



ISSN 2278 – 0211 (Online)

## Enhancing Acoustics in Media Broadcasting Studios: A Case Study of Government-Owned Media Houses in Port Harcourt, Nigeria

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### **Abstract:**

*The study aimed at enhancing acoustics in media broadcasting studios: A case study of government owned media houses in Port Harcourt, Nigeria. To identify these problems, two, main sources of data were applied. The person-to-person survey or interview was used to obtain verbal information and physical observation of the media houses. This was necessary taking into account, site selection according to standard requirement for the sitting of a media complex, in order to eliminate interference from neighboring media stations. The need for acoustics in material selection and placement was considered as the transmission of unwanted sounds through the walls and floors would be a flaw in these broadcasting studios.*

*This study in view of the findings, recommended that the government should strive to enhance acoustic designs in its broadcasting studios, upgrade on site locations, building type, facilities incorporated in the structure, they should build a well-designed media complex with state-of-the-art equipment for uninterrupted information dissemination to the public.*

**Keywords:** Government media, broadcasting studios, enhancing acoustic design, digital switch over

### **1. Introduction**

In the face of the global growth, technology has evolved to a point where information is gotten from the minutest device such as mobile telephones. Before the advent of the new media, newspapers were prominent and enjoyed high patronage from audience members.

Media is a very powerful tool in the society as it deals with passing of information through various means or channel. These information are highly important as they deal with events in the state and country at large, policies from government social gatherings and news within and anywhere in the world, which will require a properly set up media house to pass these information without hitches such as network failure, poor transmission and issues related to broadcasting (acoustics).

However, these channels through which information are disseminated to the general public include the newspaper, magazine, television, radio, posters, bill board and periodicals. Radio and television as channels of communication play tremendous role in reforming, educating, enlightening and entertaining as well as setting agenda for the people. There exists a long history for media in Nigeria in comparison with other African nations. Maximum publications of newspaper were under government regulation until the 1990. Newspaper, recently blogging also have able to receive a high amount of recognition in Nigeria. Whereas, radio and television, due to scarce resources as well as press restrictions. As time passed improvement has been noticed both within and without Nigeria. The main logic was to reach to more audience along with the growth of satellite televisions. Shortwave radio was also being provided by the British Broadcasting Organization, Deutsche Welle (DW) in the Hausa language. The publication of Iwo Iroyin in 1859, published by Rev. Henry Townsend, a Briton gave birth to media in Nigeria in Yoruba language. Nigeria's independence from Britain make available Nigerian newspapers hugely. This has caused the Federal Government of Nigeria to established own media outfit to pledge the politics. Nigeria was introduced to radio broadcasting in 1933 with the presentation of the first Radio Distribution System (RDS) in Nigeria. The country was a British colony at that time. RDS was transmitting the signal from British Broadcasting Corporation (BBC) to Telegraph (P & T). Later, RDS changed to Radio Diffusion System which increased to about 2000 in 1939. Ibadan station was commissioned this year followed by Kano station in 1944. The first terrestrial television broadcast signals in Africa happened on Saturday October 31, 1959 and belonged to the Western Nigeria Television Service (WNTS). The first country to introduce television broadcasting in Africa, unlike other African countries which had not been so much successful. Along with more than 96 stations throughout the country, Nigeria has established itself as the largest terrestrial television network in Africa (Nwuluet al, 2010). Shortwave radio is being

provided by the BBC World Service as well as the Voice of America and the German Broadcasting Organisation – Deutsche Welle (DW) in Hausa language.

Audio broadcasting began experimentally in the first decade of the 20<sup>th</sup> century. In 1906, Reginald Fessenden while working at General Electric built a high-speed alternator that allowed the Nigeria is continuous transmission of waves. Tested on Christmas Eve 1906, Fessenden's voice was the first on air. By the 1920s, radio broadcasting became a household medium, at first on the AM band and later on FM.

