets passing through our Maritime Education Training (MET) institutions end up being stranded and frustrated because they cannot take the examinations in the country at the end

of their course neither can they afford to go abroad for this purpose due to financial constraints. These problems, aggravated by insufficient training vessels for cadets' on board sea service may eventually lead to the closing down of the maritime institutions due to shortage of trainees to justify its continued existence (Okore, 1999).

On this note, this study will be critically examining the Nigerian maritime industry in relation to the effects and level of local human capital formation in the industry, professionalism in the industry, and institution's competencies in the training of staff and its sustainability in the industry.

1.2. Objectives of the Study

The main objective of the study is to analyze the challenges of local human capacity development in the Nigerian maritime sector; other specific objectives include the following;

1) To determine the relationship between human capital formation in maritime studies and supply of local human capacity in Nigeria's Maritime industry.

2) To examine the relationship between demand and Supply of maritime labour in Nigerian Maritime industry.

3) To evaluate the relationship between number of Graduates from maritime institutions and the Supply of maritime labour in Nigeria.

1.3. Research Questions

This study projects the following questions:

1) To what extent does human capital formation in maritime

studies relate with Supply of maritime labour in Nigeria?

2) What is the relationship between the Demand and supply of maritime labour in Nigeria?

3) To what extent does Graduates from maritime institutions contribute to the Supply of maritime labour in Nigeria?

1.4. Research Hypotheses

The hypotheses stated in this work include:

1. **H$_O$:** There is no statistical significant relationship between human capital formation in maritime studies and Supply of maritime labour in Nigeria.

2. **H$_O$:** There is no statistical difference between Demand and Supply of maritime labour in Nigeria.

3. **H$_O$:** There is no statistical significant relationship between the number of graduates from maritime institutions and Supply of maritime labour in Nigeria

1.5. Justification of the Study

The justification of the study will highlight the performance of the maritime industry in respect to local human capacity development and the urgent need of maritime professionals in the industry. This would allow capacity building process that is incremental acquisitions of capabilities to perform efficiently, effectively and the availability of adequate funds for our local institutions to adequately train our professionals in accordance to international standard instead of the employment of foreign man-powers. Human capacity building in the maritime industry is the determinant factor for Nigeria to embrace new Technology

enabling them to surmount problems like pilferages, high turnaround time, complexity in documentations, and cargo diversion due to high port charges, congestions, demurrages and advances in modern way of doing maritime business. Hence, the industry stakeholders will appreciate the beauty of maritime business and the results obtained will add value or knowledge to existing bodies in the industry such as NPA, NIMASA and equally be useful to other shipping companies, future researchers, policy makers, Regulatory Authorities in shipping and indigenous shipping companies as well.

1.6. Scope of the Study

The scope of the thesis work is to cover the area of human capacity and its development in the Nigerian maritime industry. One major challenge in this work is the non availability of a comprehensive secondary data (quantitatively) relevant to the topic of the study in respect to human capacity development statistics in the maritime sector. For the purposes of this work, data will be sourced from relevant agencies and maritime education and training institutes such as NIMASA, NPA and Maritime Academy Oron.

However, this work is limited to the use of a time series secondary data (2002 - 2014) sourced from a secondary source. The dependent variable will be adapted from the seafarers perspective, this implies that, supply of maritime labour will be proxied by the total number of Nigerian seafarers onboard Cabotage vessels and will be regressed against some human capital development indicators. Insufficient fund and distance

also limited the researcher not to cover most maritime establishments in the industry.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1. Conceptual Framework

Kwon, (2009) defines human capital as an amalgam of factors such as education, experience, training, intelligence, energy, work habits, trustworthiness, and initiative that affect the value of a worker's marginal product.

Almedia, et al. (2014) opined that the concept of human capital development not only enhances the ability of a sector to develop its own technological innovation but also increases its capacity to adopt technologies already developed elsewhere and thereby facilitates technology/knowledge transfer. The success of an industry such as maritime depends largely on the workers with higher level of competence. From the economic perspective, capital is a factor of production utilized in the creation of goods and services.

Kwon, (2009) categorized human capital to be of two types namely;

1. Human Capital as labour force: this is released to economic value- added, that is generated by the input of labour force as other factors such as financial capital, land, machinery and labour hours.

2. Secondly, human capital can be viewed as the target of investment through education and training.

Human capital represents the knowledge and skills that individuals bring to an organization (Almeida, et al. 2014). This definition is corroborated by (Sharpe, 2001), who also defined human capital as the aggregation of investments in areas as education, health, on-the-job-training, and migration that enhance an individual's productivity in the labour market, and also in non-market activities.

Capacity development has been the centerpiece of international development assistance since the end of II World War and the start of the decolonization period. However, the general acceptance of the concept has been very much influenced by the role of the Marshall Plan in the reconstruction of Europe and, ultimately by its successful implementation. The general view that has dominated development thinking for decades since the inception of international development cooperation has been that the main drivers of socio- economic development, regarded as the ultimate development goal of decolonized countries, were capital and 'know how' (Ikokide,2000). On these premise, international development assistance unfolded along two main lines: aid, aimed at filling developing countries' resource and financial gaps; and technical cooperation, tasked with driving capacity development. With technical training and foreign expertise as its main components, technical cooperation's main objectives were to fill developing countries' skill gaps and transfer of 'know how' (Ikokide, 2000). This general acceptance of capacity development, however, neglected the role that knowledge, as a much wider concept that extends beyond technical training and know how; leadership, as the catalyst of societal transformations; institutions, as complex systems of policies, legislative frameworks, professionalism, ethics and values; and social capital play in any country's socio-economic development (Ikokide, 2000).

2.2. Defining Capacity and Capacity Development

The concept ''capacity'' has been defined as the power to perform or produce or improve. From the UNDP's perspective it is the ability

of individuals and organizations or units to perform functions effectively or efficiently and sustainably.

The past decade has witnessed a resurgence of interest in the issue of capacity development and with it the redefinition of the concept, with the intent of moving away from the traditional acceptation of capacity development based on technical training and foreign expertise and to capture the concept in its complexity and entirety (Ikokide, 2000).

The following are the definitions of capacity development that have been articulated by some of the multilateral and bilateral development organizations engaged in supporting capacity development.

The United Nations Development Programme (UNDP) defines capacity development as the process through which individuals, organizations, and societies obtain, strengthen, and maintain the capabilities to set and achieve their own development objectives over time.

The United Nations Disaster Risk Reduction Office (UNISDR) defines capacity development in the DRR domain as the process by which people, organizations and society, systematically stimulate and develop their capability over time to achieve social and economic goals, including through improvement of knowledge, skills, systems, and institutions - within a wider social and cultural enabling environment. For the Organisation for Economic Co-operation and Development/Development Assistance Committee (OECD/DAC) capacity development is the process whereby people, Organisations and society as a whole unleash, strengthen, create, adapt and maintain capacity over time.

For the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH capacity development is the process of strengthening the abilities of individuals, organizations and societies to make effective use of the resources, in order to achieve their own goals on a sustainable basis.

The Canadian International Development Agency (CIDA) defines capacity development as the activities, approaches, strategies, and methodologies which help organizations, groups and individuals to improve their performance, generate development benefits and achieve their objectives .

The World Bank - Africa Region - defines capacity as the proven ability of key actors in a society to achieve socio-economic goals on their own. This is demonstrated through the functional presence of a combination of most of the following factors: viable institutions and respective organizations; commitment and vision of leadership; financial and material resources; skilled human resources.

2.3. Some Common Elements and Learning Emerge from the Definitions Above:

- Capacity development is a process of change, and hence is about managing transformations. People's capacities and institutional capacity and a society's capacity change over time. A focus on what development policies and investments work best to strengthen the abilities, networks, skills and knowledge base cannot be a one-off intervention.
- There can be short term results. And often in crises and post conflict situations there is a need for such. But even short term capacity gains, such as increase in monetary incentives or

introducing a new information system, must be supported by a sustained resource and political commitment to yield longer term results that truly impact on existing capacities.

- Capacity development takes place at three different levels: the individual level, the organizational level and the societal level. These three levels are interlinked and interdependent. An investment in capacity development must design and account for impact at these multiple levels.

- Capacity development is about who and how and where the decisions are made, management takes place, services are delivered and results are monitored and evaluated. It is primarily an endogenous process, and whilst supported and facilitated by the international development community, it cannot be owned or driven from the outside. At the end of the day, it is about capable and transformational states, which enable capable and resilient societies to achieve their own development objectives over time.

Alternatively, it can simply be said to refer to the people, institutions, practices and other means (Technological, Legislative entrepreneurial and financial) that enable a country achieve its development objectives. Capacity building involves the development of the capabilities of organizations, institutions and people in the maritime industry.

Capacity thus has both human and institutional dimensions with the following components (Andy, 1999):

- Skilled human resources
- Viable institutions
- Technological
- Financial And Material resources
- Effective work practices including systems, procedures, appropriate incentives and
- Above all leadership and Vision.

Human capacity refers to stock of trained, skilled productive individuals capable of performing the essential task necessary for industry, country, and organization to attain its goals.

On the other hand, institutional capacity refers to the available organizational structures and processes, which facilitate the achievement of developmental goals. Human capacity is therefore central to development (Agoha, 2008). Institutional capacity complements the human factors and both are mutually reinforcing. They are not ends in themselves as they are only of value when they are placed at the service of the wider society in terms of value creation and addition (Ikokide, 2000).

The significance of adequate capacity (both human and institutional capacity) in the realization of development objectives of a country, industry etc cannot be therefore over-emphasized as it engenders SELF-RELIANCE which is the product of the ability of the people and institutions to make choices, take decisions and actions to realize their chosen goals.

Adequate Capacity enables a country, industry and its people to identify and analyze problems, evolve solutions and implement them effectively and enables a country's ability for policy analysis and development, management in all ramifications (Ikokide, 2000).

2.4. Human Capital Formation

Human capital formation implies investments in educating the labour force in higher-quality knowledge and skills aimed towards driving economic growth and development of a sector (Dobson and Boodoo 2013).

In view of the significance of adequate capacity, capacity building for economic and social development is crucial, particularly in the maritime industry as a result of its National security implications. Capacity building entails deliberate and or incidental endeavors through investment in people, institutions and practices, to enhance human abilities and institutional capabilities in the pursuit of national development. It is a process of incremental acquisition of capabilities (Agoha, 2008).

The human dimension of capacity building is the process by which an industry develops and increases its human resources capabilities through the inculcation of relevant general and technological knowledge, skills and effectiveness to realize set goals efficiently.

On other hand institutional capacity building involves the development of capacities of organizations and institutions with a view to enabling them accomplish their set objectives (Ikokide and Aro, 2000).

In a developing economy context the processes of capacity building thus involve:

- Human development especially developing new skills through education and training, strengthening of existing skills and structures, like in Maritime Academy Oron and equally in Federal University of Technology Owerri (FUTO) as well.
- Developing new structures and re-organization of existing institutional structures and processes to create a context for more efficient performance

and in which skilled workers can function effectively.

- Re- ordering of incentives systems for more INTENSIVE and efficient deployment of existing skills and institutions.
- Evolving political leadership that understands the need for effective institutions.

2.4.1 Measuring the Human Capital Index

Human capital index as conceptualized by Human Capital Report (HCR), (2013) is based on four pillars.
The four pillars of the Index are:

- **Education:** this contains indicators relating to quantitative and qualitative aspects of education across primary, secondary and tertiary levels, on the job training (OJT) and contains information on both the present workforce as well as the future workforce.
- **Health and Wellness:** this contains indicators relating to a population's physical and mental well–being, from childhood to adulthood.
- **Workforce and Employment:** this is designed to quantify the experience, talent, knowledge and training in a country's working–age population.
- **Enabling Environment**: pillar captures the legal framework, infrastructure and other factors that enable returns on human capital.

Sharpe,(2001) identified two types of human capital indicators; the input and outcome indicators.

- The Outcome indicator: the most relevant indicator of human capital is the general and specific knowledge and

skills set of the population. This is determined by;

a. Educational attainment of population quantifiable in dollars in terms of generalized skill shortages
b. High school completion rates
c. University and community college completion rates
d. Skill shortages in specific areas (for instance, maritime sector)
e. Net in-migration and out-migration of persons with specific skill sets

- Input indicators: the quantity of human capital a society possess is determined by a number of factors including the quality and accessibility of the education and training system and individual choices regarding the use of the system. Specific human capital input indicators include;

a. Educational infrastructure
b. Student- teacher ratio
c. Teaching materials
d. Incidence and length of work place training
e. Extent of government training and retraining programs
f. Enrolment rates in specific programs (Example; maritime related courses)
g. Importance of lifelong learning culture

2.5. The Nigerian Cabotage Act and the Objectives:

The Coastal and Inland Shipping (Cabotage) Act, 2003 ("the Act") came into existence on 30th April, 2003. Its provisions became enforceable from 1st May 2004 allowing one year transitional period. In April 2004 before the enforcement date, the Honourable Minister of Transport published Guidelines on the Implementation of the Act:-

2.5.1. Structure of the Act: Law in many situations may be used as a tool for social

engineering or economic development (Nwokedi ,2001). This often happens in developing economies where, to keep up with international trends, government policy has to be driven in a particular direction as opposed to allowing it evolve over times as determined by prevalent economic factors. That has been the case in Nigeria in the past. To appreciate fully then, the challenges presented by this Act, it is necessary to look at the structure of the Act as a tool or driver for economic development. The Act itself is quite straightforward (Agoha, 2008). It is set out in nine parts made up of 55 sections:

Part 1:
Comprising of sections 1 and 2 define cabotage, the scope of the Act and the intention of the Legislature and by so doing dictates new parameters for the regulation of the oil and gas industry in Nigeria. In this regard it covers all aspects of exploration, production and development activities.

Part 2:
Sections 3-8 provides that a vessel other than a vessel wholly owned and manned by a Nigerian citizen, built and registered in Nigeria shall not engage in Cabotage. This restriction applies up to the extent of the Exclusive Economic Zone, which is approximately 200 nautical miles seaward from the outer limits of the coastline.

Part 3:
Section 9-14 deals with waivers and the conditions precedent to the grant of waivers, the duration of waivers and further empowers the Minister of Transport to publish guidelines for the waiver system.

Part 4:
Sections 15-21 treats the licensing of foreign vessels, and seeks to bring the foreign flagged vessels under the control of the regulatory body.

Part 5:

Sections 22-28 deal with registration issues. Section 22 in particular provides for the establishment of a Special Cabotage Vessels Register while Section 23 qualifies the conditions for registration of Cabotage vessels.

Part 6:

Sections 29-34 seeks to create a cabotage enforcement unit within the Nigerian Maritime Administration and Safety Agency (NIMASA) to police the implementation of and compliance with cabotage. Section 31 herein grants the enforcement officers very wide powers of arrest and detention of the vessel in the conduct of the duties.

Part 7:

Sections 35-41 criminalize acts in contravention of this Act by imposing stiff fines for non-compliance. Happily there are no jail terms.

Part 8:

Sections 42-45 established a Cabotage vessel financing fund. The pertinent point to note here is that Section 43 of the Act imposes an additional surcharge or tax of 2% of the contract sum of any contract performed by any vessel.

Part 9:

Sections 46-55 deal with miscellaneous and sundry issues relating to the application of the Act, the discretion of the Minister and of course transitional provisions and repeals. As already stated some legal practitioners stated that the *Act as couched is straightforward and easy to understand. Basically, it defines its scope of applications and then restricts and prohibits subject to exemption procedure as per waivers, and then penalizes and enforces. The guidelines so far published are in furtherance of the objectives of the Act as couched.

2.5.2. Objectives of the Act:

The Cabotage Act is designed to guarantee the participation of Nigerian citizens in its own domestic maritime trade. The objective of the law is based on the following:

a) To promote economic growth and national development;

b) The need for the nation to protect its coastal trade through shipping;

c) To stimulate and expose Nigeria's indigenous shipping operators to shipping business in the coasts as a stepping stone to deep sea/international shipping;

d) Promote acquisition of shipping technology by creating and diversifying employment opportunities in the industry;

e) Improve environmental safety;

f) Enhancing indigenous maritime capacity by igniting the flame of education, training and employment of seafarers, ship operators and ship managers since the ships to be used in domestic shipping would be Nigerian-built and Nigerian-owned, crewed and operated;

g) Protection of the nation's security interests;

h) Improve Balance of Payment;

i) Provide level ground for fair competition amongst the indigenous ship-owners and operators.

Four years after the Cabotage regime came into operation, the Indigenous Ship-owners Association of Nigeria, the umbrella Association of local shipping investors still complain bitterly that lack of enforcement of the law has encouraged unabatedly foreign domination of the coastal shipping trade and that they are worse off now than before by lack of cargo support for its members from NIMASA and NNPC (Agoha, 2008).

