



REALIZING SUSTAINABLE DEVELOPMENT THROUGH BORDER-LESS LIBRARIES

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ABSTRACT

The Sustainable Development Goals (SDGs) was birthed to consolidate on the gains of the Millennium Development Goals (MDGs) which elapsed in 2015. To sustain the achievements of the eight (8) Millennium Development Goals (MDGs), the United Nations General Assembly developed 17 sustainable development goals (2015-2030) with 169 targets to be measured with indicators. This paper examined the place of border-less libraries in realizing the sustainable goals. It defines sustainable development goals, enlist the 17 goals and 169 targets and 3 indicators used to measure the progress of realizing the goals. The concepts, components and place of border-less libraries for sustainable development were reviewed. The paper concludes that with these advanced information dissemination packages, border-less libraries can contribute effectively to the actualization of the SDGs. It recommends among others that, if government must realize her goals, then border-less libraries as an indispensable partner should be given adequate attention.

Keywords: *Realizing, Border-less, Sustainable Development Goals, MDGs, Libraries*

Introduction

Attaining the Sustainable Development Goals (SDGs) without libraries and information might continue to remain a mirage as libraries play a predominant role in the advancement of knowledge and actualization of any course. The Sustainable Development Goals (SDGs) was birthed to consolidate on the gains of the Millennium Development

Goals (MDGs) which elapsed in 2015. To sustain the achievements of the eight (8) Millennium Development Goals (MDGs), the United Nations General Assembly developed 17 sustainable development goals (2015-2030) with 169 targets to be measured with indicators. With about a decade to conclude the SDGs, the question remains: To what extent are the 17 goals and 169 targets attained? Therefore, it is no gainsaying that information is critical to the attainment of these goals and border-less libraries have become an indispensable partner in the actualization process.

The emergence of Information and Communication Technology has revolutionized the library's role from mere physical buildings where print information resources such as books, serials, journals, manuscripts and other recorded information are deposited to a border-less repository that accommodates billions of information in electronic format. Libraries remain the dominant means of communication in this information age. It is increasingly inducing the development of new modes of scholarly communication; their potential for delivering information is quite vast, as they overcome successfully the geographical limitations associated with the print media. As an integral part of an information-based society, access, retrieval and utilization of information have increasingly been simplified. Information users could access and retrieve information irrespective of location within the shortest possible time. Mazumdar (2007) affirmed that library and information centers are now becoming a global information hub, available and accessible to the users, where the users have the most opportunity to retrieve and access their required information covering all disciplines all over the world with a single mouse click on the computer monitor.

Considering how extensive the seventeen goals (17) and one hundred and sixty nine (169) targets are, there is need for the goals to be attained within the stipulated time in order to help alleviate poverty, enhance good health and well-being, improve the standard of education, enhance gender inequality and affordable clean energy and generally make the world a haven for all, enormous responsibilities goes to border-less libraries. This is due to its ability to transcend proximity among its target users and reach them with accurate and reliable information, irrespective of Geo-graphical location within the shortest possible time and even real time.

Sustainable Development Goals SDGs: What They Are?

Sustainable Development Goals (SDGs) are a collection of 17 global goals designed to help achieve a better and more sustainable future for all. The SDGs, set in 2015 by the United Nations General Assembly is intended to be realized by the year 2030. There are 169 targets for the 17 goals. Each target has between 1 and 3 indicators used to measure progress toward reaching the targets. In total, there are 232 approved indicators that will measure compliance. The United Nations Development Programme has been asked to provide easy to understand lists of targets, facts and figures for each of the 17 SDGs. The 17 goals listed below as sub-headings use the 2-to-4 word phrases that identify each goal. The figure below describes each of the 17 goals.

SUSTAINABLE DEVELOPMENT GOALS

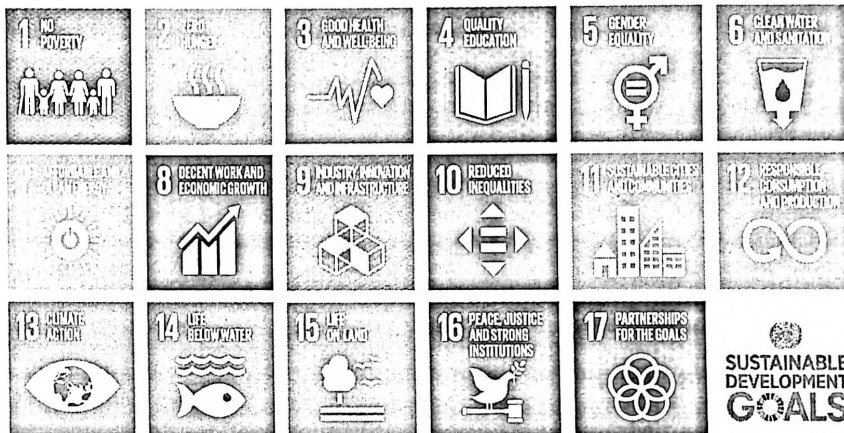


Figure 1: Seventeen (17) sustainable Development Goals

Source (Wikipedia Encyclopedia, 2020)