Initially, broadcasting of television started in the 1920s. The World War II made it widespread using VHF and UHF spectrum. In 1923, Vladimir Kosma Zworykin patented the iconoscope, the first television transmission tube. Later, in 1927, Philo Farnsworth transmitted the first all-electric television image.

By the 1950s, virtually every country had a broadcasting system, typically one owned and operated by the government. Initially, all broadcasting used analog technique but later, from 2000, it transferred to digital transmission based digital signals. In case of hurling the DTT platform and switching off analog terrestrial television platform, Digital Switch Over (DSO) is a popular process. In the later phase, national administrations in Europe, Africa and parts of Asia approved to this process at the ratification of the Geneva 2006 Agreement. As per this agreement use of frequencies in the VHF is 173 MHz to 230 MHz and UHF is 470 to 862 MHz bands. This scheme reinforced on 17 June 2015, served as an important impetus for countries to migrate from analog to digital technologies (Digitag, 2012). Switching into digital television was the biggest single change to broadcasting for a generation which had been highlighted by the Visalat Baseline Study (2016). It set an example for the global leaders in broadcasting and creative industries. Starting from 2008, during this year only 0.3 percent of the household started using this in the UK. A total of 7.1 million homes or 27 percent used the DSO at the end of 2010. Almost 100% completed switching from analog to digital broadcasting at the end of 2012. Surprisingly, countries which had not equipped themselves with DSO found it very difficult to use analog equipment as repairing and maintenance become difficult. Moreover, manufacturer almost stopped producing this.

One of the gifts of digitization is more transparency in the broadcasting sector with improved investments, encourage cleaner and innovative businesses and above all give consumers a choice customized channel. It is visualized that Nigeria will contrivance the digitization process in phases, similar to cashless policy in geographical or state locations (Armstrong, 2018).

The Nigerian media on 30<sup>th</sup> April, 2016 transited from analog to digital operations as required by the Federal Government. The development affected states including Rivers State on how to meet the mandate. (Vanguard May 5, 2016). According to reports, currently, Nigeria has 155 analog stations mostly operating on a regional state basis.

For a healthy and sustainable media ecosystem, digital switch over from analog will be the answer (Mediator, 2013). Since economic growth, competition and technological developments is a driving force in every value chain, there is need for regulators to address this issue through the modernization of existing framework. As a result of this change, this paper examines the corresponding design upgrades demand in the different broadcasting stations to enhance acoustics and transit to the required digital systems. The technique to achieve good sound within a building is known as Architectural acoustics, also known as building acoustics (Morfe, 2001). It typically involves the study of speech intelligibility, speech privacy, music quality and vibration reduction in the built environment (Templeton, 1993). Sound isolation is a technique that prevents sound from entering or leaving a studio space, while acoustic treatment involves absorbing or diffusing certain frequencies to achieve a balanced sonic environment within the studio. These are two different design concepts in studio design and each address unique issues (Frank, 2019).

When planning a broadcast station, the most difficult aspect is the layout of the acoustic rooms. The basic plan should be developed by a specialist to look over the layout from a functionality perspective with particular attention to ease of use, though interior design and construction from both the acoustic and functionality viewpoints are very important. However, when designing the architectural acoustics of a studio, intended target, purpose of recording as well as the operation and habitability of the studio must be addressed. These include sound and vibration proofing design for in-room background noise in addition to designs that quiet air conditioning. Secondly, sound and vibration proof designs with particular focus on unwanted low frequency sounds and vibrations such as music with drums or basses and monitor sounds from speakers. Thirdly, room acoustics design relating to studio recording sounds field and reproduction sound field in a control room. Failure to address even one of these can have major implications on work in the studio. Balance from low frequencies to high frequencies in limited space are being ensured by the radio studio design. The reason is that radio stations are not only limited to talk and music playback but also live-in-studio acoustic performance, electromagnetic shielding work may be essential subject on the electromagnetic wave conditions such as recording microphones are easily affected by external radio waves and may pick up and broadcast such radio waves. A cyclorama (large, concave background wall) is very important for a television studio as the media being handled includes both sound and energy. This is often supported by lighting only for a simple set construction which can lead to a reciprocating reflection of sounds from the opposing wall of the cyclorama. For averting acoustic obstructions, performance-oriented construction techniques such as tilting the cyclorama horizontally or providing a mortar-shaped elevated cyclorama wall are required. To do so, the construction techniques must combine both acoustic construction and shielding construction.