2.5.3. Implementation Strategy:

In recognition of the technical capacity of the shipping industry, Section 51 of the Act provides for a transition period of 1 (one) year within which the necessary modality and guidelines for the smooth and efficient implementation of the Cabotage Regime would be developed. The one year bridging period was for the industry to make the necessary adjustments and to be fully sensitized on the expectations of the regime (Sekibo, 2004). The Government was conscious of the need to demonstrate transparency and to encourage participatory decision-making process and thus invited representatives of all the key stakeholders in the industry to participate in developing modalities for an efficient implementation of the Cabotage Act. The result of the exercise was the production of the Cabotage Act Implementation Guidelines by a Ministerial Committee which formed the strategy for the successful take off of the Cabotage regime. Apart from determining the institutional framework for efficient implementation of the law, the Guidelines set out in great detail procedures for the various categories of registration, Ministerial waivers, enforcement, cabotage vessel financing fees and tariff (Sekibo, 2004).

2.6. Overview of Types of Cabotage Laws Operated By Some Maritime Countries and the Type Adopted By Nigeria:

Igbokwe (2006) in his book "Nigerian Maritime Cabotage Policy and Law: The Case and Advocacy, he gave an overview of types of cabotage laws operated by some maritime countries and reasons for the liberal type adopted by Nigeria. He submitted that, there are two types of cabotage laws and the two being applied by different countries today as dictated by their national, strategic and commercial shipping interests and local

situations are the strict and the relaxed (or liberalized) maritime cabotage laws. In a "strict" maritime cabotage law, the three elements of restrictions are that, only vessels that are (a) built in, (b) owned by, (c) crewed and operated solely by citizens of the country are allowed to participate in domestic shipping trade to the exclusion of foreign-built, foreign-owned, foreign crewed and operated vessels. A maritime cabotage law is described as "relaxed or liberalized" if those three elements are, or any of them is, not strictly to be met by the vessels participating in the cabotage trade. Or if there are some levels of foreign participation either in the ownership or building of the ships used and or in the nationality of the operators or their ships involved in the domestic shipping of a country (Agoha,2008).

2.6.1. United States of America:

The United States of America, operates a strict cabotage policy which is implemented by virtue of a combination of some of its shipping laws including the "Jones Act" which was passed for the promotion, protection and maintenance of a US domestic merchant marine by virtue of which Jones Act and other legislations, all waterborne goods and passengers

between US ports are carried in US flagged ships, built in the USA, owned by US citizens and crewed wholly by US citizens. However, the "strictness" of the US cabotage regime can no longer be said to be absolute in view of some exceptions and relaxation now being granted in its application in certain cases by some US legislations (Igbokwe,2006).

2.6.2. Greece

Greece has a restricted cabotage principle in which Greeks passengers and cargo are reserved to Greek vessels but other EU vessels are now allowed in none-strategic mainland trades with vessels over 650 GT and waivers

can be granted on the condition of reciprocity. As for the crew, it must be 100% EU nationals, more than 50% of the shares of the vessel must be owned by Greek nationals or by Greek entities more than a half of whose capital is held by Greek nationals (Igbokwe, 2006).

2.6.3. Malaysia

On the other hand, *Malaysia* operates a relaxed cabotage policy through laws which permit foreign-registered vessels to be temporarily licensed by the Domestic Shipping Licensing Board (DSLB) to carry on coastwise trading where the Malaysian Shipowners Association (MASA) confirms in writing that there are no available Malaysian vessels to carry the cargo concerned. The DSLB regulates and controls the licensing of ships engaged in domestic shipping under stipulated conditions to be met and based on

applications by the parties concerned.

2.6.4. Brazil

In *Brazil,* where goods alone and later goods and passengers in cabotage trade were for only "Brazilian vessels, foreign vessels were in August 1995" allowed to take part in cabotage shipping only if they were chartered by Brazilian shipping companies through bareboat, time and voyage charters. As a result of the 7th Constitutional Amendment in August, 1995, foreign cruise vessels we allowed to use Brazilian coastal and inland routes, thereby opening its 7,480 kilometers coastline to luxury transatlantic liners" (Igbokwe, 2006).

2.6.5. Denmark

In *Denmark* although the government abolished the reservation of cabotage trades with vessels less than 500 GRT to national carriers in 1994 and permitted foreign vessels to participate in its domestic shipping, (cf: Danish Decree 658/94), passenger vessels still remain excluded from Danish cabotage and captains of the cabotage vessels must be Danish nationals and vessels owned by Danish or EU persons or concerned companies must be managed from Denmark (Igbokwe, 2006).

2.6.6. India

India – As a result of relaxing its cabotage laws in 1992, India allowed for five years, foreign shipping lines only to consolidate export containers at an Indian Port and transship them to a foreign port and to run feeder services to reach import containers at various ports but has since the expiry of the five years period not extended this provision. Whilst foreign shipping lines have been lobbying for total freedom to operate coastal services in India on the basis that it will help Indian ports and its international trade, Indian shipping companies are opposed to further relaxation of its cabotage laws because their ships and ports did not benefit from the 1992 relaxation of its cabotage laws. The Indian Union Government then considered a suggestion to allow foreign companies to operate exclusive shipping services along Indian coasts without limitations but its Directorate General of Shipping had to meet with foreign ship-owners, shippers and chairmen of ports trusts for the resolution of the matter (Agoha, 2008).

2.6.7. Philippines

In the *Philippines*, the cabotage laws (Section 1009 of the Tariff and Customs Code of the Philippines) allow for clearance of foreign vessels after procurement of special permits to and from coastwise ports under certain conditions to take cargo and passengers at any port to foreign ports. A Memorandum of Agreement was drafted by a Technical Working Group made up of representatives of some stakeholders to clarify the functions of

some organs in the implementations of the said section 1009.

2.6.8. Australia

In *Australia* cabotage is based on the Navigation Act of 1972 Customs requirements and Immigration Laws and 90% of its coastal trade is by Australian-crewed ships, and all vessels operating along its coasts are licensed or permitted under certain conditions. In 1996, the Government of John Howard set up the Shipping Reform Committee to advise it on options for the wind back and removal of its cabotage laws. After the report the Government among other things, liberalized the license/permit system enabling greater participation by foreign vessels in coastal waters and established "company employment" in the stead of the "engagement system" for dockworkers. There is a general impression that Australian cabotage laws allow only Australian-flagged and crewed ships on is domestic shipping and that where there are no Australian ships available, foreign vessels are granted single voyage permits. The Maritime Union of Australia usually argued that shippers are manipulating the system by waiting until an Australian-manned vessel sails out and then rush to the Government for a permit to contract a foreign-flagged ship with third world low-paid crew and substandard ships to participate in its coastal shipping, thereby putting off work, Australian ships and seafarers. The Maritime Union of Australia is also still strongly opposing the John Howard-led shipping policies because the relaxation of Australian cabotage laws will among other things lead to a loss of jobs for Australian seafarers, coastal and environmental problems, oil spillage, substandard ships of flag of convenience shipping, and threats to road transportation. The union consequently took the matter to court. However, in an information

paper released with the approval of the Australian Transport and Regional Services Minister, Mr. John Anderson on 24th November, 2000, it is said that the Australian legislation on cabotage "provides shippers with access to the movement of coastal cargo irrespective of a vessel's flag, nationality of the operator and nationality of crew"(Agoha, 2008).

2.6.9. Nigeria:

Nigeria adopted Liberalized Cabotage Regime similar to the Malaysia Cabotage Regime considering the fact that adoption of the Strict Cabotage Regime like USA would be counter-productive to the Nigerian economy in view of the fact that Nigeria lacked adequate infrastructure for effective implementation of a strict cabotage regime which would demand that all vessels to be licensed to take part in cabotage must be built in Nigeria. For instance, the low capacity and capability of Nigerian shipyards to build and

their low activity in the building of coastal vessels that will satisfy the domestic market demands in terms of the types, sizes, timing and cost. It is expected that the liberal cabotage policy will give room for Nigerian shipyards to develop with time if given the required encouragement and incentives. The relaxed cabotage would also allow the use of foreign facilities and resources where such cannot be found within the indigenous profile by grant of waivers and/or licensing. (The Cabotage Act 2003 of Nigeria).

 In sum, the type of maritime cabotage law promulgated by each country is predicated on the national, strategic and commercial interests of the country and the economic need for the Government to guide and to protect an "infant" domestic shipping industry from foreign competition so as to give it enough room, capacity and control to become as sufficiently,

commercially viable as to be able to withstand foreign competition (Igbokwe, 2006).

2.7. SWOT Analysis of the Nigeria Cabotage Act 2003

We are going to identify the strengths and weaknesses as well as the opportunities and threats associated with Nigeria cabotage act policy. SWOT analysis is an analytical tool used in strategic management to evaluate and appraise policies of nations corporate bodies (Onyemaechi, 2006). The followings are the SWOT analysis of the Act according to Onyemaechi;

2.7.1. Strengths:

The strengths of the cabotage policy as practiced by Nigeria are founded on the following basic facts:

- The ownership and control of activities in shipping at the coastal level will be in the hands of the indigenes who stand in a position to research, invest and thus improve shipping activities in their country (Onyemaechi, 2006).
- The involvement of the indigenes will force the investment institutions such as banks to be interested in ship financing, hence stirring up and supporting development in this sub-sector of the economy.
- The leadership position of the indigenes in this sub-sector will place them in a position to attract other foreign investors into the industry.
- Individuals and corporate institutions may invest in shipbuilding and construction in the country in hope of utilizing the market offered by the cabotage policy.
- More jobs will be created in the maritime sector, to the full benefit of indigenes trained in marine related activities.

- The rate of growth of commerce in coastal shipping operations is expected to increase maximally.

2.7.2. Weaknesses:

The weaknesses of cabotage policy as practiced by Nigeria includes inter alia:

- The huge investments required to finance necessary shipping activities in the coastal sub-sector may not be available. Proper implementation of the policy at as a rigid rule would therefore be impossible. The absence of necessary funds will thus force indigenes to resort to several joint venture agreements with owners who certainly come from more development part of the world (Onyemaechi, 2006).
- Existing foreign companies operating in the region will have to decide either to comply with the requirement of the cabotage Act or pull out their resources.

2.7.3. Opportunities

Several dimensions of opportunities are created by the cabotage policy. These include:

- The whole lot of shipping investment opportunities in the following areas; passenger vessels, crewboats, bunkering vessels, fishing trawlers. Barges, offshore service vessels, tugs of all typrs, dredgers, tankers, carriers, floating petroleum storage etc are thus open for investment by virtue of the Act (Onyemaechi,2006).
- The return on investment made in these areas most of which are valued in dollars will thus be open to both indigenous and foreign joint venture partners of indigenous investors, in the cabotage controlled trade.

- A new market of investors through research will come to learn about opportunities in the area, thus stirring up further investments (Onyemaechi, 2006).

- The cabotage vessel financing fund made available to indigenes by the policy will thus enhance their position to participate in the lucrative business of shipping.

2.7.4. Threats

Threats of the cabotage policy may be summarized as follows:

- There is the fear that foreign investors may want to pull out of the vicinity in favour of fair competitive trade policy nations. Fair competitive trade policy argues that trade must be on equal basis between indigenes and non-indigenes.

- The freedom of agencies such as oil companies to award contracts like time-charter contracts will be highly de-limited by the policy, since such contract types can be awarded only to individuals or corporate agencies which qualify (Onyemaechi,2006).

In summary, cabotage is practiced worldwide and is over 100years old; it is a contemporary economic approach for justifying intervention of this nature, to include some determined results – as against the classical economic approach of free market forces- and it is an acceptable tool for achieving set economic goals, especially where competition is unfair and dominance is prevalent (Ndikom, 2006). Cabotage practiced worldwide, both in maritime and aviation industry, is often induced by diverse factors such as the reservation of all or part of national market opportunities for national flagships or aircraft,

for political, socioeconomic, geo-cultural and security reasons (Ndikom, 2006).

Regrettably, the released of operating guidelines for the implementation of cabotage have certain abnormalities in them. There is need to adjust these guidelines, as some of the tenets are an aberration to known international maritime conventions (Ndikom, 2004). The waiver power vested only in the minister, that empowers him to act without the advice of professionals and technocrats in the industry, for example, should not be so. Waiver powers are technical issues, which may not be fully understood by the minister, as he often lacks both the professional and technical knowledge to do so. For instance, how can a minister whose background of learning is Animal husbandry have the knowledge of maritime businesses let alone the Act and its application? This is mostly found in Nigeria which needs to be change. There is need to establish or set up a high powered technical committee to support the minister in this regard, as this will give credibility to the performance of the cabotage law.

2.8. Factors Affecting Nigeria Maritime Industry in the Implementation of Cabotage.
2.8.1. Over Regulation:

There is a danger of too much regulation. Too many Government Regulatory Agencies all collecting levies and charges. As it is operators will be dealing with Customs, Ports Authority, FEPA, Immigrations, DPR, Navy, SSS, Police, FIRS, and now the Special Enforcement Unit of the NIMASA. According to Ndikom (2004) the sorry state of our indigenous capacity has not been for lack of laws or lack of Government policies. One would recall the acquisition by government of a fleet of twenty nine vessels in the late 70's and the Ship Acquisition and ship building Fund set up

under the National Shipping Policy of 1987. The Government is very conscious of the factors that contributed to the failure of those initiatives. She intends to learn from the mistakes of the past and work towards the success of the cabotage regime. She therefore identified enforcement as one of the fundamental challenges, which must be properly executed for an effective implementation of the cabotage law (Ndikom,2004). Effective enforcement has been the bane of much good legislation in Nigeria. It is his honest hope and expectation that this law does not suffer such fate. Extensive and practical enforcement provisions are provided in the Act in order for the cabotage Act to achieve its laudable objectives. It has provisions to curb if not completely eliminate subversive practices by stakeholders. The ownership criteria are indeed very rigorous and any contravention of those provisions is criminalized in the Act (Ndikom, 2004).

2.8.2. Human Resource Constraint:

Ihenacho (2004), Human Resource Constraint is identified as a problem capable of undermining the effective implementation of the cabotage law because a national fleet cannot become established without a related programme for the training and certification of the technical factors required to man and operate the vessels to be acquired under the cabotage regime.

2.8.3. Institutional Factors:

(a) Implementation and Enforcement:

No matter how good a law may be, if the implementation is not properly conceived, the chances are that the full impact of its promulgation may not be fully realized (Agoha, 2008). Implementation and enforcement of the Nigerian Cabotage laws would require necessary co-operation between the Nigerian Transport/shipping administrative

Authority and the 'real' indigenous industry operators in fashioning out practical workable guidelines in regard to how the cabotage regime would best be administered.

(b) Corporate capacity constraints and development programme for Nigerian Shipping Companies:

In addition to the requirement to assist indigenous shipping companies to buy ships and to train Nigerian seafarers to STCW standards, it is believed that there is need to facilitate the corporate training of existing Nigerian Shipping Companies in the business of shipping management (Agoha,2008). This training can be done through the NIMASA sponsorship, appropriate seminars, and workshops on relevant ship management topics. The availability of this corporate training assistance would facilitate a rapid shortening of the lead time for the attainment of ship management proficiency wherever the opportunity for ship owning materializes for such companies (Agoha, 2008).

2.9. Insight on Accomplishment Initiatives and Problems Confronting NIMASA

NIMASA set out to promote the local tonnage by establishing a revolving loan fund referred to as SASBF (Ships Acquisition and Ships Building Fund) but the aim and objective could not be achieved and sustained due to mismanagement by the NIMASA and abuse by the beneficiaries. Similarly, efforts to generate and grant cargo support to local ship operators through cargo allocation could not be sustained also due to abuse by NIMASA internal organization and the preferred shipping companies that had no ships referred to as Briefcase shipping companies and highly connected "Public Officers". These facilities were suspended in 1995 and 2000 respectively. The consequence of the suspension of the fund facility and the cargo support allocation

arrangement brought untold and devastating effect on the businesses of the already weak local shipping companies (Asoluka, 2003). NIMASA as a Government Agency charged with the task of promoting indigenous shipping was seen to have abdicated its functions and therefore was considered of no relevance to the shipping industry. To this end, Asoluka from his assessment stated that: "Surely, without a review leading to a position based on a defensible, achievable and sustainable form of assistance to the Nigerian Shipping Community, the NIMASA is bound to be considered unresponsive and irrelevant to the very sector it was created to cater for. It would be negligent of its very assignment and by so doing would have outlived its usefulness. Therefore a properly thought out approach to the sensitive issue of cargo support and other areas considered germane for assisting indigenous shipping companies remain the vital steps the NIMASA need to take to remain effective in addressing industry needs and attain efficiency in its operational support Asoluka (2003).