Border-less Libraries: Conceptual Overview

Availability of e-resources and use of new electronic storage media like CD-ROM, DVD and Floppy Disc are replacing books and journals in paper form day by day. Most of the reference books like encyclopedias, dictionaries, directories, handbooks and others are now also available in electronic formats. Similarly, abstracting and indexing services like Chemical Abstract and MEDLINE are now available in electronic formats. This aggressive contribution of Science and Technology has brought tremendous changes in the concept of traditional library as well as on its services. Libraries are firstly computerized and then they are automated. After that, library collections are digitized and gradually the libraries become digital libraries (Mazumdar, 2007).

A border-less library is a web-based library where all documents and information sources are available in digital form and can be searched from anywhere at any time. Dhawan (2002) described a border-less library as a digital library, which is accessible and available to the user community through web more or less in virtual reality environment. Mazumdar (2007) in consonance, affirmed that border-less library has no physical wall and border; they just exist in web where users can enter into the library just with their own user

ID and password. Gupta (2002) asserted that as a result of the ongoing research and development on the application of Science and Technology, the library once which was the repository of books and manuscripts only for the ruler and scholar class of the society are now turned to the people's information center.

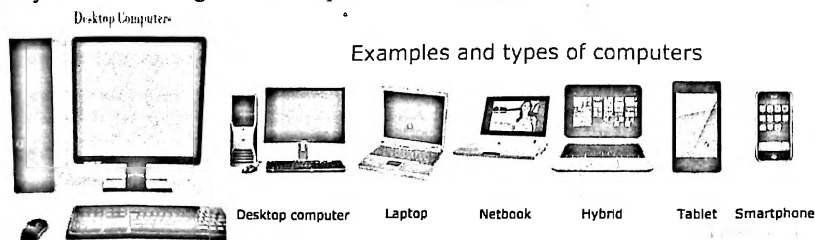
Border-less library is now becoming the center for information for the mass people with its diversified collection available in text, audio, video, image and multimedia form. This library, which looks like a web page containing a series of hyperlinks with different web resources, facilitates the users search with online searching and accessing of different full text, bibliographic and numeric information. The Internet itself is not the border-less library; it is an important part of the library. Internet provides only the gateway to different web-based information databases. On the other hand, the border-less library must have its own collection of information resources along with the connection to different web resources (Mazumdar, 2007).

Components of Border-less Libraries

There are different elements that make a library without boarder works. There must hard ware and software devices. These include computers, internet connections, library databases and software.

Computer

The computer is an electronic device which accepts data in a prescribed form, process the data and supplies the results of the processed data in a specified format as information or as signals which control automatically some other machines or processes. Data gets into the computer as input, through its input unit and the data is processed internally to produce information (output) through the output unit. Computers are utilised in different sections of the library for the smooth running and effective provision of services. They facilitate effective performance of jobs and ensure that they are done quickly without error. The emergence of computers has impacted the modern society. One wonders how life was conducted prior to computers and their peripherals. The introduction of computers has dramatically increased the rate of conversion of knowledge, information and data into electronic format (Tam & Robertson, 2002). Similarly, Gbaje (2007) maintained that computers have brought about a completely different way of providing library services resulting in the development of new services.



Mobile Phones

A mobile phone is a wireless handheld device that allows users to make calls and send messages, among other features. The Cambridge University (2019) define mobile phones as a system of radio transmitters, each covering separate areas, and computers for switching calls from one area to the other. Mobile phones are powerful portable communication devices used in communication between two or more users. It began as simple mobile telephones, but have since evolved into hand held computing and communication devices with numerous useful features.