In conclusion, most government owned media houses especially in Port Harcourt have not been able to meet the standard requirements. Being digital is one, whereas a conductive building befitting such purposes is necessary. These state media houses are in structures that do not meet their purpose and demands, as well as functions.

## 2. Materials and Methods

This study was carried out in Port Harcourt, capital of Rivers State, Nigeria. For the purpose of this study, a survey research was used to identify the acoustics problems in media broadcasting; (a case study of Rivers State Broadcasting

Corporation, which has the Medium wave and FM stations. The FM is Radio Rivers II 99.1 FM. Also, the Garden City Radio – popularly known as 89.9FM, which is mostly an entertainment station. Then, the Rivers State Television, formally known as Channel 55VHF before the government took over its operations in 1991. In the course of carrying out the person to person survey, interviews were conducted with journalists, civil servants, working in the various media houses in study and the former Rivers State Commissioner for Information, IbimSeminitari. During the interview, care was taken to ask simple and short questions. Samples of fifteen employees, each from the three broadcasting stations were interviewed. Also, physical observation through visits to the broadcasting stations were made to physically see the challenges and issues associated with the media business with regards to the lack of design consideration.

### 3. Sources of Data Collection

#### 3.1. Primary Sources of Data Collection

Primary data was obtained through personal interviews. Interviews were conducted with journalists and employees within the sample locations. Also, data was obtained from physical observation.

#### 3.2. Secondary Source

Data was obtained from materials from other case studies from the internet and books.

### 4. Findings and Summary

Consequently, from the individual interviews, and personal visitations to the media broadcasting stations in study, Radio Rivers and Garden City Radio stations were not built for such purpose but operating from makeshift structures situated in noisy areas of the city of Port Harcourt. The Rivers State Television which also has it issues is situated in a very busy area, Elemenwo, through the building setback is enough to reduce the effect of external sound from penetrating as it dies off before hitting the structure.

In conclusion, the building setback and creation of buffer zones was done to reduce noise transmission from residential areas and access roads. The need for acoustics in material selection and placement was considered as the transmission of unwanted sounds through walls and floors would be a flaw in this design. The comfort of the users through building orientation and ensuring that internal spaces were well ventilated were key decisions that guided this design. The design is done with relevant and industry-based design consideration in mind to ensure that the buildings stands the test of time and enhances acoustics while serving its intended lifecycle.

### 5. Recommendations

It is recommended that the Rivers State government should see the need to provide befitting, modern media broadcasting house to address the different acoustic problems associated with media house, particularly those involved in audio/visual broadcast. Design considerations should be made to the choice of materials in the different functional spaces, like the studio area which should be treated with high quality acoustic materials for purpose of efficient and uninterrupted sound production and output.

Also, externally on the different façade of the building, use of vertical and horizontal wind breakers, as the state is characterized by different prevailing South-West and North-East winds which tend to raise adverse effects on the effective productivity of the station's natural vegetative elements such trees, shrubs and grasses can serve as sound breakers. A convergence of the various media station in one accessible center is recommended, the provision of the said facility will provide proper and effective interrelationship and communication between the different media houses. This convergence will also make direct and close supervision by relevant authorities easy and less stressful.

As a means of generating revenue, the study design incorporates the possibility of generating revenue for the state government as it houses notable media complex and spaces for private enterprise in addition, occasional multipurpose hall. Conclusively, this research work is supposed to help as a design solution.

### 6. Acknowledgement

We acknowledge the support of the Department of Architecture, Faculty of Environmental Sciences; Rivers State University, Port Harcourt, Nigeria

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