2.10. Seafarers' Training Programme, Supplies and Development:

Availability of sufficient seafarers both officers and crew is very vital issue to be given full attention by the Government Agency conferred with the responsibility of implementation of the cabotage Act if it is should achieve its objectives. For now lack of qualified young officers and crew vis-à-vis the phasing out of most of the NNSL trained seafarers due to old age and/or dwindling interest in seafaring is a serious threat to the success of the Act objectives (Oyesiku and Chidi, 2003). Therefore, NIMASA must borrow leaf from NNSL strategies if it is determined to serve the industry it is created to foster. History tells us that the founding fathers of our nation realized

this early in the life of independent Nigeria. Their vision was to replace foreigners and indigenize the manning of the national carriers. Oyesiku and Chidi, (2003) noted that, if training of seafarers and maritime management professionals are not resumed now, Nigeria would in no distant future, start overseas recruitment of pilots and other harbor
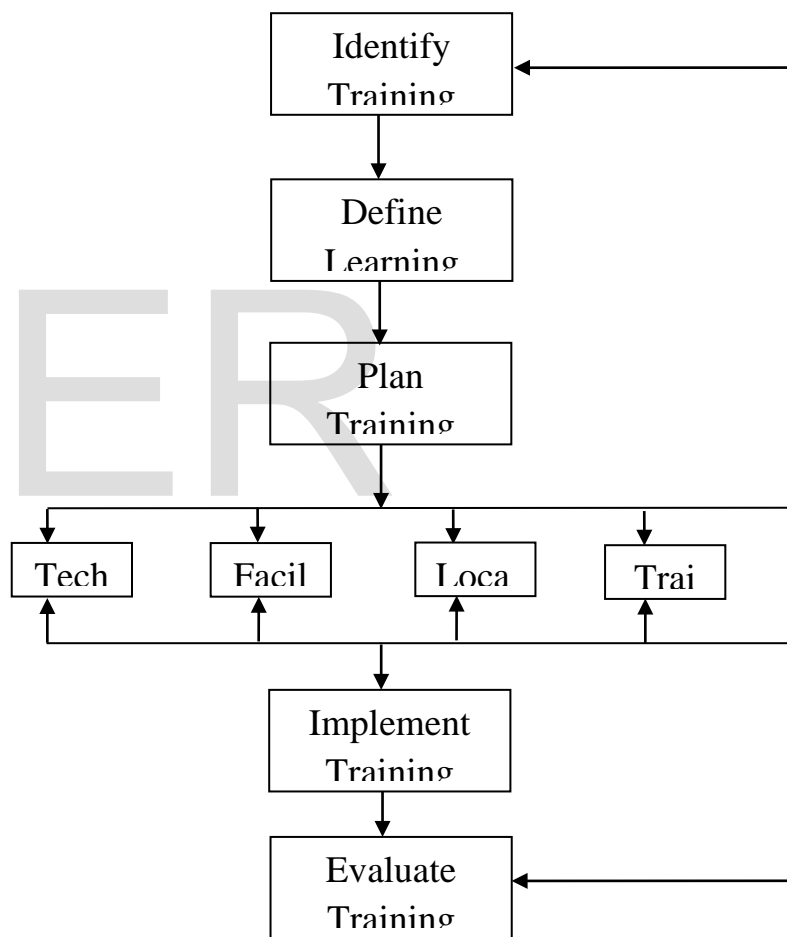

Figure 2.0: The Process of Planned Training
Source: *Armstrong Michael (1995). A Handbook on Personnel Management. London: Kogan Page*

operatives as well as other categories of marine related officers and crew for the

shipping industry. A typical example is the current supplies of seafarers in the world as at the time 2010 according to geographical areas. The Nigerian Maritime Administration and Safety Agency conceived the idea of the Nigerian Seafarers Development Programme (NSDP) in 2008. Currently, records show that there are over 2, 500 Nigerian cadets undergoing seafarer training not only in the UK but also in India, Sweden, India and the Philippines, among several others. The agency also projects to train 5,000 Nigerian seafarers by 2015 and 10,000 by 2020.

The NSDP is made up of two components in terms of funding. The first is the 60-40 percent counterpart funding arrangement under which participating state government provide 60 percent cost of the training while the agency provides the remaining 40percent. Available records show that a total of 16 states are currently participating in the programme. They include Kaduna 36 students, Niger 25, Kogi 25, Lagos 25 Benue 16 students, Ebonyi 15, Ondo 11 and Ekiti four students. Others include the Federal Capital Territory, Abuja, Jigawa, Borno, Yobe, Akwa Ibom, Katsina and Gombe states.

However, the current management of the agency, which is not satisfied with this seeming low participation of the states introduced a second window of the programme in which it undertakes the full sponsorship of some cadets. The agency had in December last year sent the first batch of cadets under its full sponsorship programme numbering 1,000, who are currently undertaking courses in Marine Engineering, Nautical Sciences and Naval Architecture etc abroad. Only recently, NIMASA also sent additional 625 cadets, which represents the second batch of the agency's fully sponsored scheme.

With the progress so far made, stakeholders are optimistic that the current tempo be sustained so as to meet the projection on seafarers' export from Nigeria with the attendant huge economic benefits.

Table 2.1.Global Seafarer Supply by Broad Geographical Area

AREA		CURRENT SUPPLIES		
	OFFICERS(1000'S)	%	RATINGS(1000'S)	%
OECD Countries	184	29.4	143	19.2
Eastern Europe	127	20.3	109	14.6
Africa/Latin America	50	8.0	112	15.0
Far East	184	29.5	275	36.7
Indian Sub-continent	80	12.8	108	14.5
All National Groups	624	100	747	100

Source: *BIMCO/ISF estimates, 2010.*

From the table 2.1, the percentage attributed to Africa/Latin America is under rated because the spatial relationship of African countries with the rest of the world proved the figures of Officers and Ratings wrong. African countries solely depend on sea transportation for their imports and survival and this must surely reflect the number of ships that entered into their territory. The wrong report of the officers and ratings numbers shows foreign domination in maritime business in Africa. Among these ratings and officers, how many were Africa talk of Nigerians. These and many more are the issues in discourse. Table 2.1 also indicates the inadequate man-power level in the maritime industries in Africa especially Giant of Africa Nigeria.

2.11.1. Practical Training for Trainee Seafarers – Onboard Placement

In realization of the serious training needs of seafarers and the demand by the national economy for a pool of trained seafarers and other operatives in the local maritime industry, the NIMASA had made some stopgap efforts to provide "Sea Time" facilities. One of such facilities was the hiring or negotiating for onboard placements of products of Maritime Academy of Nigeria, Oron with a coastal vessel operator that does not engage in any trading activity. This type of sea or onboard attachment cannot give the required experience or even satisfy the statutory requirement for the training of sea officers competent enough to meet the challenges of merchant marine. For any "Onboard attachment" to be meaningful, the vessel providing the practical training facilities must call at seaports to enable the trainees, whether navigators or engineers, acquire or imbibe the professional knowledge or practice of entering or leaving the port. Cargo work while in port is an important aspect of a navigator's work. Any training that does not provide these opportunities for practical training in all facets of merchant marine practice should be discarded (Agoha, 2008).

The purchase of MV Trainer was another honest attempt to provide a platform for practical training of Maritime Academy of Nigeria, Oron products. The failure of this effort or project was due to lack of coordinated planning which was complicated by the sheer number of trainees on board the ship at the same time coupled with gross indiscipline of the over-aged "cadets". In the 1970s, NNSL carried out the training of about twenty cadets onboard a ship at a time. However, since then there have been great changes in the West African trade as well as in the mode of operation (Agoha,2008). A ship carrying up to 30 cadets at a time, from the benefit of hindsight, is today a big cargo generating/canvassing liability.

If MV Trainer project were to be repeated, good planning and a clear understanding by NIMASA officials of what is required must be put in place which would include creating a separate training section in the NIMASA for prompt reaction to issues or problems. Oyesiku & Chidi (2003) suggested that, NIMASA should appeal to both foreign and domestic Flags benefiting from the Nigerian sea trade to grant training/practical attachment opportunities to MAN Other maritime institutions products as a matter of moral and social obligation to the citizens of Nigeria as Maersk Line do to United Kingdom operations.

2.12. Improving Nigeria's Shipping Capacity

Developments in the world's shipping industry have highlighted the need for Nigeria to improve its shipping capacity in order to reap the accompanying benefits (Adenekan, 2011). Nigeria's shipping industry needs to improve on its operational capacity by having more ships in its registry in order to measure up to international standards and remain competitive.

The strategic importance of the shipping industry to the Nigerian economy cannot be underestimated owing to the fact that it serves as the gateway to the importation and exportation of goods to and from the country (Adenekan, 2011).

The United Nations Conference on Trade Development in its Review of Maritime Transport 2010, said as at January last year, the 35 world largest flags of registration accounted for 93.23 per cent of the world fleet, a further increase from the 92.9 per cent share a year earlier.

Adenekan, (2011) argued that the largest flag of registration continues to be Panama, with 289 million Dead Weight Tonne (which measures the carrying capacity of vessels) or 22.6 per cent of the world fleet; followed by Liberia (142 million DWT or 11.1 per cent); the Marshall Islands (6.1 per cent), Hong Kong (5.8 per cent), China (5.8 per cent), Greece (5.3 per cent) and the Bahamas (5.02 per cent).

Together, these top five registries accounted for 51 per cent of the world's deadweight tonnage, and the top 10 registries accounted for 71.3 per cent of the world's deadweight tonnage, with both figures showing increases over the previous year. As regards the number of ships, the largest fleets are flagged in Panama (8,100 vessels of 100 GT and above), the United States (6,546), Japan (6,221), Indonesia (5,205), China (4,064) and the Russian Federation 3,465 (Adenekan,2011).

Except for Panama, these fleets include a large number of general cargo and other smaller vessels that are employed in coastal, inter-island and inland waterway cabotage services. The flag of Indonesia recorded the highest percentage growth, mostly due to nationally-owned vessels that had previously been registered under foreign flags that moved back to the national registry in 2009 (Adenekan, 2011).

In January 2010, only 20.9 per cent of Indonesian-controlled tonnage was using a foreign flag, down from 29.4 per cent one year earlier. The top 10 major open and international registries in 2010 comprised the same flags as in 2009. They increased their combined market share by a further 0.32 percentage points between January 1, 2009 and January 1, 2010 to reach 55.44 per cent. The 10 major open and international registries have

their highest shares among dry bulk carriers (61.3 per cent) and oil tankers (55.5 per cent). Among the remaining registries, which include national registries and smaller open registries, the share of the developed countries decreased by 0.34 percentage points during 2009 to reach 17.9 per cent in January 2010, while developing countries kept their share approximately stable at 25.2 percent. Developed countries' fleets have their highest shares among container ships (26.3 per cent), while developing countries provide their flag most often to general cargo vessels (35.6 per cent of the world fleet in this vessel category). Among the developing regions, Asia has by far the largest share, with 22.4 per cent of the world fleet, followed by Latin America and the Caribbean, with 1.8 per cent (Adenekan, 2011).

These figures revealed that the contribution of the African region was highly insignificant in the area ship registration/capacity, highlighting the fact that the continent in general, and Nigeria in particular need to move swiftly in that regard. The President, Nigerian Chamber of Shipping, Vice-Admiral Okhai Akhigbe (Rtd), recently said that that his dream was to see indigenous shipping operators fully participate in all commercial services in the industry, lamenting the poor participation of Nigerians in the nation's shipping industry.

He said, " *I am fully aware that the Nigerian Chamber of Shipping's primary mission is to ensure that the Nigerian shipping industry participates fully in all commercial services within Nigerian territorial waters in an effort to support the Local Content Development Policy of the Federal Government*".

This is to stimulate the development of indigenous companies and encourage foreign investment and participation without

compromising quality, health, safety and environmental standards. The good news is that, there are positive signs of recovery in the worldwide economy and as well in the Nigerian economy, especially after the banking sector reforms, and with the dynamic and purposeful administration of President Goodluck Jonathan in taking decisive steps to enact the Nigerian Oil and Gas Industry Content Development Bill in April, 2010, which seeks to address the compelling need for us as a nation to have indigenous participation in the oil and gas industry (Adenekan,2011).

Speaking in the same vein, the Director-General of the chamber, Mrs. Ify Anazonwu-Akerele, urged stakeholders to be committed so as to stimulate the growth and development of the sector.

She said, the Nigerian maritime industry is today witnessing the beginning of a new epoch in the annals of history; a period that will open up vistas to industrial harmony, cooperation and synergy.

This will replace the era of rancour and disagreements that often generated friction and dissipation of energy and losses in resources and time. Our mission is to draw us closer to the vision of having stakeholders working as a compact unit to achieve common goals (Adenekan,2011).

Meanwhile, a report by BNET Shipping has predicted that the reforms in the telecommunications and oil and gas sectors, together with a rebalancing of the economy towards services and the domestic market, can, within the next few years, increase the annual Gross Domestic Product and, consequently, lead to a proportionate boost in shipping and port demand in Nigeria (Adenekan, 2011).

2.13. Stakeholders and NIMASA in Local Human Capacity Development.

Maritime industry stakeholders, made up of maritime lawyers, master mariners, maritime economist have commended the Nigerian Maritime Administration and Safety Agency (NIMASA) for its efforts on human capital development in the industry (Ugwoke, 2010) .

The stakeholders, who spoke separately in an exclusive interview with THISDAY, said that the apex maritime regulatory agency has made frantic moves to develop human capacity, which is very important for the shipping industry. Former President of the Nigerian Association of Master Mariners (NAMM), Capt Adewale Ishola, noted that the dearth of human capacity is giving the nation's maritime industry a lot of concern. He was happy that NIMASA has been addressing the issue. He said that the role being played by NIMASA has become important since most qualified seamen who had worked with the liquidated Nigerian National Shipping Line (NNSL) were ageing.

According to him, the training programme of NIMASA will help build human capacity requirement of the industry particularly with the cabotage law, which provides that trading within the coastal waters should be limited to indigenous shipping companies which need Nigerian crew on board. "If you look around, you still see foreigners even in the cabotage registered vessels because we don't have enough Nigerians to take over their roles in this industry. So the issue is training", he said. He disclosed that NIMASA has been organizing professional examination, adding that this will help seamen get certification in Nigeria instead of traveling

outside the country for the same certificate (Ugwoke, 2010).

"NIMASA has done very well in the area of training", he said. The Master Mariner also praised the agency for the decision to re-float the NUL in collaboration with the private sector. "That has been the window that has been closed since NNSL went down. It will create the opportunity for officers, cadets to have practical training experience without begging foreign vessels for this", he said.

Maritime lawyer, Emma Ofomata, noted that, the long absence of a national carrier has impacted negatively on maritime development. He said that, this is an issue that NIMASA should address as part of its development programmes. He was of the view that, the apex maritime regulatory agency should continue to create room for training to support infrastructure on the ground.

Maritime economist, Usman Sanusi, was also full of commendation for the efforts of NIMASA in the area of human capacity. But Sanusi said that human capacity development is not something that NIMASA alone should handle. He argued that there is the need to involve the private sector operators. He called on the agency to work towards encouraging establishment of more tertiary institutions that offer maritime courses. Maritime lawyer, Fred Akokhia also commend NIMASA for the human capital development effort. He said NIMASA should continue to the level that Nigeria will have enough seafarers it can export like the Filipinos (Ugwoke, 2010).

The researcher is of the opinion that not just training but a good training which should be going on every six months on the difficult issues concerning maritime industry. This will help build highly equip professionals with sufficient knowledge on marine business thereby sustaining that skills acquired during training. Hence, sustainability is paramount not just providing a mere training for our indigenous workers (Ugwoke, 2010).

2.15. Inadequate Local Human Capacity in the Nigerian Maritime Industry:

Complaints over inadequate manpower by stakeholders in the Nigerian maritime industry have been resounding persistently for several years, with every other operator tending to proffer one solution or the other. However, the validity of the angst over state of maritime manpower in Nigeria is rendered somewhat vacuous following a presentation by the Head of Africa (Anglophone) Section, Technical Cooperation Division, International Maritime Organisation (IMO), Mr. William Azuh, at the just-concluded second edition of the Nigeria Maritime Expo (NIMAREX) held in Lagos. Nigeria is among the countries with the highest number of graduates from the World Maritime University (WMU), Malmo, Sweden (Azuh, 2012). Williams Azuh noted that Nigeria ranks second in the number of graduates from the International Maritime Law Institute (IMLI), Malta. From a total of 3,241 students, which the WMU has graduated since inception from 163 countries, Nigeria has a total of 122, coming third after China and the Philippines, which have 623 and 123,respectively.

Other countries among the 10 countries with the highest number of graduates from the WMU include India, 107; Indonesia, 99; Vietnam, 89; Iran, 83; Bangladesh, 75; Ghana, 73; and Tanzania, 68. Of the total number of graduates from the IMLI since its

establishment, Nigeria has 54 out of the 534 graduates from 121 countries (WAMS, 2012).