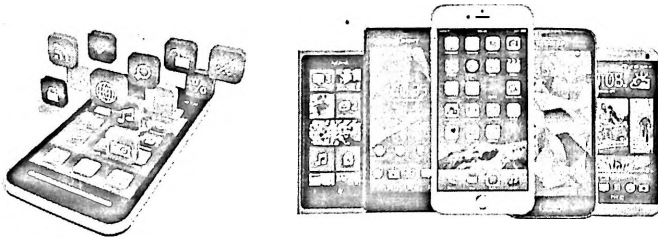
Mobile technologies has evolved from support of voice services to high data rate advanced packet services. Advancement in mobile technologies allow for a greater bandwidth and permit the development of mobile applications. The history of cellular networks began with introduction of old analogue system, which is known as first generation (1G) network. Then digital communication principles are applied to cellular technology resulting in 2G system, popularly termed as Global System for Mobile Communication (GSM). GSM networks, since based on most matured digital-cellular standard, offer voice and simple data services well in advance of networks based on other standards. From GSM to 4G, improvements in mobile communication technology have been made in the last thirty years. There is a tremendous leap to new level in Wireless Application Protocol (WAP) technology because of introduction of General Packet Radio Service (GPRS).

This resulted in efficient (increased speed and better web content) display of Internet material on GPRS enabled mobile phones. According to Ibrahim (2011), wireless communication has emerged as one of the defining media of our time. This is evidenced by the fact that it has become the fastest growing communication technology. Itu (2007) opined that its explosive growth makes it practically futile for scholarly manuscripts to cite the numbers of mobile subscriptions worldwide and that it is safe to point out that subscriptions are well into billions and growing. People are adapting mobile technology more easily than any other technologies. In this dynamic setting, libraries are expected to adopt these technological changes to deliver their services to the user community.

Mobile phones are becoming more popular in recent years and becoming almost indispensable in people's day to day life. Previously people need to visit the libraries to find any information, but now can easily find the same information online. People who have specific information to be searched no longer have to visit libraries. But their need to access information is ever expanding. The services offered by the libraries should be re-designed to cater to the ever-changing needs of the users.

Innovations in Mobile library services are required to meet people's hunger for information in this fast-paced society. Mobile phones are becoming more popular in recent years and becoming almost indispensable in people's day to day life. Previously people need to visit the libraries to find any information, but now can easily find the same information online. People who have specific information to be searched no longer have to visit libraries. But their need to access information is ever expanding. The services offered by the libraries should be re-designed to

cater to the ever-changing needs of the users. Innovations in Mobile library services are required to meet people's hunger for information in this fast-paced society. These Mobile library services are an extension of digital library in the mobile phones are becoming more popular nowadays and they are almost indispensable in people's day to day life. People are adapting mobile technology more easily than any other technologies. People are more open in accessing information from their mobile devices. Cellular phones and other mobile devices present a new and exciting opportunity for libraries to provide information to people wherever they are. In this dynamic setting, libraries are expected to adopt these technological changes to deliver their services to the user community. The libraries should be redesigned to accommodate the changing needs of the users. Mobile library services can meet people's need for information in a fast-paced society.



World Wide Web

The World Wide Web is one of the resources on the internet. It is used basically for information dissemination. The World Wide Web is a very interactive media that brings document in graphics, audio and video. Apart from web browsers, there are sites which have special features. They are referred to as websites. According to Foley & Hay (2010) World Wide Web has given the librarian a new dynamic role to play in the society and serve the new information society in better ways than ever before. Adeniran (2005) asserted that the World Wide Web has revolutionized the way people access information and has opened up new possibilities in areas such as digital libraries, Virtual libraries, efficient information retrieval and dissemination. This observation is supported by Sharma (2001) who maintained that World Wide Web is used for efficient retrieval and meeting information needs in University libraries since users call for more and more research work.

Database

Database is a collection of information that is organized so that it can easily be accessed, managed, and updated. The Wikipedia Encyclopedia (2019) defines databases as an organized collection of data. The data is typically organised to model aspects of reality in a way that supports processes requiring information. Adesanya, Onilude & Sodipe, (2004) posited that databases are modern systems of storing and retrieving information with the aid of electronic devices. Databases are electronically operated storehouses of state-of-the-art information on different fields of learning. The authors further stated some of the objectives and stages of setting up databases. They are as follows:

1. To enable the information unit render specific services to the user e.g. abstracting and indexing services, current awareness services etc.
2. To make information readily available and accessible to users
3. To save time and money by conducting local search.

