

Hydrography in Africa: Issues, Problems and Prospect

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Hydrographic data that comes in various forms obviously are harnessed through various processes, in order to finally derive its actual essence and benefits. This in no small way had hampered the actual exploitation and the benefits derivable.

African countries without exception and exaggeration constitutes greater majority of the under developed nations of the world today whose per capital income is below the one dollar mark. Hydrography for various reasons would have provided the necessary impetus by which development to some extent would have been achieved if the necessary input has been introduced. African nations and its people with its vast hydrographic potentials had continue to wallow in abject poverty and its people with no means of sustenance save for mere subsistence farming despite the rich hydrographic resources nature had endowed them with. It is my candid view that the exploitation of these vast untapped hydrographic resources all over the place in Africa would have caused great source of employment and much wealth for the nations.

That the significance of hydrography in the general development of nations cannot be over emphasized. Despite this significance and the fact that its practice has been on for over a century, the level of hydrography awareness is very low in Africa.

Thus this paper which to discuss the challenges faced by the African people in exploiting hydrographic resources, the attendant problems, their losses and how the forgoing could be transformed into economic benefits.

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WHY AFRICA?

Most African countries are embedded in water and are blessed with its wonderful gift of nature. Unfortunately African nations had not been able to exploit its hydrographic potentials. This is due essentially to lack of awareness and the dearth of relevant technological know-how with which hydrographic data and its potentials need to be harnessed.

SUB - REGIONAL OVERVIEW

Central Africa

Central Africa geography is dominated by water --vast rivers systems and lakes. One of the ways to understand and assess the potential wealth of an area is, to assess its natural resources. Water, as you know, can be classified as a natural resource. Hydrography, is the science of the measurement, description, and mapping of the surface waters of the earth with special reference to navigation'.

The hydrology of the region is dominated by Congo River basin which drains an area nearly as large as the United States east of the Mississippi River.



Figure 2 Map showing rivers in Central Africa Republic (Courtesy maps of world)

West Africa

WEST AFRICA



Figure 3, Map Showing Rivers in West Africa.

East Africa



Figure 4 East Africa Map Showing all Rivers (<http://maps-africa.blogspot.com/2012/05/east-africa-map-pictures.html>)

South Africa



Figure 5 South Africa Map Showing all Rivers

NORTH AFRICA



Figure 6 Map showing all Rivers Middle East, North Africa & Mediterranean (Courtesy, mapresources, <http://www.mapresources.com/>)

THE PROBLEMS

With the revision of the International Maritime Organization (IMO) of the ‘Convention on Safety of Life at Sea’ (SOLAS) chapter V, it details the obligation of maritime states to provide

hydrographic services. A critical look of Rules 4, 9 and 31 of chapter V (table 1) are the most significant and respectively describe navigational warnings, hydrographic services and danger messages. Thus, governments of maritime nations are now obliged to take all necessary steps to collect, handle, disseminate, and keep up to date nautical information and hydrographic services necessary for safe navigation in their waters. Will this be possible in most African countries?

From discussions had with representative of some of the African Countries, it was observed that most of the countries do not offer courses on hydrography in the University, and the few that do offer such do not have modern technique, skills and test books.

That there is no institutions in Africa offering Category A (Professional) Category B (Technologists) training in hydrography. Even those engaged in technical training are very few.

Also, hydrography is not known to many of the policy makers and those in Government; as a result, its importance is not known. Of course they know that their maritime boundary should be secured but that is left with the Navy anything else does not matter.

That there are no strong institutional and legal frame work that will enhance or facilitate the development of hydrographic practice in Africa.

Also, the few hydrographers in Africa are mostly in Oil and Gas sector and the Navy.

PROSPECTS

In the authors view that in spite of the seeming lack of prospects for hydrography in Africa, there are issues that if properly addressed will provide a lot of prospects for the African nation and globally. Africa is largely unmapped for development

Creating Awareness.

There is a dare need for the usefulness and benefit of hydrography to be taken to every nook and cranny of Africa especially in countries where the policy makers do not know so much of its importance and so little or no budget is allocated to it.

Training Programmes

Hydrography should be introduced as a course for all African Universities offering Surveying and Geoinformatics. In Nigeria it is in practice and also in South Africa. All other countries should like wise do same to promote the training of hydrography. Also, African Universities should introduce a Professional Master of Hydrography or Marine Science with modern technologies as it is done in the United Kingdom, Canada and other developed countries. This in no small way will promote the awareness of hydrography to such countries.