Nigeria is coming behind Malta that has 63 graduates from IMLI. Algeria, Angola, China and Kenya have 12 graduates each, while Ghana, Tanzania and Sri Lanka have 10 graduates each. Azuh lamented that Nigeria has been unable to tap into the intellectual capacity of these graduates for the development of the maritime sector. Noting that most of the WMU graduates are beneficiaries of government scholarship, he said that government has been unable to put them to proper use. Nigeria has no business complaining about inadequate skilled manpower in the maritime industry with the number of graduates from these global institutions (WAMS,2012). The questions are "What use have the graduates been put to? Where are they? Why are we still where we are today? And we are talking about tapping our maritime potentials. First and foremost the policy must change. How can we invest so much in these international training institutions and when they return, you post them to departments and ministries that absolute have nothing to do with the trainings. Why don't we from all the 122 graduates create a data base and see how we can utilize them?" From the illustrations above, one may ask, Why the cry over inadequate human capacity in Nigerian maritime industry? This is the question every stakeholder including the Federal Ministry of Transport and government agencies in the maritime sector saddled with the development of human capacity must answer. If truly Nigeria has these graduates, as presented by Williams Azuh, where are they and how has the government utilized their acquired skills from these training institutions for the development of the sector?

Some authors argued that, the issue is not that of the availability of these seafarers but that of competency. Annually, the Maritime Academy of Nigeria (MAN), Oron, Akwa Ibom State and Federal University Of technology Owerri (FUTO), Imo State, churns out a lot of students as graduates and admits new ones, but where are these graduates? The argument has been that these students are not competent i.e they are unemployable. But if truly they are, then something must be wrong with the nation's maritime education system which must be corrected immediately. The government must, therefore, brace up to the challenge and address the issue of competency, because the country has a lot of graduates from these maritime training institutions that can be employed to address the current situation.

This is one of the reasons that made the researcher delve into this work. Maritime industry particularly Nigeria is in a sorry state where the industry is made up of touts that came in through the word NEPOTISM. There must be shortage of professionals in the industry. Imagine the numbers of students graduating from maritime institutes round the world yet we are still crying of manpower in the industry. This is an eye saw. Of what benefit do we get from sending our children for adequate training since we know very well that the industry will not absorb them when they are through with their programme? The skills acquired by these people will just deteriorate hence no sustainability. It is now not later that we are to define these problems and address it with urgency. Many importers are now importing their goods through neighbouring ports of many reasons like this since those revolving in the industry does not have the passion to work with the industry but to exploits and bastardized the maritime business

through introduction of wrong practices and corruption (Rasheed,2014).

2.16. Developing Maritime Skills for the Oil and Gas Industry

Oil exploration and exploitation generates a plethora of maritime activities, seismic vessels searching for oil, construction vessels laying umbilical underneath the sea bed, anchor handling vessels, supply boats ferrying people to and fro oil platforms, Heavy Lift Vessels bringing in equipment from Europe to Nigeria, etc (Oritsematosan, 2009). One of the pillars of the Cabotage Act is that the crew who manned the vessels used in Nigerian Coastal Waters should be Nigerians. Section 3 of the Coastal and Inland Shipping (Cabotage Act) 2003 prohibits vessels which are not manned by Nigerian Citizens from operating in Nigerian Coastal Waters. Where a vessel is not wholly manned by Nigerians, its employers must apply for a waiver of the requirement that Nigerians must man it. This waiver is sought and obtained at the Nigerian Maritime Administration and Safety Agency (NIMASA). The waiver costs money. The cost depends on the category of personnel seeking to be waived. A master attracts a fee of N50,000.00 (Fifty Thousand Naira only) a Chief Engineer N30,000.00 (Thirty Thousand Naira only) - whereas cooks, mess men, wipers, oilers and able bodied seamen attract N100, 000.00 (One Hundred Thousand Naira only) each (Ndikom, 2006). The rationale behind the prohibition of vessels not manned by Nigerians from plying Nigeria's Coastal Waters is to stimulate development of local manning capacity. The prohibition is not total because Nigeria does not yet have the capacity to man all the vessels plying its coastal waters. The provision of waivers itself is a testimony to a lack of

capacity. Here, this study urges the adoption of private-public policy on investment. This policy will allow investors to come into the industry to increase the number of the indigenous vessels and crews to be able to utilize all the opportunities provided to us by cabotage Act.

In operating its cabotage regime, Nigeria is faced with the dilemma of whether or not to operate a strict cabotage regime - that means, Nigerians must man all the vessels plying its coastal waters and there would be no waivers. Nigeria operates a liberal cabotage regime, both in law and in practice (Igbokwe, 2000). The current rate of unemployment among Nigerian seamen has brought tremendous pressure on the cabotage regime. On the one hand is the need to see that Nigerian seafarers are gainfully employed and on the other hand is the need to see that the work of Nigerian trading partners are not interrupted. It is a situation that requires a good balancing act.

One of the requirements of processing a manning waiver is a certification from the Maritime Labour Department of NIMASA that, there is no qualified or available Nigerian Officer or crew for the position for which waiver is sought. In practice, there are usually many available Nigerian crews. Whether they are qualified for the positions for which waiver is sought is another matter all together. Faced with the question whether or not NIMASA should grant waiver for a cook, one has heard the argument "a cook is a cook" so why can't a Nigerian cook be employed in a vessel that has come from Europe to work in Nigeria's Coastal Waters? In my practice (Ndikom, 2006), I have seen where a foreign ship has been asked to take on a master, a Chief engineer and a chief officer, for the period that waiver was being

sought. With due respect the question is not whether a cook is a cook, or whether an oiler is a oiler but whether foreign ships working in Nigeria's Coastal Waters can be compelled to take on local Seafarers, either in addition or as alternatives to the crew that they have already. Can we force this position? I think not – at least not at this point in time, for reasons which are many (Oritsematosan, 2009).

One of such reason is the specialized nature of some of the vessels which are employed in the oil and gas industry. Some of the vessels employed are not ordinary commercial vessels, but are specialized Construction as well as Heavy Lift Vessels equipped with their own heavy lift equipment to load and discharge all kinds of heavy lift cargoes. Heavy Lift Vessels are really like mini ports, equipped with cranes, shackles and other types of heavy equipments one would find in a port (Oritsematosan, 2009).

Due to the danger involved in heavy lift operations, the vessels demand their own specialized crew, who has been working with them between three to ten years. Any change in the crew posses safety challenges, in the nature of risk of loss of vessel, loss lives and environmental pollution. Another reason is the safety requirements of some of the vessels. Due to the nature of the risks involved in heavy lift and construction operations, persons who came aboard the vessels must satisfy the minimum safety prerequisites namely: Training on STW 95, Helicopter Underwater Escape Training (HUET), Basic Survival Training, Vessel induction and Security Clearance. Before boarding the vessels all personnel would have obtained both their BOSIET [Basic Offshore Survival, Induction Escape Training] and HUET certificates. These are mandatory certificates authorizing them to go offshore and

follow safety procedures on board a vessel and helicopter. These are safety requirements which cannot be compromised because crew transfers and medical evacuation could be carried out by helicopter. The trainings giving rise to these certificates ensure that in the event of a helicopter incident, there would be good chances of survival (Igbokwe, 2000).

Additionally, the limited accommodation on the vessels is another hindrance to taking on additional local seafarers. The vessels which service the oil and gas industry, come here for pre - determined periods, with dedicated crew to do the work for which the vessels are employed. Consequently, all personnel on board the vessels have specific skills necessary for dedicated tasks. Many of the operations are for short periods of say 2 to 3 months where the crew and project team live on board the vessels for mobilization at the port and offshore. Because of the limited space on board the ships, at the point of departure of the vessels for Nigeria, the rooms are already apportioned to personnel working on the project for which the vessels are employed. More often than not rooms are actually shared by 2 people per shift (Agoha, 2008) . There is often no available room that can be used as a guest room. As accommodation on board the vessels are limited to the personnel attached to the project, the number of persons in the vessels would not be exceeded for safety reasons.

Due to the nature of heavy lift operations, very high safety standard is required on board the vessels. This therefore limits and restricts the access to skilled personnel (Agoha, 2008). The reality on ground is that many of the local seafarers at this point in time do not yet have the training and qualifications necessary to

work in some of the more specialized vessels – operating in our Coastal Waters. Additionally some of the vessels used in the oil industry are supplied with the crew intact. Some teams have been together for up to ten years – with each crew member knowing what to do with - the precision that comes from routine familiarization (Ndikom, 2011). The employers or charterers of the vessels have no power to employ additional crew. The crew on board the vessels would usually be on contracts spanning many years. This is particularly true of heavy lift and construction vessels (Ndikom, 2006). If this is the situation, then how do we get our seamen on board vessels which service the oil and gas industry in Nigeria and elsewhere? the first thing to do is to enhance the training curriculum at the premiers maritime institution in the country - The maritime Academy Oron and Federal University of Technology, Owerri, so that its products can easily be absorbed within and outside the country. Next is for the Federal Government to provide a training vessel where cadets can actually have their sea training. Then there should be bilateral agreements between Nigeria or Nigerian institutions e.g. NIMASA with established owners of specialized vessels such as Combi Lift of Netherlands SAL SCHIFFAHRTSKONTOR ALTES LAND GMBH CO., Kg of Germany enabling Nigerians to undergo training in some of these vessels. Additionally institutions such as the maritime academy Oron should aid its graduands in seeking employment with ship-owners or crewing companies abroad. Finally, partnering with local companies which seek waiver for their vessels to engage cadets on the vessels for the periods such vessels would be in Nigeria. In order to do this, it must be emphasized that the cadets seeking ship experience do not have the basic requirements

enabling them to board the specialized vessels and go to offshore sites (Agoha, 2008)

However the companies could assist the training of cadets in situ on their Vessels during the mobilization in port. They would receive the cadets on a daily basis on the vessels and attach a personnel to them. The cadets would see, how mobilization operations work, witness the immediate port calls, and see the nature of activities carried out on the vessels. At the end of the mobilization the companies could issue certificates to cadets who participate in its training (Oritsematosan, 2009). As bed space is limited, and for safety reasons mentioned above, the cadets may not sleep in the vessels because some of the vessels are not equipped for more than the personnel already appointed. For reasons of space constraint and due to safety issues mentioned above, some of the vessels may not be able to take a large number of cadets at any given visit. From the foregoing, it is clear that it is an enduring partnership between Nigeria and her trading partners that will deliver the dividends of Nigeria's cabotage legislation as regards the building of local capacity in the maritime sector serving the oil and gas industry (Azuh, 2010).

2.17. Nigerian Shipboard Manpower

In spite of the federal government aggressive manpower development in the maritime industry, especially in the last three years, Nigeria has not meet up to 10 percent of the her shipboard manpower needs. Besides the Maritime Academy of Nigeria (MAN), Oron, Akwa Ibom State, private maritime training institutions, and the recent establishment of the first-of- its-kind Nigeria Maritime University (NMU), Okerenkoko, Warri South West Local Government Area, Delta State, the federal

government has trained thousands of seafarers in selected reputable universities overseas under the auspices of the National Seafarers Development Programme (NSDP).

The Director General of the Nigerian Maritime Administration and Safety Agency (NIMASA), Mr. Ziakede Patrick Akpobolokemi however said Nigeria is presently not meeting up to 10 percent of shipboard manpower needs. He stated this on the sidelines of the just concluded national workshop on public private partnership (PPP) strategy for infrastructural development and modernization in the Nigerian maritime sector, organized by NIMASA in collaboration with the Infrastructure Concession Regulation Commission (ICRC) in Lagos (Akpobolokemi, 2013). His words: "Nigeria presently is not meeting up to 10 percent of the total shipboard manpower of her maritime trade estimate at 142,762 seafarers for vessels serving her domestic and foreign trades. Existing maritime educational and manpower training institutions are few and limited in scope to produce the requisite manpower needs of the sector. The gap in this area is huge and the need to close it is urgent, especially if we are to achieve some of the key policy objectives of the maritime law'' (Akpobolokemi, 2013). According to him, available infrastructures are not only inadequate but also limited in scope and capacity. There are most generally inefficient. This has consequently affected the competitiveness of the Nigerian maritime sector and severely limited it from contributing optimally to the socio-economic development of the country. He expressed dismay that until the recent ongoing efforts to build deep sea ports at Ibafon within the Lekki Free Trade Zone, Lagos and Ibaka at Akwa Ibom State, there was no deep sea port in the country

presently (Oritsematosan, 2009). "Nigeria similarly, lacks specialized ports and terminals facilities for special maritime trade. All these have continued to affect Nigeria's aspiration to become a regional hub/load centre", he added. The NIMASA Director General said other port and shipping service related infrastructure and facilities are also in short supply or non-existence. According to him, there is yawning gap for modern distribution parks, inland container depots, modern logistics parks/transport corridor to support supply chain management, modern warehousing facilities and efficient and reliable inland haulage services (road, railroad and inland water ways). Furthermore, Akpoblokemi opined that, "*In the shipping service subsector, indigenous fleet is insignificant and as such, foreign ship owners have continued to dominate both Nigeria's domestic and foreign trades. In the same vein, Nigerian operators depend largely on foreign shipyard for the building and maintenance of their vessels. Despite the huge captive market that the Cabotage regime has created for in-country shipbuilding and ship maintenance industry, available capacity remains very limited. There are also no facilities for ship breaking and recycling in the country*". He reiterated the agency resolve to intensify efforts to address some of these challenges, especially those ones with more defining impacts on the sector performance. "These efforts led to the articulation of our four point agenda, which is our development blue print for the sector. The four point agenda strategy is built around public private partnership. The agenda has helped us to prioritize our programmes and has largely guided our actions and activities", he said. According to the NIMASA CEO, the principal objectives of our four-point agenda are building of adequate and relevant indigenous fleet and in-country shipbuilding

and ship repair capacity to support and meet the demands of Nigeria's maritime trade; achieve in-country capacity for composite manpower development for the maritime sector; achieve integrated capacity for effective maritime administration to ensure safety and security of shipping in the most environmentally friendly manner; and build and maintain a highly professional, competent and disciplined workforce that is properly motivated to drive an organization with capacity for both static and dynamic efficiency (Akpobolokemi, 2013).

Azuh, (2012) in his paper titled "International Shipping as a Tool for Sustainable Development" revealed that Nigeria is among the countries with the highest number of graduates from the World Maritime University (WMU), Malmo, Sweden.

Azuh, further opined that Nigeria equally ranks second in the number of graduates from the International Maritime Law Institute (IMLI), Malta.From a total of 3,241 students, which the WMU has graduated since inception from 163 countries, Nigeria has a total of 122,coming third after China and the Philippines, which have 623 and 123,respectively. Other countries among the 10 countries with the highest number of graduates from the WMU include India, 107; Indonesia, 99; Viet Nam, 89; Iran, 83; Bangladesh, 75; Ghana, 73; and Tanzania, 68. Nigeria is coming behind Malta that has 63 graduates from IMLI. Algeria, Angola, China and Kenya have 12 graduates each, while Ghana, Tanzania and Sri Lanka have 10 graduates each. Azuh lamented that Nigeria has been unable to tap into the intellectual capacity of these graduates for the development of the maritime sector. Noting that most of the WMU graduates are

beneficiaries of government scholarship, he said that government has been unable to put them to proper use. Azuh noted that Nigeria has no business complaining about inadequate skilled manpower in the maritime industry with the number of graduates from these global institutions.

2.18. Theoretical Framework

Dobson and Boodoo (2013) in their contributions to the literature on endogenous growth theory emphasized the importance of human capital formation in the growth process, that is, the use of resources to educate and augment the productivity abilities of the labor force. This is buttressed by the opinion of (Khan 2012) that referred to human capital formation as to the process by which educated, skilled and trained persons are increased in a country. Accordingly, human capital formation is the act of increasing the productive qualities of labour force by providing more education and by increasing skill and health.

The theoretical framework most responsible for the wholesome adoption of education and development policies has come to be known as human capital theory (Almendarex, 2010).

2.19 Human Capital Theory

Human capital theory rests on the assumption that formal education is highly instrumental and necessary to improve the productive capacity of a population. In short, human capital theorists argue that an educated population is a productive population. Human capital theory emphasizes how education increases the productivity and efficiency of workers by increasing the level of cognitive stock of economically productive human

capability, which is a product of innate abilities and investment in human beings. The provision of formal education is seen as an investment in human capital, which proponents of the theory have considered as equally or even more worthwhile than that of physical capital (Almendarex, 2010).

The concept of human capital development has stimulated the scholars to debate around various interesting questions. For example, what constitutes human capital development? How human capital development affects productivity of the maritime sector? A great deal of literature is available to answering these questions. In this research, a few theoretical human capital development models will be espoused.

Human capital plays a key role in versions of both neoclassical and endogenous growth models (Anyanwu, et al. 2015). It is an aggregate economic view of the human being acting within economies, which is an attempt to capture the social, biological, cultural and psychological complexity as they interact in explicit and/or economic transactions. Many theories explicitly connect investment in human capital development to education, and the role of human capital in economic development, productivity growth, and innovation has frequently been cited as a justification for government subsidies for education and job skills training (Simkovic, 2013).

Anyanwu, et al. (2015) further opined that while endogenous growth models indicate that a society/sector with higher incentives for human capital investments would generate higher growth, it is not clear how the social incentives for human capital should be structured across different education levels.

Human capital development in the maritime sector is another viable avenue through which the government can generate numerous jobs.