One of the databases used in library is the Online Public Access Catalogue (OPAC). Online Public Access Catalogue (OPAC) is a catalogue of a library's collection that is open and accessible to the public through the internet. It is an online open access bibliography of a library holding. A library catalog provides users a platform to search and locate books and other materials available at the library. A library catalog is a register of all bibliographic items found in a library. A bibliographic item can be any information entity (e.g., books, journals, computer files, graphics, maps, etc.) that is considered a library material. An OPAC is just the electronic version of the manual card catalogue.

OPACs have greatly enhanced the use of catalogues in libraries. It has the following advantages over the traditional card format:

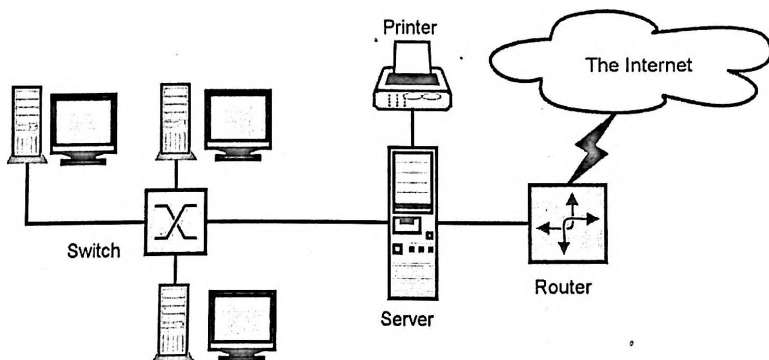
1. The online catalogue does not need to be sorted statically; the user can choose author, title, keyword, or systematic order dynamically.
2. Most online catalogues allow searching for any word in a title or other field, thereby enhancing the ways to search and find a record.
3. Many online catalogues allow links between several variants of an author's name. For example, if an author's name "John Adams Smith" is keyed in differently as "John A. Smith" and "J.A. Smith" in a catalog, there would be links between the three names thereby enhancing find ability.
4. The elimination of paper cards has made the information more accessible to many people with disabilities, such as the visually impaired, wheelchair users, and those who suffer from allergies that are paper- or building-related.
5. Physical storage space is greatly reduced.
6. Updates are easier and more efficient.

Cloud Computing

Cloud Computing' means using the Internet and central remote servers to maintain data and applications instead of maintaining data on individual mainframe computers or personal computers (PCs). It refers to the technologies that provide software, data access,

storage devices that do not require physical location of the system. It is one of the most important Library 3.0 applications that is gaining popularity day by day. Cloud computing technology offers great opportunities for libraries to build networks among the Library and Information Science professionals as well as other interested people including information seekers by using social networking tools like 'Twitter', 'Facebook' which play a key role in building community power.

There are four deployment models of cloud computing (namely public, community, private and hybrid). There are also four service models, namely Development as a Service (DaaS), Cloud Software as a Service (SaaS), Cloud Platform as a Service (PaaS) and Cloud Infrastructure as a Service (IaaS). The components (enablers) of cloud computing architecture are front end platform, back end platforms, cloud based delivery system and a network.



Google +

Owned by the tech giant Alphabet (Google), this interest-based social networking platform enables information users to stay in touch with people by sharing messages, photos, videos, useful links to sites and so on. It also extends support for video conferencing through Hangouts and allows businesses to promote their brands and products through Google+ business pages. Opportunities presented by this social network should be explored to the fullest in management of indigenous knowledge. Images of IK can be produced in digital formats and marketed through google+.

Blog (Web Log)

A Blog or Weblog can be defined as a user generated website where entries are much in journal style and displayed in a reverse chronological order. Kaplan & Haenlein (2010) described a blog as the social media-equivalent of personal Webpages while Stern (2014) called it "Web's Personal Journal". Blogs are text-based online publishing

environments which allow users to embed links. A blog can be created by just one author or done collaboratively by a community of authors. Blogs can be updated from several times per day to just a few times per week or month. Some blogs encourage interactivity between the writer and audience by allowing readers to post comments and questions about entries. Unlike traditional web pages, blogs substitute old materials with the new ones and old posts are preserved alongside new entries (Ifinedo, 2016).

Wikis

A wiki is a knowledge-based website on which users collaboratively modify contents and structure directly from the web browser. It is a Hawaiian word meaning "quick". In a typical wiki, text is written using a simplified markup language and often edited with the help of a rich-text editor. A wiki is run using wiki software, otherwise known as a wiki engine. A wiki engine is a type of content management system, but it differs from most other such systems, including blog software, in that the content is created without any defined owner or leader, and wikis have little inherent structure, allowing structure to emerge according to the needs of the users. Multiple users from all over the world can build a knowledge base by using this application.