Also, there is need for training of more Hydrography Category A Surveyors. These could be made possible if there is an Hydrography School situated in Africa that will train this category of personnel.

Capacity Building

There is dare need for Capacity Building in the following areas in most African Countries

- Hydrographic Data Collection
- Hydrography and Chart Production / Update Programs
- Marine Spatial Data Inundation
- E.t.c.

CONCLUSION / RECOMMENDATIONS

There is need to continue to create more awareness of the importance of hydrography to African countries especially in Central, East and West Africa. Considering that hydrography has a low profile in African Governmental circles compared with other technical areas involved in environmental and geographical issues, an awareness strategy using an established African Society could provide a remedy.

Africa has rivers and hydrography has being a profession to a few , it is of great interest to note that if hydrography becomes a major sector in Africa, it will bring an economic boom and provide employment to many as the rate of unemployment in many African countries is high. Unfortunately the human resource that would form the nucleus of hydrographic capacity in Africa remains untapped. Other findings that have proved inimical to the growth of hydrography in the region include inadequate funding, lack of training opportunities and inadequate trained manpower. There is need of a hydrographic training school in Africa.

Existing institutional and Legal framework should be strengthened to facilitate the development of Hydrography in Africa using such organizations as ECOWAS, AU and similar regional bodies.

As a way of promoting hydrography within the African region, all Government Survey Directorates are to establish Hydrographic Offices in their organizations. And, there is urgent need for the establishment of National Hydrographic Service / Office in all African Countries.

There is an urgent need for capacity training in Africa. Institutions of higher learning will need some hydrography text books this will aid in improving the interest of the students and create more awareness of hydrography .

There is a need for dialogue and information exchange on a regular basis among the various organizations which can promote and enhance exchange of experience, best practices and

success stories among these organizations. Professional institutions in surveying in Africa should assist in creating more awareness on Hydrography.

BIOGRAPHY

Mrs. Angela Kesiena Etuonovbe is the Chair Elect of Commission 4 - Hydrography of the International Federation of Surveyors and the Chair, Working group 4.5- Hydrography in Africa also of the FIG.

She is the Principal Consultant of AnGene Surveys & Consultants and the Managing Director of GFSH Consult Ltd. She is a Consultant to the Federal, State and Local Government areas in Nigeria. And a Consultant too to many private sectors and in the Oil and Gas industries.

She is a member of the Nigerian Institution of Surveyors (NIS), Chair Elect Commission 4 FIG, Working Group Chair Commission 4.5, Hydrography in Africa also of the FIG, a member of The Hydrography Society of America (THSOA), a member of Western Dredging Association (WEDA), and a member of the Nigerian Hydrographic Society (NHS)

She has presented various papers at the FIG and other National and International events like the US Hydrographic Conference, the World Bank Conference on Land and Poverty to mention but a few. And has organised many seminars and awareness programs.

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APPENDIX

IMO SOLAS CONVENTION (Safety Of Life At Sea) (excerpts) CHAPTER V , SAFETY OF NAVIGATION

Regulation 4 : Navigational warnings

Each Contracting Government shall take all steps necessary to ensure that, when intelligence of any dangers is received from whatever reliable source, it shall be promptly brought to the knowledge of those concerned and communicated to other interested Governments.

Regulation 9 : Hydrographic services

- Contracting Governments undertake to arrange for the collection and compilation of hydrographic data and the publication, dissemination and keeping up to date of all nautical information necessary for safe navigation.
- In particular, Contracting Governments undertake to co-operate in carrying out, as far as possible, the following nautical and hydrographic services, in the manner most suitable for the purpose of aiding navigation:
 - to ensure that hydrographic surveying is carried out, as far as possible, adequate to the requirements of safe navigation;
 - to prepare and issue nautical charts, sailing directions, lists of lights, tide tables and other nautical publications, where applicable, satisfying the needs of safe navigation;
 - to promulgate notices to mariners in order that nautical charts and publications are kept, as far as possible, up to date; and
 - to provide data management arrangements to support these services.

- Contracting Governments undertake to ensure the greatest possible uniformity in charts and nautical publications and to take into account, whenever possible, relevant international resolutions and recommendations.
- Contracting Governments undertake to co-ordinate their activities to the greatest possible degree in order to ensure that hydrographic and nautical information is made available on a world-wide scale as timely, reliably, and unambiguously as possible.

Regulation 31: Danger messages

Each Contracting Government will take all steps necessary to ensure that when intelligence of any of the dangers specified in paragraph 1 is received, it will be promptly brought to the knowledge of those concerned and communicated to other interested Governments.