Human Capital Theory (HCT) concludes that investment in human capital will lead to greater economic outputs however the validity of the theory is sometimes hard to prove and contradictory. In the past, economic strength was largely dependent on tangible physical assets such as land, factories and equipment. Labor was a necessary component, but increases in the value of the business came from investment in capital equipment. Modern economists seem to concur that education and health care are the key to improving human capital and ultimately increasing the economic outputs of the nation (Almendarex, 2010).

2.20 The Endogenous Growth Model
Holds that economic growth is primarily the result of endogenous and not external forces (Romer, 1994). He further argued that endogenous growth theory holds that investment in human capital, innovation, and knowledge are significant contributors to economic growth. The theory also focuses on positive externalities and spillover effects of a knowledge-based economy which will lead to economic development. The endogenous growth theory primarily holds that the long run growth rate of an economy depends on policy measures. For example, subsidies for research and development or education increase the growth rate in some endogenous growth models by increasing the incentive for innovation.

2.21 Development of Human Capital in the Nigerian Maritime Sector

In line with the local content policy and Cabotage Act of the Federal government. Prior

to the establishment of the Nigerian National Shipping Line (NNSL) Limited in 1959, Nigeria virtually had no trained Merchant Navy Officer apart from those who were enlisted in the Nigerian Navy as part of the Armed Forces. The Nigerian Ports Authority were the first to consider and indeed sponsored some officer cadets overseas for training in Navigation and Marine Engineers, etc. with a view to produce maritime pilots and marine engineers for its dock yards. NNSL, at inception relied entirely on foreign officers. A few ratings that were sailing on Elder Dempster and Palm Line vessels were switched to NNSL ships. For international shipping to thrive, there must be a pool of highly trained local manpower for manning the vessels in accordance with laid down international safety standards (Agoha, 2008). Because training facilities for seafarers were non-existent, NNSL made available its vessels and financial resources to cadet officers/students of navigation, maritime engineering and other relevant disciplines. Some of the company's vessels were even deliberately designed to provide professional sea training facilities even though it was commercially unprofitable to the company. Within a period of thirty years (1961-1992), a pool of trained seafarers (officers) had been created. It is pertinent to mention that officers so trained by NNSL and NPA were generally hired or poached by other organizations, which needed their services. Such organizations that sought the services of trained merchant navy officers include oil companies, fishing companies, inland waterways, Maritime Academy of Nigeria, Oron, breweries, high institutions offering some aspects of maritime related courses, NNPC, etc.

By 1992, a total of 1297 officers had received training in navigation, marine engineering, marine electrical engineering, catering marine communication, etc. through NNSL (Agoha, 2008). The following different categories of officers were produced:

Table 2.2 – List of Seamen Trained by NNSL by 1992

(a)	Master Mariners	64
(b)	Chief Officers	68
(c)	Second Officers	61
(d)	Third Officers	59
(e)	4th Officers	48
(f)	Radio/Marine Communication	68
(g)	Catering Officers	60
(h)	Chief Engineers	70
(i)	2nd Engineers	70
(j)	3rd Engineers	63
(k)	4th Engineers	70
(l)	Junior Engineers	77
(m)	Marine Electricians	69
(n)	Officer Cadets	450

Source: *NIMASA*

The suspension of the training programme by NNSL about two decades ago and the subsequent liquidation of the company have negatively impacted on the manpower developmental needs of the local maritime industry with particular reference to seafarers. Many were halfway through into their professional training while many of those fully trained are now aging simultaneously and out of touch with seafaring duties. No succession plans have been put in place for producing new generation of seafarers. The greatest problem is the non-availability of deep-sea trading ships as platform for practical training. Without "sea Time" training, no meaningful seafaring training is possible. With the virtual total disappearance of Nigerian Registered Ships, the products of the Maritime Academy of Nigeria, Oron have been unable to continue their training as the all important onboard sea training cannot be undertaken (Agoha,2008).

2.22 Empirical Framework

Almeida, et al. (2014) used SPSS and Structural Equation Modeling Technique to create a model relating innovation with social capital and human capital, based on a survey applied to 245 organizations of the maritime and marine economy in Atlantic countries in Europe. Their findings depict that, human and social capital represents explanatory facts of business development. They further validated the model in which social capital and human capital are significant for the impacts generated by innovation activities and consequent improvements in the performance of organizations.

Okeudo and Ogwude (2012) used descriptive statistical methods like the frequency distribution, correlation technique and the frontier model, to analyze secondary data collected from published transport journals. They found that, majority of the workers in the transport industry were unskilled with only a few workers possessing higher degrees, despite the positive relationship observed between the between human resource effect and the productivity.

Anyanwu, et al. (2015) investigated the relationship between human capital and economic growth in Nigeria with a time series data which covers periods 1981-2010, adopting the endogenous modeling approach cast within the autoregressive distributed lag (ARDL) framework, the bounds testing analysis indicated existence of co-integration between economic growth and human capital development indicators. Their findings also show that human capital development indicators had positive impact on economic growth in Nigeria within the reviewed periods; however, their impacts were largely statistically insignificant.

2.23 Summary of Reviewed Literatures;

The contributions of experts in the Nigerian maritime industry in relation to human capacity development cannot be overemphasized. Legal frameworks and Acts established to control indigenous participation in the industry; such as Nigerian Cabotage Act enacted in 2003 and implemented after one year ie 2004. The purpose of the Act as operated in many other countries like; India, Malaysia etc is primarily to govern the coastal water operations of a nation. The essence is to encourage both developed and underdeveloped countries to fully participate in maritime business locally and internationally. Jobs and Revenue will be actualized if the Act is fully observed by those concerned. This is because, the provision of the Act states that ships are built in the concern nation, Manned by the citizens of the nation, Registered also by the nation, and owned locally too. Therefore, manpower shortages, underutilized manpower, nepotism, corruption, are contributory to the lack of indigenous human capacities in the Nigerian maritime industry.

The worrisome issues like the above prompted the researcher to do an intensive study on the issues concerning inadequate local human capacity in the industry and equally proffer solution. Therefore, the industry needs total evaluations in respect to manpower development and the recognition of cabotage Act and its full implementations.

The research gap noticed from the literature reviewed observed that many authors were writing about the dearth of human capital in the Nigerian maritime sector. They did not adequately highlight the procedures to make the huge number of graduates in marine related courses churned out from the universities and

marine education and training institutions (MET) yearly more profitable for the industry. The author also observed that most universities undertaking marine related courses are operating with anachronistic curriculum and not relevant to current maritime conventions as regards training in shipping and marine transportation. He also observed that Nigerian Maritime Education and Training Institutions (MET) lack the prerequisite to award certificate of competency (COC) to trained seafarers which predicated their unemployability status.

CHAPTER THREE

3.0. RESEARCH METHODOLOGY

3.1. Introduction
This chapter stipulates the procedures employed in the collection of data, research design, and method of data analysis.

3.2. Methods of Data Collection
Secondary sources were selected based on their credibility, such as well known names (i.e. NIMASA or NPA, MAN) or those that were acknowledged by other sources to be experts within the maritime sector.

3.2.1. Secondary Data
They include relevant data from textbooks, journals, Nigerian Ports Authority (NPA) annual publications, Nigerian Maritime Administration and Safety Agency (NIMASA) and Student enrollment and Graduation report from Maritime Academy of Nigeria (MAN) Oron. The secondary data was collected for the analysis of each of the three research objectives.

3.3. Research Design
This outlined a specific plan of action for carrying out this study. However, for the purposes of this study, a quantitative analytic design was adopted, which informed our decision to formulate the hypotheses in chapter one.

These hypotheses formulated will be tested using Simple Linear Regression Analysis of the Ordinary Least Square (OLS) Methodology. The data for the analysis is presented and analyzed in chapter four.

3.4. Methods of Data Analysis
The analytical methods employed in this study are both quantitative and descriptive and are derived from the analysis of each of the research objectives.

The quantitative technique to be used in analyzing each of the research objectives is the simple regression analysis. It defines the relationship between the dependent and independent variables for each of the research objectives for the years under study and was used to obtain the coefficients associated with Supply of maritime labour in Nigeria. The regression line which defines this relationship is expressed as:

Regression Model for Objective One

Objective One: To determine the relationship between human capital formation in maritime studies and supply of local human capacity in Nigeria's Maritime industry.

$LnY_1 = B_o + B_1 LnX_1 + ut$
………………………………… (3.1)

Regression Model for Objective Two

Objective Two: To examine the relationship between demand and Supply of maritime labour in Nigerian Maritime industry.

$Y_2 = B_o + B_2 X_2$
$+ut$…………………………………… (3.2)

Regression Model for Objective Three

Objective Three: To evaluate the relationship between number of Graduates from maritime institutions and the Supply of maritime labour in Nigeria.

$Y_3 = B_o + B_3X_3 + ut$ …………………………………… (3.3)

Where:

Y_1 = Supply of Maritime labour

Y_2 = Demand for Maritime Labour

Y_3 = Supply of Maritime Labour

B_o = Constant

X_1 = Human capital formation in Maritime studies

X_2 = Supply of Maritime Labour

X_3 = Graduation of students from maritime institutions (MAN) Oron

U_t = Error term (which accounts for factors that affect supply of maritime labour not reflected in the model).

B_o is the baseline while B_1, B_2, B_3 and B_4 are coefficients of the regression parameters to be estimated. The values of the coefficients are obtained using the ordinary least square method. The values will be gotten from the output of SPSS.

The sign and value of the estimators indicates the proportionate direction and magnitude of effect each independent variable (input) will have on the dependent variable (output). For instance, a positive sign will indicate a direct proportionate effect.

3.5 Test of Significance

3.5.1 Test of Model Significance – ANOVA

For the hypotheses to be tested, it is pertinent, if not imperative for a test of the model as a whole to be conducted. Carrying out such a test has the advantage of confirming the appropriateness of the model specification. Two ways of achieving this are:

(1) The analysis of variance approach (ANOVA) and,

(2) The coefficient of determination approach, both calculated from the regression mode.

The analysis of variance approach seeks to split the variations of the dependent variable with its components parts. Variations in the Dependent Variables that are accounted for by the explanatory variables, are called the *explained variations*. Other sources not thus explained are due to random or chance factors. These are estimates of the population disturbance variable **'u'** represented by **'e'** otherwise called the *residuals* or error term.

Table 3.0 Hypothetical ANOVA table

Source of variation	Sum of squares (SS)	Degree of Freedom (df)	Mean square (MS)	F-ratio

Regression	SSR $=\sum Y^2 R^2$	K	MSR= SSR	F = MSR
Residual	SSE = ~~SST~~ SSR $=\sum Y^2(1-R^2)$	n – k-1	MSE = SSE n – k-1	MSE
TOTAL	SST $=\sum Y^2$	n-1		

Where;

SSR = Sum of squares of the regression

SSE = Sum of Squares of the error term.

SST = Sum of squares total variation.

K = Number of independent variables

N = Number of observations.

Note R^2 = b1$\square$X1Y + b2 $\square$X2Y. Y2

3.5.2 Test of the Model; Coefficient of Determination and the F-Test Approach

Another method to test the statistical significance of the estimated regression model is through the coefficient of determination. (R^2), calculated from the regression, R^2, gives the proportion of the total variation in the dependent variable.

R^2, from the sample is a statistical estimate of the population, $\rho2$, (row-squared. Value of R^2 ranges between 0 and 1. In setting up the test, the following hypothesis is tested;

H_O: $\rho2$=O (i.e. the regressor, in a given year have no significant relationship with the Actual dependent for that year).

H_1: $\rho2$>O (One –tailed 0 test of significance) (i.e. at least there is a significant relationship between one of the independent variables and Actual dependent variable.

Decision Rule

If f-ratio (calculated) is greater than the f-ratio (tabulated, at Alpha **α**– level of significance, and (k-1) (n-k), degrees of freedom, then we reject Ho and Accept H_1, and state that there is some truth in the estimated model (-i.e., the regression model is significant since the regressors significantly account for the variation in the

dependent variable.

Here, F-ratio (calculated) = (R^2)/(k-1) (1-R^2)/(N-k) …………………(3.2)

Where:

R^2 = R square of the model

K = No variables (independent and dependent)

n = No of observations.

3.5.3 Test of the Hypotheses
Having established the significance of the estimated model as a whole, we now go further to test the specific strengths of the various regressors in bringing about this result. And we can check this through conducting T-tests on the estimated parameters of the regressors.

The test – statistic, t-ratio is calculated thus:

t-ratio = βk

for k=1....................8

Se (βk)

Where, βk = estimate of the population parameters for the regressors and Se (βk) = Standard error of the estimate.

Decision Rule

If absolute value, $\left|\dfrac{\beta k}{Se\ (\beta k)}\right| > t_{n-k}$ α/2…………….…………….…………......(3.3)

Se (βk) Level of significance, we reject H_O and accept H_1: and conclude that the variable belongs significantly to the model.

However , the t values are given in the output of the SPSS regression analysis. The null hypothesis is rejected if the calculated 't' values exceeds the tabulated t value at specific level of significance and degrees of freedom.

3.6 Assumptions of the Linear Regression Model

In choosing the above model, we make the following principal assumptions about our population disturbance term, ut. These assumptions about the distribution of the values of 'ut' are very crucial for the estimates of the regression. These include the following:

a. Assumption of Randomness: The value "ut" may assume in any given period depends on chance 'ut' being a random real variable may be positive, zero or negative, each with a certain probability of occurrence for a particular period.

b. Assumption of Zero Mean: The mean value of 'ut' in any particular period is zero. This being the case, the expected value, (E(ut), of 'ut', for all observations, t=1,2,3……….n, is equal to zero.

c. Constant Variance Assumption: The variance, 82ut, is constant in each period, that is, the variance of 'ut' for each explanatory variable is constant. This being the case, 'ut' will show the same dispersion for all values of the explanatory variables.

(E(u2t) = 82. This is called the assumption of HOMOSCEDASTICITY. If this assumption does not apply, then the condition of HETROSCEDASTICITY obtains under which condition, therefore, it would be difficult for us to construct

confidence intervals on the regression estimates. These tests, therefore become inapplicable.

d. Normality Assumption: The variable 'ut' has a normal distribution that is, the values of 'ut' (for each explanatory variables) have a bell shaped symmetrical distribution. The above four principal assumptions are symbolically represented

as; ut – N (O, 82ut), that is, ut is a random variable, with a normal distribution, zero mean and a constant variance.

e. Other Assumption of the Model;

i. Cov (uiuj) – O (there is no covariance between the disturbance terms of different observations.

ii. Cov (Xisui) = O (No covariance between the disturbance term and the explanatory variables)

iii. Cov (XiS) = O (No Covariance between the explanatory variables (i.e. No multicollinearity exists).

iv. The relationship is IDENTIFIED – that is the model has a unique mathematical form. Its explanatory variables are not found in any

other mathematical equation related to phenomena being studied.

CHAPTER FOUR

DATA PRESENTATION AND RESULTS ANALYSIS

4.1 Introduction

In this chapter, the researcher presents the data sourced from secondary sources such as NPA, NIMASA Annual Reports or Bulletins and Maritime Academy Oron Admission and Graduation reports, relating to the subject under study. The relevant analytical algorithms were applied to the data to test the objectives and hypotheses of the study.

Table 4.1: Supply of maritime Labour and Human Capital Development Indicators

Source: *Maritime Academy Oron, Nimasa and World Bank*

funding across all levels. Ihenacho (2004) argued that human resource constraint is identified as a problem capable of undermining the effective implementation of the cabotage law because a national fleet cannot become established without a related programme for the training and certification of the technical factors required to man and operate the vessels to be acquired under the cabotage regime.

The Nigerian Seafarers Development Programme (NSDP), an initiative of the Nigerian Maritime Administration and Safety Agency (NIMASA) was floated in 2008 to curb the dearth of trained and certified seafarers in the country which was identified as an impediment to Nigeria's robust participation in the global shipping business. It is expected that the programme would bridge

Year	Nigerian Seafarers Recommended onboard Cabotage Vsls. (Demand) (Y)	Nigerian Seafarers onboard cabotage vessels (Supply) (X_1)	Shortfall of Seafarers ($Y - X_1$)	Human Capital Formation (X_2) ($000)	Graduation from Maritime Institution (MAN Oron) (X_3)
2004	3,005	2108	897	7.40	187.00
2005	3,583	2060	1523	5.47	266.00
2006	2,991	1674	1317	8.27	428.00
2007	842	102	740	9.26	441.00
2008	2,018	1176	842	8.33	451.00
2009	2,058	1502	556	12.09	5.00
2010	2,908	2469	439	17.29	558.00
2011	3,784	2328	1456	16.21	559.00
2012	4,762	2984	1778	14.90	600.00
2013	4,905	3623	1282	14.90	915.00

4.2 Tests for Objective One

Objective One: To determine the relationship between human capital formation in maritime studies and supply of local human capacity in Nigeria's Maritime industry.