Twitter

The concept of Twitter relies on messaging service, whether it uses a cell phone, instant messenger, such as Yahoo Messenger or through specific websites. It allows the user to send messages to friends and family quickly and easily. Twitter only asks one question, "What are you doing?" As long as an answer is 140 characters or less, it is possible for thousands of people to see the answer immediately (Marion & Omotayo, 2010). In Waddell & Barnes (2012) submission, the ease of posting and sharing information on Twitter makes it an essential tool for libraries to reach their users which include researchers, the society and even government. Users can send instant messages on complaints or ask questions on a particular issue and get a feedback on the spot using twitter.

Instant Messaging (IM)

Instant Messaging (IM) is also a very useful tool which helps library professionals to provide library services. Maness (2006) claimed that Instant Messaging was initially Web 1.0 application because it often requires the downloading of software but now a day IM can be categorized in Web 2.0 applications because IM is available through browsers from most of service providers (AOL, Meebo, MSN, Google Talk, etc). Musangi (2015) stated that it is a popular mode of communication because of its quick response time, ease of use and the ability of a librarian to multitask. Various programmes are available to offer this service viz; livezilla, meeboetc. IM is vastly being used for online reference services in libraries. "Ask a librarian" service is provided by instant messengers all over the world.

Borderless Libraries for Sustainable Development

Borderless libraries are rich in technology that can give accurate and authentic information on all spheres of life; sharing messages, conferencing for generating energy, agriculture, health and so on using database, cloud computing, google + and blog

among others.

Database

Databases are indispensable tool for the realization of the SDGs. There are over one thousand (1000) different databases that exist in Library and Information Science covering different specialized areas. Apparently, goals 1 and goal 2 emphasised on the need to eradicate extreme poverty and end hunger and all forms of malnutrition. These could easily be achieved through the use of databases. These databases could help developing countries eradicate extreme poverty and end hunger and all forms of malnutrition. According to Udofia (2019), "in Worlds' Poverty Report in June 2018, Nigeria was tagged worlds' poverty capital". Nigeria could overcome extreme poverty and end hunger and all forms of malnutrition through the use of databases such as International System for Agricultural Science and Technology (AGRIS), ProQuest, GreenFile, and Agricultural Online Access (AGRICOLA) databases and so on. These databases provide adequate information on how Nigeria and other poverty-stricken countries could grow agricultural products and have abundance of food thus attaining the SDGs goal 1 and goal 2 within the next ten years.

There are other several databases that could help Nigeria attain the SDGs within the stipulated time. They include: Scopus, Research Gate, Google Scholars, Web of Science, sciencedirect, Medline, Solcara and so on. Medline provide authoritative information on medicine, nursing, dentistry, veterinary medicine, health care system, Clinical Science. Information on how the country could help attain goal 3 which emphasise the need to ensure healthy lives and promote well-being for all at all ages while ProQuest platform provides searching across many discipline including Arts, History, Literature and Language, Psychology, Social Sciences.

Cloud Computing

This is the safest and most reliable way of accessing information for the attainment of SDGs. Information on the cloud are safe as damage to the hardware of virus attack cannot affect data. Nigeria, being a member of the United Nations, with aim of attaining the SDGs within the next one decade, need reliable and efficient information available on the cloud. SDGs goal 3 emphasise the need to achieve universal health coverage, including access to essential medicines and vaccines. Targets 1 and 2 emphasise the need to reduce the global maternal mortality ratio and end preventable deaths of newborns and children under five years of age. There are several communities that still lack adequate information on how best to achieve universal health care. The number of children and pregnant women that die audible death not being about due to preventable health care in Nigeria is quite alarming. Nigeria's Executive Director of the National Primary Health Care Development Agency (NPHCDA) Dr. Faisal Shuaib (2019) remarked that no fewer than 3,000 women and children below the age of five die daily in Nigeria due to lack of access to health care information and facilities. The World Health Organisation (2019) affirmed that maternal mortality is unacceptably high. About 295, 000 women died during and following pregnancy and childbirth in 2017. The vast majority of these deaths (94%) occurred in developing countries particularly Nigeria.