4.2.1 Discussion of Human Capital Formation in Maritime Studies

Human capital development is undoubtedly germane to the accomplishment of evocative and sustainable economic growth and development in any society. Human capital formation involves building and developing human capacity through adequate educational

the knowledge gap and enhance the economic benefit of the sector as well as place the country in the league of advanced maritime nations.

Table 4.1: Regression Analysis Output for Objective One

A

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.288[a]	.083	-.031	.44581

a. Predictors: (Constant), Capital formation in maritime studies

b. Dependent Variable: Supply of Nigerian Seafarers

B

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.144	1	.144	.726	.419[b]
	Residual	1.590	8	.199		
	Total	1.734	9			

a. Dependent Variable: Supply of Nigerian Seafarers

b. Predictors: (Constant), Capital formation in maritime studies

C

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.423	.912		2.656	.029
	Capital formation in maritime studies	.746	.876	.288	.852	.419

a. Dependent Variable: Supply of Nigerian Seafarers

D

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.9740	3.3470	3.1911	.12662	10
Residual	-1.13601	.33991	.00000	.42031	10
Std. Predicted Value	-1.715	1.232	.000	1.000	10
Std. Residual	-2.548	.762	.000	.943	10

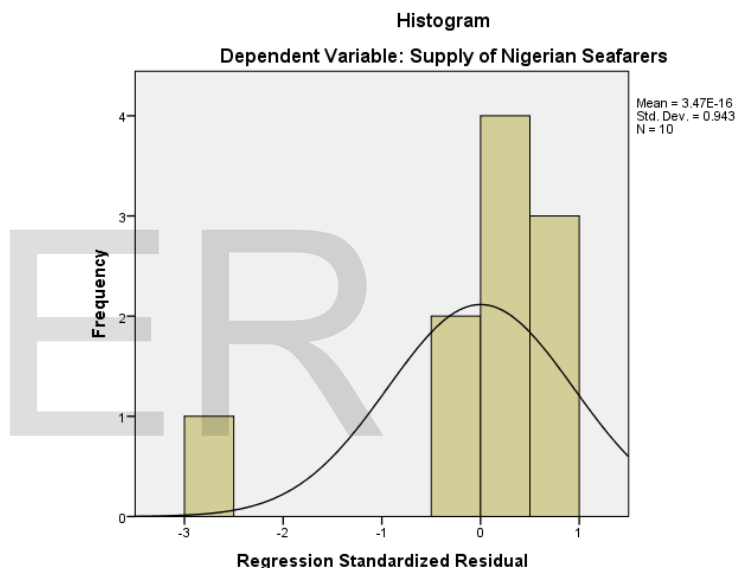a. Dependent Variable: Supply of Nigerian Seafarers

Source: *SPSS result*

Figure 4.1: Histogram of the dependent variable against Regression Standardized Residual
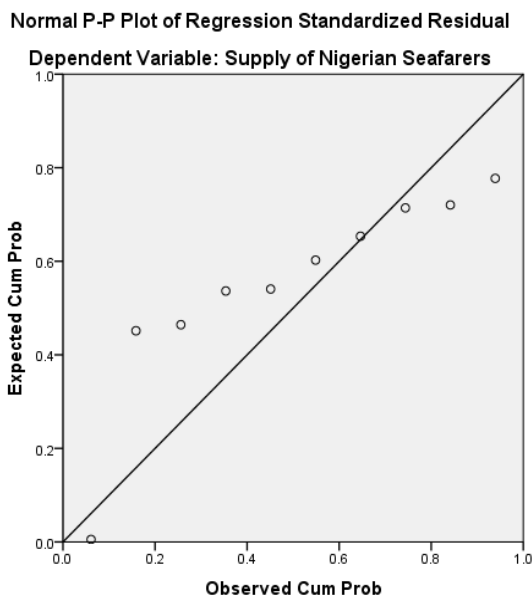Source: *Computed by Author using SPSS*

Figure 4.2: Normal P-P Plot of Regression Standardized Residual
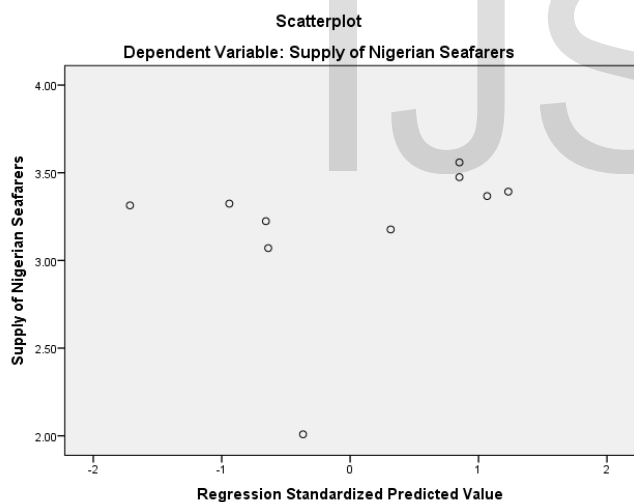Source: *SPSS resultS*

Figure 4.3: Scatter Plot of the Dependent variable against the Regression Standardized Predicted Value
Source: *Computed by Author using SPSS*

4.2.2 Test for Goodness of Fit

In table 4.1(A), the relationship parameters are: coefficient of correlation (R) = 28.8%, coefficient of determination (R^2) = 8.3%, and adjusted coefficient of determination 0.31%. The above imply that 8.3%, of the variations in Supply of maritime labour per year can be explained by the variation in the independent variable (human capital formation in maritime studies), 91.7% could be explained by parameters not included in the model. The coefficient of correlation value of 28.8% implies that, there is a very weak positive correlation between the dependent and independent variable.

This implies that there is a relatively weak goodness of fit between the supply of maritime labour and human capital formation in maritime studies.

4.2.3 Estimating the Research Model for Objective One

Recall Equation (3.1). $Ln\hat{Y} = B_O + B_1 Ln(X_1) + ut$,

Supply of maritime labour (Y) = 2.423 + 0.746+ut…….(4.1) (Human Capital formation in maritime studies)

The significance of the above model is tested by way of the F-test using the Analysis of variance (ANOVA) approach using table 4.1(B). The interpretation of the regression line is that, there is a direct proportionate effect on the independent variable, such that the Supply of maritime labour in Nigeria will increase by; 0.746% for a percent increase in X_1(human capital formation in maritime studies). The regression intercept have a positive value which shows a direct proportionate relationship with the dependent variable.

4.2.4 Test for Significance of Regression Model - ANOVA Method

We test for the specification status of the model through the analysis of variance. Therefore, we refer to Table 4.1 (B) by comparing the calculated F – ratio with the F – ratio tabulated. The F statistics can be calculated using the ratio of mean square regression (MS regression) to the mean square regression (MS residual). To test the Null hypothesis, if the calculated F exceeds the tabular F distribution at 0.05 (95%) confidence level of significance, or if the sig-value is less than 0.05 or greater than 95% confidence level, then the Null hypothesis is rejected, otherwise it is accepted.

$$F_{k,n} - (k+1) = \frac{SS_{regression}/K}{SS_{residual}/n-k+1}$$
…………………………………….. (4.2)

$$F = \frac{1.590/8}{1.734/9} = 0.76$$

The calculated F is approximately 0.76 which correspond with the F statistics of the output. Since the significant value (0.419) is greater than 0.05 and the calculated F-value (0.76) is greater than the tabular F-value of 4.46 at (1, 8) degrees of freedom, at 95% (0.05) confidence level, then the model is said to be linear but not significant.

4.3.0 Test for the Hypotheses

This test is the test for the Null hypothesis. The test is carried out to assess the relationship between Supply of maritime labour in the Nigerian maritime sector and the slope parameter with n-k+1 degrees of freedom at 0.05 or 95% confidence level, where, 'n' is the number of observations and 'k' is the number of parameters considered in the study using the t-values in table 4.1(C). Testing the regression coefficients not only give some insights about the fit of the regression model, but also helps in evaluating how worthwhile individual independent variables are predicting the dependent variable(Y) and the influence Y will have on the slope parameter (X_1). The t-value is calculated as the ratio of coefficient, B_o to standard error, $S_{ei,}$ and compared to a table of critical values that measure the level of significance or confidence to reject the Null hypothesis. If the calculated t-value exceeds the critical tabular t-value at 0.05 significance level and n-k+1 degrees of freedom, then the Null hypothesis is rejected, that is, slope parameter is significantly related to Supply of maritime labour variations, otherwise it is not rejected.

4.3.1 Test for Hypothesis One

H_O: There is no statistical significant relationship between human capital formation in maritime studies and Supply of maritime labour in Nigeria.

H_A: There is no statistical significant relationship between human capital formation in maritime studies and Supply of maritime labour in Nigeria.

From the regression output, the coefficient of X_1 is 0.746 and the standard error is 2.314, therefore;

$T_1 = 0.746 /0.876 = 0.852$

This value corresponds with the X_1 't-stat' value of the regression output; the sig – value of X_1 variable is 0.419. Since the sig-value is greater than 0.05. Therefore, X_1 is not statistically significant, then we accept the null hypothesis, i.e; there is no statistical significant relationship between human capital formation in maritime studies and Supply of maritime labour in Nigeria.

Decision Rule:

We therefore conclude that there is a direct relationship between variable X_1 and the dependent variable. Since (sig-value 0.419 > 0.05), therefore, the alternate hypothesis is rejected; There is a statistical significant relationship between human capital formation in maritime studies and Supply of maritime labour in Nigeria.

4.3.2 Test for Objective Two

Objective Two: To examine the relationship between Demand and Supply of maritime labour in Nigerian Maritime industry.

Table 4.2: Regression Analysis Output for Objective Two

A **Model Summary^b**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.949^a	.901	.888	419.181 90

a. Predictors: (Constant), Supply of maritime labour

b. Dependent Variable: Demand for Maritime labour

B **ANOVA^a**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12726454.659	1	12726454.659	72.427	.000^b
	Residual	1405707.741	8	175713.468		
	Total	14132162.400	9			

a. Dependent Variable: Demand for Maritime labour

b. Predictors: (Constant), Supply of maritime labour

C **Coefficients^a**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	646.754	315.745		2.048	.0
	Supply of maritime labour	1.218	.143	.949	8.510	.0

a. Dependent Variable: Demand for Maritime labour

D **Residuals Statistics^a**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	770.9736	5058.9878	3085.6000	1189.13856	10
Residual	-745.60046	481.21201	.00000	395.20849	10
Std. Predicted Value	-1.946	1.660	.000	1.000	10
Std. Residual	-1.779	1.148	.000	.943	10

a. Dependent Variable: Demand for Maritime labour

Source: *Computed by Author using SPSS*

Histogram

Dependent Variable: Demand for Maritime labour

Scatterplot

Dependent Variable: Demand for Maritime labour

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Demand for Maritime labour
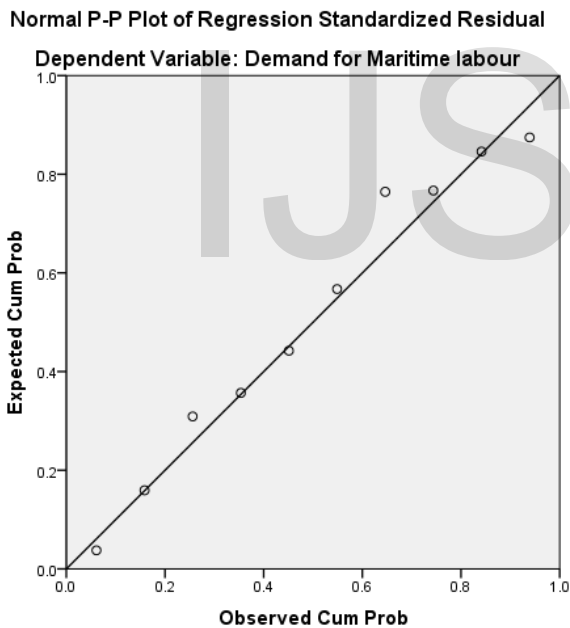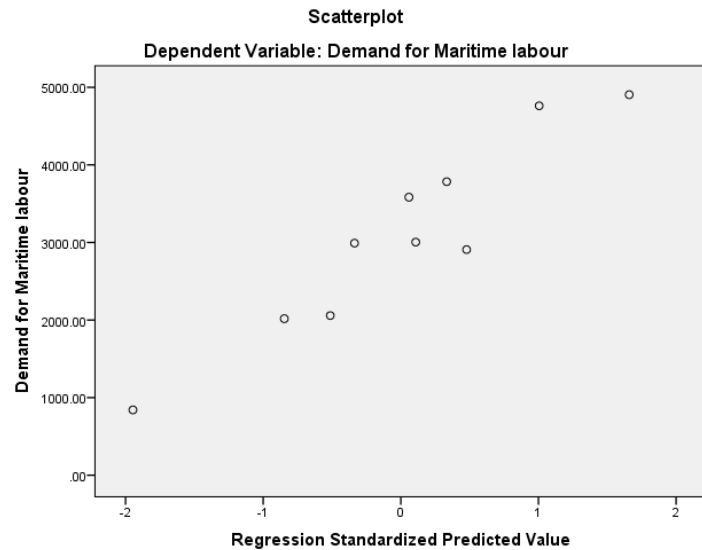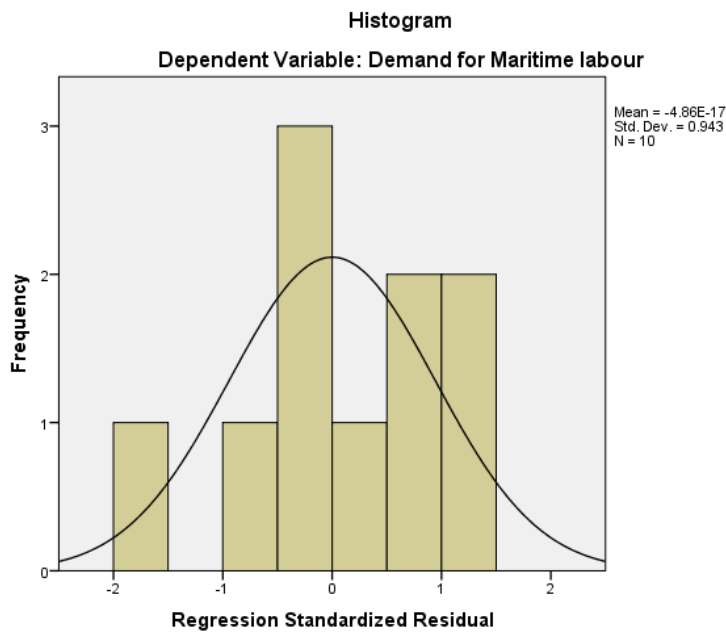
4.3.3 Test for Goodness of Fit

In table 4.2(A), the relationship parameters are: coefficient of correlation (R) = 94.9%, coefficient of determination (R^2) = 90.1%, and adjusted coefficient of determination 88.8%. The above imply that 90.1%, of the variations in Demand for maritime labour per year can be explained by the variation in the independent variable (Supply of maritime labour in Nigeria), 9.9% could be explained by parameters not included in the model. The coefficient of correlation value of 94.9% implies that, there is a very strong positive correlation between the Demand for maritime labour and Supply of maritime labour.

This implies that there is a very strong goodness of fit between the Demand for maritime labour and Supply of maritime labour. The adjusted R-square of 88.8% means that the model has accounted for 88.8% of the variance in the independent variable. The remaining 11.2% of the variation is explained by stochastic factors. Taking a critical look at Table 4.2(C) shows the beta value of the explanatory variable relative to Demand for maritime labour.

4.3.4 Estimating the Research Model for Objective Two

Recall Equation (3.2)

$\hat{Y} = B_O + B_2(X_2) + ut,$

Demand for maritime labour (Y) = 2.423 + 0.746 (Supply of maritime labour) + ut……………………………………….. (4.2)

The significance of the above model is tested by way of the F-test using the Analysis of variance (ANOVA) approach using table 4.2(B). The interpretation of the regression line is that, there is a direct proportionate effect on the independent variable, such that the Demand for maritime labour in Nigeria will increase by; 1.218% for a percent increase in X_2(Supply of maritime labour). The regression intercept have a positive value which shows a direct proportionate relationship with the dependent variable.

4.3.5 Test for Significance of Regression Model - ANOVA Method

We test for the specification status of the model through the analysis of variance. Therefore, we refer to Table 4.2 (B) by comparing the calculated F – ratio with the F – ratio tabulated. The F statistics can be calculated using the ratio of mean square regression (MS regression) to the mean square regression (MS residual). To test the Null hypothesis, if the calculated F exceeds the tabular F distribution at 0.05 (95%) confidence level of significance, or if the sig-value is less than 0.05 or greater than 95% confidence level, then the Null hypothesis is rejected, otherwise it is accepted.

$$F_{k,n} - (k + 1) = \frac{SS_{regression}/K}{SS_{residual}/n-k+1}$$
……………………………………….. (4.3)

$$F = \frac{12726454.6/1}{1405707.7/8} = 72.427$$

The calculated F is approximately 72.427 which correspond with the F statistics of the output. Since the significant value (0.000) is less than 0.05 and the calculated F-value (72.427) is greater than the tabular F-value of 4.46 at (1, 8) degrees of freedom, at 95% (0.05) confidence level, then the model is said to be linear but not significant.

4.4.0 Test for Hypothesis Two

H_O: There is no statistical difference between Demand and Supply of maritime labour in Nigeria.
H_A: There is a statistical difference between Demand and Supply of maritime labour in Nigeria.

From the regression output, the coefficient of X_2 is 1.218 and the standard error is 1.159, therefore;

$T_2 = 1.218 / 1.159 = 0.949$

This value corresponds with the X_2 't-stat' value of the regression output; the sig – value of X_2 variable is 0.000. Since the sig-value is less than 0.05. Therefore, X_2 is statistically significant, then we reject the null hypothesis, i.e; there is no statistical difference between Demand and Supply of maritime labour in Nigeria.

4.5.0 Test for Objective Three

Objective Three: To evaluate the relationship between number of Graduates from maritime institutions and the Supply of maritime labour in Nigeria.

b. Predictors: (Constant), Number of graduates from maritime training institutions

Table 4.3: Regression Analysis Output for Objective Three

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.543[a]	.295	.207	869.38707

a. Predictors: (Constant), Number of graduates from maritime training institutions
b. Dependent Variable: Supply of Maritime labour

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1067.047	580.208		1.839	.10 3
	Number of graduates from maritime training institutions	2.121	1.159	.543	1.831	.10 4

a. Dependent Variable: Supply of Maritime labour

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2534115.345	1	2534115.345	3.353	.104[b]
	Residual	6046671.055	8	755833.882		
	Total	8580786.400	9			

a. Dependent Variable: Supply of Maritime labour

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1077.6544	3008.1602	2002.6000	530.63016	10
Residual	-1900.59998	644.24445	.00000	819.66599	10
Std. Predicted Value	-1.743	1.895	.000	1.000	10
Std. Residual	-2.186	.741	.000	.943	10

a. Dependent Variable: Supply of Maritime labour

Source: *Computed by Author using SPSS*

Histogram
Dependent Variable: Supply of Maritime labour

Mean = 2.78
Std. Dev. =
N = 10

Scatterplot
Dependent Variable: Supply of Maritime labour

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Supply of Maritime labour

4.5.1 Test for Goodness of Fit for model (3.2)

In table 4.3(A), the relationship parameters are: coefficient of correlation (R) = 54.3%, coefficient of determination (R^2) = 29.5%, and adjusted coefficient of determination 20.7%. The above imply that 29.5%, of the variations in supply of maritime labour per year can be explained by the variation in the independent variable (Number of graduates from MET in Nigeria), 70.5% could be explained by parameters not included in the model. The coefficient of correlation value of 54.3% implies that, there is a moderate positive correlation between the Supply of maritime labour and Number of graduates from MET in Nigeria.

This implies that there is a very poor goodness of fit between the Supply of maritime labour and the number of graduates from MET in Nigeria involved in maritime industry. The adjusted R-square of 20.7% means that the model has accounted for 20.7% of the variance

in the independent variable. The remaining 79.3% of the variation is explained by stochastic factors. Taking a critical look at Table 4.3(C) shows the beta value of the explanatory variable relative to Supply of maritime labour.

4.5.2 Estimating the Research Model for Objective Three

Recall Equation (3.3)

$\hat{Y} = B_O + B_3(X_3) + ut,$

Supply of maritime labour (Y) = 1067.04 + 2.121 (Number of Graduates from Nigerian MET in the maritime industry) + ut…………………... (4.4)

The significance of the above model is tested by way of the F-test using the Analysis of variance (ANOVA) approach using table 4.3(B). The interpretation of the regression line is that, there is a direct proportionate effect on the independent variable, such that the Supply of maritime labour in Nigeria will increase by; 1.121% for a percent increase in X_3(Number of Graduates from Nigerian MET in the maritime industry). The regression intercept have a positive value which shows a direct proportionate relationship with the dependent variable.

4.5.3 Test for Significance of Regression Model - ANOVA Method

We test for the specification status of the model through the analysis of variance. Therefore, we refer to Table 4.3 (B) by comparing the calculated F – ratio with the F – ratio tabulated. The F statistics can be calculated using the ratio of mean square regression (MS regression) to the mean square regression (MS residual). To test the Null hypothesis, if the calculated F exceeds the tabular F distribution

at 0.05 (95%) confidence level of significance, or if the sig-value is less than 0.05 or greater than 95% confidence level, then the Null hypothesis is rejected, otherwise it is accepted.

$$F_{k,n} - (k + 1) = \frac{SS_{regression}/K}{SS_{residual}/n-k+1}$$
…………………………………….. (4.5)

$$F = \frac{2534115.345/1}{6046671.055/8} = 3.353$$

The calculated F is approximately 3.353 which correspond with the F statistics of the output. Since the sig-value (0.104) is greater than 0.05 and the calculated F-value (3.353) is greater than the tabular F-value of 4.46 at (1, 8) degrees of freedom, at 95% (0.05) confidence level, then the model is said to be linear but not significant.

4.5.4 Test for Hypothesis Three

H$_O$: There is no statistical significant relationship between the number of graduates from maritime institutions in the maritime industry and Supply of maritime labour in Nigeria.
H$_A$: There is no statistical significant relationship between the number of graduates from maritime institutions in the maritime industry and Supply of maritime labour in Nigeria.

From the regression output, the coefficient of X_3 is 2.121 and the standard error is 1.159, therefore;

$T_3 = 2.121 / 1.159 = 1.831$

This value corresponds with the X_3 't-stat' value of the regression output; the sig – value of X_3 variable is 0.104. Since the sig-value is greater than 0.05. Therefore, X_3 is not statistically significant, then we accept the null hypothesis, i.e; There is no statistical significant relationship between the number of graduates from maritime institutions in the maritime industry and Supply of maritime labour in Nigeria.

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Table 4.2: Student Enrollment and Graduation in Maritime Academy Oron (2003 – 2013)

Academic Year	NATIONAL DIPLOMA (ND)									
	DECK		ENGINE		MTBS		BST		ELECT/ELEC	
	IN(X)	OUT(Y)	IN(X)	OUT(Y)	IN(X)	OUT(Y)	IN(X)	OUT(Y)	IN(X)	OUT
2002/03	29	25	66	37	80	39	31	23		
2003/04	63	19	83	53	87	63	42	27		
2004/05	75	43	116	60	124	42	57	17		
2005/06	102	40	134	65	144	68	69	26		
2006/07	119	74	176	86	147	119	58	46		
2007/08	133	86	200	134	172	95	91	46		
2009/10	128	88	169	128	183	119	96	40		
2010/11	134	5	166	-	180	-	87	-		
2011/12	115	106	135	115	144	91	59	73	63	-
2012/13	127	76	200	117	217	93	80	59	94	30
TOTAL	1353	562	1920	795	2138	729	756	357	275	30

* X =Input (Admission)

*Y= Output (Graduation)

Source: Maritime Academy of Nigeria, Oron.

Table 4.2 depicts student enrollment and graduation in maritime academy of Nigeria Oron. The students are trained in Engineering, Deck, MTBS and BST(Basic Safety Training) which encompasses STCW trainings. For the 2002/03 academic session 234 students enrolled for both OND and HND programmes, 150 students graduated that same year. Year 2012/13 academic session recorded the highest number of student enrollment and graduation. This data brings to question the dearth of skilled maritime labour in the Nigerian maritime industry. Does it imply that these plethora of students graduating from the maritime education and training institutions in Nigeria are not interested in practicing their trainings or are not employable?

Table 4.3: Total Crew Recommended onboard Cabotage Vessels (Nigerian and Foreign)

YEAR	TOTAL CREW RECOMMENDED ONBOARD CABOTAGE VESSELS	TOTAL CREW RECOMMENDED ONBOARD CABOTAGE VESSELS
	NIGERIAN	FOREGIN
2004	3,005	897
2005	3,583	1,523
2006	2,991	1,317
2007	842	750
2008	2,018	842
2009	2,058	556
2010	2,908	439
2011	3,784	1,456
2012	4,762	1,778
2013	4,905	1,282

Source: *NIMASA*

Table 4.3 depicts that in the year 2004, 3005 Nigerian crew were recommended to be onboard Nigerian Cabotage vessels, while 897 crews were recommended to be onboard Foreign vessels involved in coastal shipping. Year 2013 recorded the highest number of 4905 and 1282 crews onboard Cabotage vessels for both Nigerian and foreign vessels respectively.

Table.4.4. Nationality of Ships that Entered Nigerian Ports. (Including Crude Oil Terminals): 1997 – 2006

Year	NIGERIAN		NON-NIGERIAN		TOTAL	
	Number	GRT	Number	GRT	Number	GRT
1997	353	1,650,604	3,232	91,192,737	3,585	92,843,341
1998	680	3,150,594	3,292	94,741,599	3,972	97,892,193
1999	557	778,514	3,205	93,964,177	3,762	94,742,691
2000	421	1,089,292	3,666	121,950,617	4,087	123,037,909
2001	270	2,415,765	4,203	127,597,821	4,473	130,013,586
2002	216	1,180,942	3,927	117,030,100	4,143	118,211,042
2003	223	986,696	4,092	131,401,537	4,314	132,388,233
20	236	1,15	4,31	159,7	4,5	160,9

04		1,310	7	54,244	53	05,554
2005	269	1,997,996	4,317	143,497,864	5,586	145,495,860
2006	324	1,896,046	4,476	139,559,730	4,800	141,455,776
TOTAL	3,549	**16,297,759**	**38,727**	**1,220,690,426**	42,276	**1,236,986,185**

Source: *NPA Statistics dept*

Table.4.4 highlights inadequate local tonnages in our coastal trade and the breach of Cabotage Act that provided opportunities for the citizens. A total of 3,549 Nigerian owned ships entered Nigerian Ports from 1997-2006 as against a total of 38,727 foreign owned ships. Nigerian ships recorded 16,297,759 GRT while foreign flag ships recorded 1,220,690,426 GRT. It also shows that Nigerian shipping trade is dangerously dominated by the foreign ship-owners during this period though even up-to date. This discrepancy highlights the huge capital flights accrued by the foreign companies. If the Cabotage Act is stiffened a bit, in the presence of recession and declining oil prices, the maritime sector can be the next huge earner of foreign income.

Also there is no doubt that this scenario shows that the Nigerian economy is at a loss in terms of revenue generated, employment of her citizens (Nigerian mariners) and depletion of the foreign exchange reserves. In 2003 Nigerian vessels that entered the ports of Nigeria was 223 (GRT.986,696) as against 4,092 (GRT.131,401,537) foreign vessels. What an incredible differences.

Slight increases were noticed in 2004 (236 ships of GRT.1,151,310), 2005 (269 ships of 1,997,996 GRT), and 2006 (324 ships of 1,896,046 GRT). The slight increases may be attributed to the effect of the cabotage regime implementation which came into operation in May, 2004. Hence, funds and full implementation of Cabotage policy were needed to help local operators.

Table 4.5. Manpower Requirements by Staff Function at NPA 2008 (Ports and Harbours)

STAFF	REQUIRED	AVAILABLE	SHORTFALL	SHORTFALL (%)
Port manager	9	8	-1	11
Traffic manager	1	1	0	0
Harbour manager	25	9	-16	64
Marine surveyor	2	0	-2	100
Ship marine engineer	1	1	0	0
Ship pilot	6	2	-4	67
Berthing Master	79	55	-16	30
Pilot boat operator	-	-	-	-
Tug Operator	-	-	-	-
Marine craft operator	840	620	-220	26
Dredger operator	5	5	0	0
Dredger engineer	5	5	0	0
Marine craft engineer	4	3	-1	25
Maintenance engineer	0	0	0	0
Technical/mechanic	142	112	-30	21
Marine rating	60	10	-50	83
Port safety surveyor	2	0	-2	100
Hydrographic surveyor	16	8	-8	50
NAV-aids technicians	21	14	-7	33
V.T.S. Staffs	3	0	-3	100
Radar operator	2	0	-2	100
Marcom radio operator	85	65	-20	24
Pollution control staffs	72	42	-30	42
Drivers	10	1	-9	90
HRD/Training manager	1	0	-1	100
	1391	961	-430	31

TOTAL				

Source: NPA Annual Bulletin 2009

Table 4.5 also supports hypothesis 1 and 2. Indicating the shortfall of professionals in the industry. The requirement of human capacity in the industry especially professionals is quite alarming. Table 4.5 also indicates the training needs and assessment in the Nigeria's maritime sector in order to quantify the human capacity requirements in the industry. Findings of the study indicate that the stock of skilled manpower in the Nigerian maritime industry when compared with the requirement is low. With a total personnel requirement of 6931 and a total employed of 4646, there is on the aggregate a shortfall of about 33% of skilled manpower required in the industry. A breakdown indicates that for ports and harbour, the 31% shortfall recorded centres mainly on the area of Harbours master (64% shortfall), Marine surveyor (100%), Ship pilot (67%), Port safety surveyor (83%), Hydro graphic surveyor (50%), VTS staff (100%), Radar operator (100%), Driver (90%) and HRD/training manager (100%). These areas constitute urgent areas of manpower training and development for port and harbour personnel. In addition, the study made projections in manpower requirements in the maritime sector for years 2000, 2005 and 2010 for low, medium and high cadres of job functions. The projection indicates further significant shortfalls. For example, of the ten maritime establishments considered, the Nigerian Ports Authority (NPA, 2005) and the Federal Ministry of Transport are expected to face serious manpower shortages. The shortfalls range from 183 and 205 in year, 2000; 186 and 275 in 2005 to 189 and 370 in 2010. For ports and harbours, the shortfall for 2010 is 659. Similar shortfalls are recorded for fishing establishments, merchant fleet companies, maritime pollution control search and rescue staff and general maritime administration.

4.6.0 Discussion of Findings

From the results obtained in this work, several observation and interpretations can be deduced. The results obtained from the above model are discussed as follows:

1) The coefficient of Human capital formation in maritime studies (X_1) variable indicates a direct proportionate relationship with the Supply of maritime labour in Nigeria.
2) The coefficient of supply of maritime labour in Nigeria (X_2) variable indicates a direct proportionate relationship with the Demand for maritime labour in Nigeria.
3) The coefficient of number of Graduates from Maritime Institutes in the maritime industry (X_3) variable indicates a direct proportionate relationship with the supply of maritime labour in Nigeria.

The interpretation of the regression lines is that, for objective one, there is a direct proportionate effect on the independent variable, such that the Supply of maritime labour in Nigeria will increase by; 0.746% for a percent increase in X_1(human capital formation

in maritime studies).

For variable X_2, there is a direct proportionate effect on the independent variable, such that the Demand for maritime labour in Nigeria will increase by; 1.218% for a percent increase in X_2(Supply of maritime labour).

For variable X_3, there is a direct proportionate effect on the independent variable, such that the Supply of maritime labour in Nigeria will increase by; 1.121% for a percent increase in X_3(Number of Graduates from Nigerian MET in the maritime industry).

This concurred with the work of Anyanwu, et al. (2015) in their paper Human Capital Development and Economic Growth in Nigeria, investigated the relationship between human capital and economic growth in Nigeria with a time series data which covered the periods 1981-2010, adopting the endogenous modeling approach cast within the autoregressive distributed lag (ARDL) framework, the bounds testing analysis indicated existence of co-integration between economic growth and human capital development indicators. Their findings also show that human capital development indicators had positive impact on economic growth in Nigeria within the reviewed periods; however, their impacts were largely statistically insignificant.

5).The R^2 value obtained for the model (3.1) is low and do not align within the acceptable range, hence the model has a low goodness of fit and confirms that the Supply of maritime labour which is an output (dependent variable) is a function of human capital formation in maritime studies indicators which is an input (independent variable), but do not imply that they all significantly impacted by variations in the Supply of maritime labour.

6). The value of the F- ratio tested for model objective one shows that the regression parameters are not all equal to zero. Since the significant value (0.419) is greater than 0.05 and the calculated F-value (0.76) is greater than the tabular F-value of 4.46 at (1, 8) degrees of freedom, at 95% (0.05) confidence level, then the model is said to be linear but not significant.

For objective two, the calculated F is approximately 72.427 which correspond with the F statistics of the output. Since the significant value (0.000) is less than 0.05 and the calculated F-value (72.427) is greater than the tabular F-value of 4.46 at (1, 8) degrees of freedom, at 95% (0.05) confidence level, then the model is said to be linear but not significant.

For objective Three, the calculated F is approximately 3.353 which correspond with the F statistics of the output. Since the sig-value (0.104) is greater than 0.05 and the calculated F-value (3.353) is greater than the tabular F-value of 4.46 at (1, 8) degrees of freedom, at 95% (0.05) confidence level, then the model is said to be linear but not significant.