Apparently, adequate data on how to effectively curb the high rate of infants and

pregnant women's deaths are available on the cloud. Information on Postpartum Hemorrhage, High Blood Pressure and Eclampsia, Pulmonary Embolism, Infection, blood clots, blood pressure disorder are also available on the cloud. Other useful information on the cloud are data on prenatal care, blood transfusions, treatments for complications, advances in specialized care for high-risk pregnancies and deliveries. With the ability of different hospitals, health centres maternity homes and other medical centres to access, retrieve and utilize these information, the actualisation of Goal 3 will be a reality in the next one decade.

Google +

Google + is one of the most used social networking platforms in the world. It enables information users to stay in touch with people by sharing messages, photos, videos, and useful links to sites and so on. It also extends support for video conferencing through Hangouts. Google + is essential for the attainment of the SDGs. A survey conducted by the United Nations Children's Fund (UNICEF) in 2018 indicated that the population of out of school children in Nigeria has risen from 10.5 million to 13.2 million, the highest in the world. Most of these children are in Nigeria's northern states of Borno, Yobe and Adamawa. SDG Goal 4. stipulates the need to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all by 2030. Irrespective of the high number of children that are out of school, Nigeria could still attain the SDG Goal 4 and other 16 goals within the next ten years.

The Nigeria Ministry of Education could partner with the United Nations Educational, Scientific and Cultural Organisation, (UNESCO), Association for Childhood Education International (ACEI), Global Partnership for Education (GPE), United Nations International Children's Emergency Fund (UNICEF), International Development Agencies and Education (IDEA) and many other international educational organisations to share information, videos and photos using Google +

Blog (Web Log)

A Blog or Weblog is a text-based online publishing environment which allows users to embed links. This is perhaps the fastest way of publishing information. The use of web log would apparently enable Nigeria attain the SDGs before 2030. Goal 7 stipulates the need to ensure access to affordable, reliable, sustainable and modern energy for all. The present situation of Nigeria power supply is pathetic. The Spectator Index (2017) ranked Nigeria second worst out of 137 countries in electricity distribution. According to the world power ranking body, national grid capacity currently stands at 4,000MW compared to South Africa with over 40,000 MW. Moss & Devermont (2018) projected that by 2045, Nigeria will be more populous than the United States, but the entire country currently produces less than one percent as much electricity. People in rural areas depend on burning wood and traditional biomass for their energy needs, causing great deforestation, emitting greenhouse gases, and polluting the environment, thus creating global warming and environmental concerns.

There is information available in web logs that could substantially help Nigeria overcome the issue of epileptic power supply. Aside, generating adequate electricity to

power the nations industries, there are other renewable energy where Nigeria government and other stakeholders in the power industry could access and retrieve on web logs. These include solar, wind, hydroelectric, thermal, biomass, geothermal, hydrogen.

Wikis

This is one of the most used websites in accessing information and could also be used to access information on SDGs. Wikis has adequate information content on the 17 goals and 169 targets. Several countries in the world have seized the opportunities presented by this rich website to achieve the SDGs. One of the pressing challenge among the SDGs is Goal 6. This entails, access to clean water and sanitation. According to the World Health Organisation (2019), an estimated 100 million Nigerians still lack basic sanitation facilities and 63 million **do not have access** to improved source of **drinking-water**. Open defecation is still practiced by about a third of the rural **population**. Africa Check (2018) affirmed that more than 80% of Nigerians lack safe drinking water. Another SDG which is of great concern in Nigeria is Goal 16. Promotion of peace, justice and strong institution. In the last decade, Nigeria has been battling with high level insecurity and this have adversely affected the economic growth of the country. According to the Global Peace Index (2019), Nigeria ranked 148th out of 163 countries on the Global Peace Index. In terms of terrorism, the country was ranked 1st in Africa and 3rd in the world by the Global Terrorism Index 2019. Perceptibly, wikis is replete with adequate information on how government and the society can combat insecurity and poor sanitation.

Conclusion

With these advanced information dissemination packages, borderless libraries can contribute effectively to the actualisation of the SDGs. This can be made possible by way of informing, enlightening, sensitizing the populace, seeking feedback and making the information available to government for the assessment of the successes and failures, strengths and weaknesses as well as the possible ways of bridging the gap within the next decade.

Recommendations

If government must realise her goals, then borderless libraries as an indispensable partner should be given adequate attention. There is also need for government to provide adequate internet coverage with 4 gigabytes and above in order to access information on the 17 SDGs and 169 targets on various databases and websites available in libraries. Particular attention should be paid to the rural areas and sub-urban which are the most deprived. Services of librarians should be engaged so that they can periodically monitor and disseminate information to appropriate quarters for further progress.

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