7). The p-values for each independent variable explain their individual contributions on the dependent variable.

a. The calculated sig – value of X_1 variable is 0.419. Since the sig- value is greater than 0.05. Therefore, X_1 is not statistically significant, then we accept the null hypothesis, i.e; there is no statistical significant relationship between human capital formation in maritime studies and Supply of maritime labour in Nigeria. This therefore implies that capital formation in maritime studies do not have a statistical significant relationship with the supply of maritime labour in Nigeria. This implies that the trainings obtained from the maritime education institutions are either not equivalent to international standards or employers of labour in the maritime industry neglect our locally trained labour force and resort to employing people into the industry through the back door without adequate certifications. Thus the number of student enrollment is not statistically significant because the youths have lost interest in plying their trade in seafaring, owing to the non-attractiveness of the industry which is wrought by sharp practices. Some of them after graduating cannot get seatime training or their discharge book from relevant government authorities thereby diminishing the attractiveness of working in the industry. It is imperative to restructure the institutions with the IMO international accepted curriculum and standards. The capacities need urgent upgrading both human and other facilities for training.

b. The calculated sig – value of X_2 variable is 0.000. Since the sig- value is less than 0.05. Therefore, X_2 is statistically significant, then we reject the null hypothesis, i.e; there is no statistical difference between Demand and Supply of maritime labour in Nigeria.

c. The calculated sig – value of X_3 variable is 0.104. Since the sig- value is greater than 0.05. Therefore, X_3 is not statistically significant, then we accept the null hypothesis, i.e; There is no statistical significant relationship between the number of graduates from maritime institutions in the maritime industry and Supply of maritime labour in Nigeria. This implies that, the number of graduates (skilled) manpower in the Nigerian maritime sector is statistically insignificant compared with the skilled labour force in the industry, this aligns with the work of Okeudo and Ogwude (2012) in their paper, "Relationship between Human Resource Effects and Productivity in the Nigerian Transport Industry" used descriptive statistical methods like the frequency distribution, correlation technique and the frontier model, to analyze secondary data collected from published transport journals. They found that, majority of the workers in the transport industry were unskilled with only a few workers possessing higher degrees, despite the positive relationship observed between the between human resource effect and the productivity. Table 4.5 depicts Manpower functions and requirements in the Nigerian maritime industry. This table reiterates the need of professionals in the industry. The table 4.5 indicates inadequate level of professionals to take over the appropriate work in the industry. This means that trained professionals by NNSL are aged without good replacement. This vacuum created allowed the infiltration of non- mariners in the industry. It is on record that Nigerian graduate cadets are

not provided with sea-time experience and as a result are not issued discharge books and certificate of competence. This has negated their employability on foreign vessels.

The need to developing human capacity in the Nigerian maritime industry cannot be overemphasized. Agoha (2008) emphasized how human capacity development is the center of any development. According to his work, human capacity engenders organizations' successes and productivity. Organizational business failure and low productivity are as results of inadequate human capacity development and professionalism Ikokide (2000). Agoha and Ikokide did not just come up with this statement. They are sound philosophies that guide every industry, organization, and businesses etc that want to survive. The results of this research study rest on the need of adequate human capacity development in the Nigerian maritime industry, the need of professionals, and the need to empower our local institution's capacities. After testing objectively, all the null hypotheses were accepted, because they do not have a statistical significant relationship with the dependent variable. The most interesting of the results of the analysis, is that though the human capital development indicators (independent) variables are statistically insignificant, they all have a direct proportionate relationship with the dependent variable. This implies that as the dependent variable increases, the independent variables increases.

CHAPTER FIVE

5.0. SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1. Summary of Findings

The beta coefficients of, human capital formation in maritime studies, supply of maritime labour and number of graduates from maritime institutes in the maritime industry variables indicates a direct proportionate mathematical relationship with the supply of maritime labour, suggesting that an increase in any of these input variables will reasonably increase the supply of maritime labour in Nigeria

The regression model produced a fairly reasonable goodness of fit and correlation coefficient, indicated by the relatively high value of R^2 (27.4%) and R (52.3%), suggesting that the selected human capital development indicators are necessary and important inputs for supply of maritime labour in Nigeria as an output. This implies that there is a moderate correlation between supply of maritime labour and the selected human capital development indicators.

The value of the F- ratio tested on the hypothesis shows that the regression parameters are not all equal to zero. Since the calculated F-value (1.131) is less than the tabulated F- value (3.41), implies that all parameters are equal to zero.

The p-values for each independent variable explain their individual contributions on the dependent variable.

a. The calculated sig – value of X_1 variable is 0.419. Since the sig- value is greater than 0.05. Therefore, X_1 is not statistically significant, then we accept the null hypothesis, i.e; there is no statistical significant relationship between human capital formation in maritime studies and Supply of maritime labour in Nigeria. This therefore implies that capital formation in maritime studies do not have a statistical significant relationship with the supply of maritime labour in Nigeria. This implies that the trainings obtained from the maritime education institutions are either not equivalent to international standards or employers of labour in the maritime industry neglect our locally trained labour force and resort to employing people into the industry through the back door without adequate certifications. Thus the number of student enrollment is not statistically significant because the youths have lost interest in plying their trade in seafaring, owing to the non-attractiveness of the industry which is wrought by sharp practices. Some of them after graduating cannot get seatime training or their discharge book from relevant government authorities thereby diminishing the attractiveness of working in the industry. It is imperative to restructure the institutions with the IMO international accepted curriculum and standards. The capacities need urgent upgrading both human and other facilities for training.

b. The calculated sig – value of X_2 variable is 0.000. Since the sig- value is less than 0.05. Therefore, X_2 is statistically significant, then we reject the null hypothesis, i.e; there is no statistical difference between Demand and Supply of maritime labour in Nigeria.

c. The calculated sig – value of X_3 variable is 0.104. Since the sig- value is greater than 0.05. Therefore, X_3 is not statistically significant, then we accept the null hypothesis, i.e; There is no statistical significant relationship between the number of graduates from maritime institutions in the maritime industry and Supply of maritime labour in Nigeria. Table 4.2 depicts student enrollment and graduation in maritime academy of Nigeria Oron. The students are trained in Engineering, Deck, MTBS and BST(Basic Safety Training) which encompasses STCW trainings. For the 2002/03 academic session 234 students enrolled for both OND and HND programmes, 150 students graduated that same year. Year 2012/13 academic session recorded the highest number of student enrollment and graduation. This data brings to question the dearth of skilled maritime labour in the Nigerian maritime industry.

Table 4.3 depicts that in the year 2004, 3005 Nigerian crew were recommended to be onboard Nigerian Cabotage vessels, while

897 crews were recommended to be onboard Foreign vessels involved in coastal shipping. Year 2013 recorded the highest number of 4905 and 1282 crews' onboard Cabotage vessels for both Nigerian and foreign vessels respectively.

Table.4.4 highlights inadequate local tonnages in our coastal trade and the breach of Cabotage Act that provided opportunities for the citizens. A total of 3,549 Nigerian owned ships entered Nigerian Ports from 1997-2006 as against a total of 38,727 foreign owned ships. Nigerian ships recorded 16,297,759 GRT while foreign flag ships recorded 1,220,690,426 GRT. It also shows that Nigerian shipping trade is dangerously dominated by the foreign ship-owners during this period though even up-to date. This discrepancy highlights the huge capital flights accrued by the foreign companies. If the Cabotage Act is enforced a bit more, in the presence of recession and declining oil prices, the maritime sector can be the next huge earner of foreign income.

Also the result of the analysis shows that there is a positive moderate correlation of 52.3% between the human capital development indicators and the supply of maritime labour proxied by total number of seafarers on vessels (local and foreign) operating in Nigerian coastal waters.

5.2 Conclusion

In conclusion, the objectives of this research were achieved as elucidated in the summary. This research work had earlier set out to assess the challenges of local human capacity development in the Nigerian maritime industry. The objective being to establish a mathematical relationship between the supply of maritime labour and human capital development indicators, data

were obtained from MAN Oron, NIMASA and NPA statistical reports and the World Bank economic development databank. Literatures reviewed bordering supply of maritime labour and human capital development indicators formed the basis for the conceptual, theoretical and the empirical framework for the study. From our findings and models formulated it was observed that, for objective one, there is a direct proportionate effect on the independent variable, such that the Supply of maritime labour in Nigeria will increase by; 0.746% for a percent increase in X_1(human capital formation in maritime studies).

For objective two, variable X_2, there is a direct proportionate effect on the independent variable, such that the Demand for maritime labour in Nigeria will increase by; 1.218% for a percent increase in X_2(Supply of maritime labour).

For variable X_3, there is a direct proportionate effect on the independent variable, such that the Supply of maritime labour in Nigeria will increase by; 1.121% for a percent increase in X_3(Number of Graduates from Nigerian MET in the maritime industry). The urgent development of local capacity in our maritime industry is imperative and should be of optimum concern to all as more than ¾ of world's trade is carried by the maritime modal transport system (Ikokide, 2000). From the hypotheses t-test results, it was identified that though the human capital development indicators have a positive relationship with the dependent variable (supply of maritime labour), they are not statistically significant.

5.3 Recommendations

After a thorough research on developing local human capacity in the Nigerian maritime industry, it is imperative to state here that the following recommendations if duly adhered to by the government, maritime regulatory agencies , transport policy makers and shipping companies, will definitely lead to improving local human capacity in the maritime and marine transport related industries in Nigeria.

1) The graduates from maritime institutes and training academies should be given the necessary support by the government and her agencies especially in providing sea-time trainings, discharge certificates and certificate of competency.

2) The government through NIMASA should improve on the NSDP trainings to accommodate more Nigerian youths who are interested in maritime and the shipping companies in Nigeria should be mandated to take on Nigerian cadets for sea-time trainings.

3) Maritime education and training institutes and universities offering maritime courses in Nigeria must be given a facelift in terms of redesigning their curriculum to IMO standards and their facilities upgraded.

4) A staff development policy should be formulated by the training institutions to ensure that lecturers are up to date, able to contribute to the development of the department while also enhancing their career prospects.

5) A policy structure to attract, employ, and retain qualified maritime lecturers should be established by the Maritime Education and training institutions. Funds in form of research grants should be made available and accessible to lecturers and students, to ease their ease their researches and relevant conference attendance.

6) The federal government must muster the political will to fully implement the Cabotage Act, especially the issue of giving waivers to foreign vessels in jobs which ordinarily Nigerians has the capacity of doing.

7) An avenue must be created by NIMASA to enforce that foreign vessels operating in Nigerian Coastal waters must take our cadets on sea-time training in order to aid knowledge sharing and technology transfer over a period of time.

8) The federal government must through NIMASA put in place a robust human capital development strategy aimed at developing new skills through education and training, strengthening of existing skills and improving on institutions, like Federal University of Technology Owerri (FUTO), Maritime Academy Oron, Nigeria Institute of Transport Technology (NIIT), Zaria etc.

9) The Federal Government should make funds available for the purchase of a full mission simulator for STCW compliant training of cadets and other seafarers.

10) As Nigeria has recently attained membership of the IMO's White list, an effort should be directed to restructure FUTO, MAN, Oron's curriculum to enable it train cadets from induction through to the issuance of sea-going certificates by the Institutions.

5.4. Contribution to Knowledge

The researcher thoroughly evaluated human capital development in the Nigerian maritime sector by establishing the relationship between the supply of maritime labour and some human capital development indicators. As a contribution to knowledge, the study identified low human capacity development as a bane of maritime development in Nigeria and suggests the establishment of a center for nautical technology or the expansion of the MTM programme to include seafarer training etc. Also FUTO should consider training of seafarers than bringing up graduates who are almost irrelevant in the maritime industry in the area of seafaring.

5.5 Suggestions for Future Research

This research work could aid further researches especially in the area of the evaluating the long and short run relationships between the human capital development indicators and GDP contribution from the maritime sector using the Autoregressive Distributed Lag model (ARDL).

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APPENDIX 1

Table 4.1: Regression Analysis Output

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Regression

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Variables Entered/Removedª

Model	Variables Entered	Variables Removed	Method
1	Capital formation in maritime studiesᵇ	.	Enter

a. Dependent Variable: Supply of Nigerian Seafarers

b. All requested variables entered.

Model Summaryᵇ

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.288ª	.083	-.031	.44581

a. Predictors: (Constant), Capital formation in
maritime studies
b. Dependent Variable: Supply of Nigerian
Seafarers

ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.144	1	.144	.726	.419b
	Residual	1.590	8	.199		
	Total	1.734	9			

a. Dependent Variable: Supply of Nigerian Seafarers
b. Predictors: (Constant), Capital formation in maritime studies

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.423	.912		2.656	.029
	Capital formation in maritime studies	.746	.876	.288	.852	.419

a. Dependent Variable: Supply of Nigerian Seafarers

Residuals Statisticsa

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.9740	3.3470	3.1911	.12662	10
Residual	-1.13601	.33991	.00000	.42031	10
Std. Predicted Value	-1.715	1.232	.000	1.000	10
Std. Residual	-2.548	.762	.000	.943	10

a. Dependent Variable: Supply of Nigerian Seafarers

APPENDIX 2

```
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Regression Analysis for testing the relationship between demand for maritime labour and supply of maritime labour in Nigeria

Notes

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Model	Variables Entered	Variables Removed	Method
1	Supply of maritime labour[b]	.	Enter

a. Dependent Variable: Demand for Maritime labour

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.949[a]	.901	.888	419.18190

a. Predictors: (Constant), Supply of maritime labour

b. Dependent Variable: Demand for Maritime labour

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12726454.659	1	12726454.659	72.427	.000[b]
	Residual	1405707.741	8	175713.468		
	Total	14132162.400	9			

a. Dependent Variable: Demand for Maritime labour

b. Predictors: (Constant), Supply of maritime labour

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	646.754	315.745		2.048	.075
	Supply of maritime labour	1.218	.143	.949	8.510	.000

a. Dependent Variable: Demand for Maritime labour

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	770.9736	5058.9878	3085.6000	1189.13856	10
Residual	-745.60046	481.21201	.00000	395.20849	10
Std. Predicted Value	-1.946	1.660	.000	1.000	10
Std. Residual	-1.779	1.148	.000	.943	10

a. Dependent Variable: Demand for Maritime labour

APPENDIX 3

```
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Regression analysis for objective three

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Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method

1	Number of graduates from maritime training institutions[b]		.	Enter

a. Dependent Variable: Supply of Maritime labour

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.543[a]	.295	.207	869.38707

a. Predictors: (Constant), Number of graduates from maritime training institutions

b. Dependent Variable: Supply of Maritime labour

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2534115.345	1	2534115.345	3.353	.104[b]
	Residual	6046671.055	8	755833.882		
	Total	8580786.400	9			

a. Dependent Variable: Supply of Maritime labour

b. Predictors: (Constant), Number of graduates from maritime training institutions

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		

1	(Constant)	1067.047	580.208		1.839	.103
	Number of graduates from maritime training institutions	2.121	1.159	.543	1.831	.104

a. Dependent Variable: Supply of Maritime labour

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1077.6544	3008.1602	2002.6000	530.63016	10
Residual	-1900.59998	644.24445	.00000	819.66599	10
Std. Predicted Value	-1.743	1.895	.000	1.000	10
Std. Residual	-2.186	.741	.000	.943	10

a. Dependent Variable: Supply of Maritime labour

Source: *Computed by Author using SPSS*

Academic Year	NATIONAL DIPLOMA (ND)										HIGHER NATIONAL DIPLOMA (HND)							
	DECK		ENGINE		MTBS		BST		ELECT/ELECT		DECK		ENGINE		MTBM		TOTAL	
	IN (X)	OUT (Y)	IN (X)	OUT (Y)	IN (X)	OUT (Y)	IN (X)	OUT (Y)	IN (X)	OUT (Y)	IN (X)	OUT (Y)	IN (X)	OUT (Y)	IN (X)	OUT (Y)	IN (X)	OUT (Y)
2002/03	29	25	66	37	80	39	31	23			-	1	9	12	19	13	234	150
2003/04	63	19	83	53	87	63	42	27			-	-	14	7	14	19	303	188
2004/05	75	43	116	60	124	42	57	17			3	-	34	11	41	14	450	187
2005/06	102	40	134	65	144	68	69	26			5	3	49	30	57	34	560	266
2006/07	119	74	176	86	147	119	58	46			18	4	44	43	38	56	600	428
2007/08	133	86	200	134	172	95	91	46			13	14	40	39	43	27	692	441
2009/10	128	88	169	128	183	119	96	40			32	12	58	32	46	32	712	451
2010/11	134	5	166	-	180	-	87	-			14	-	81	-	86	-	748	5
2011/12	115	106	135	115	144	91	59	73	63	-	36	16	97	80	101	77	750	558
2012/1	127	76	200	117	217	93	80	59	94	30	61	20	108	71	104	93	991	559

3																		
TOTAL	1353	562	1920	795	2138	729	756	357	275	30	237	70	669	325	624	365	7972	3233

X =Input (Admission)

Y= Output (Graduation)

Table 4: Admission and Graduation Statistics (2003 - 2013)

Source: Maritime Academy of Nigeria, Oron.