

# The Role of Communication in Disseminating the United Nations Sustainable Development Goals in the Nigerian Agricultural System

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## Abstract

This paper explores the important role that communication plays in the dissemination of the United Nations Sustainable Developmental Goals (SDG's) in the Agricultural Systems in Nigeria. The aim is to show that the inclusion of communication in its various forms and usage will boost and promote the proper dissemination and actualization of the sustainable development goals and its sub-themes. This has been done through a holistic discussion on the process, elements, forms, and proper use of communication and that of the information communication technologies (ICT's) as vehicles. Feedback from information dissemination to various audiences and players within the agricultural system in Nigeria as well as the barriers and challenges that arise from this communication process were also examined. This study is anchored on the diffusion of innovation theory and adopted a quantitative approach. A sample size of two hundred and forty respondents within the Agricultural systems in Oyo and Ogun States in South-West Nigeria were purposively selected for a workshop on the United Nations SDG's through multi-stage sampling. This paper concludes that communication is greatly required in the successful dissemination of the sustainable development goals in Nigeria's Agricultural systems.

**Keywords:** Communication; Sustainable development goals; Agricultural systems

## Introduction

Agriculture is fundamentally important to human existence, not only in terms of food production for human consumption, but also as means of livelihood for majority of the world's rural dwellers [1]. The agricultural system in Nigeria is buoyant and receives quite phenomenal research and scientific attention stimulating growth and development. To sustain these, communication in all its form and sense is and remains an integral part as farmers need a mix of information resources for accurate and actionable agro-production activities to maximize farm productivity and earnings [2]. In 2015, the Millenium

Development Goals (MDG's) came to an end paving way for the Sustainable Development Goals (SDG's); these are a collection of seventeen global goals set by the United Nations (Figure 1) [3].



Figure 1: Sustainable Development Goals.

These goals though inter-related, each has its own target to achieve which covers a broad range of social and economic range of developmental issues. They are to end poverty, fight inequality and injustice and also tackle climate change by 2030. In order to achieve this in the Nigerian agricultural system, extension service delivery is very important. Agricultural extension is an educational process that brings about desirable changes among people, it involves learning through information disseminating with some tools or methods commonly known as extension teaching methods [4]. It is a sector saddled with the responsibility to inform and teach the various stakeholders in the Agricultural systems as well as also serving as the link between innovators and the end users.

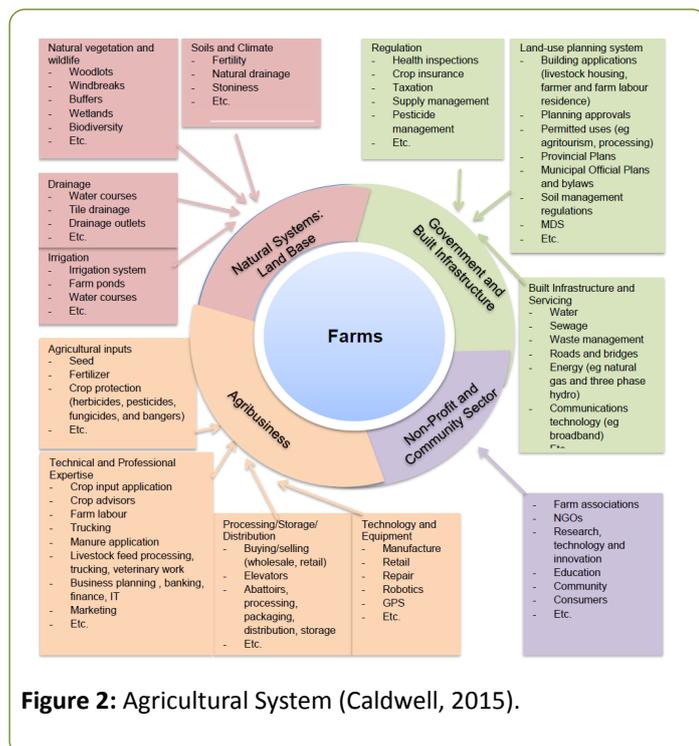
As stated earlier, the SDG's has about seventeen targets addressing issues relating to every sector of life including agriculture. The stakeholders within this sector need information such as the SDG's which would lead to synergies and co-operation between stakeholders and extension agents, resulting in strengthened organizations and self-help groups. It is therefore pertinent to investigate the various roles that communication can play in appropriately disseminating the United Nations SDG's through the following research questions:

- To investigate the level of awareness of the United Nations SDG's?
- To examine the level of understanding of the SDG themes?
- To investigate which media and language would be most preferred for disseminating the SDG's?

## Agricultural Systems

Agricultural system is a collection of several components united by some forms of interaction and interdependence that operates within a prescribed boundary to achieve a specified agricultural objective on behalf of the beneficiaries of the system (FAO, n.d.). Also, Caldwell [5] describes it as a web of relationships between farmers, natural systems involving climate, geology, soil, air, pests, water and human systems which includes politics, land use planning and infrastructure, law, finances and marketing. These systems and relationships within and between them inform the production of food, agricultural goods and other commodities. These components as seen in **Figure 2** are identifiable within the seventeen goals of the SDG's as seen in **Figure 1**.

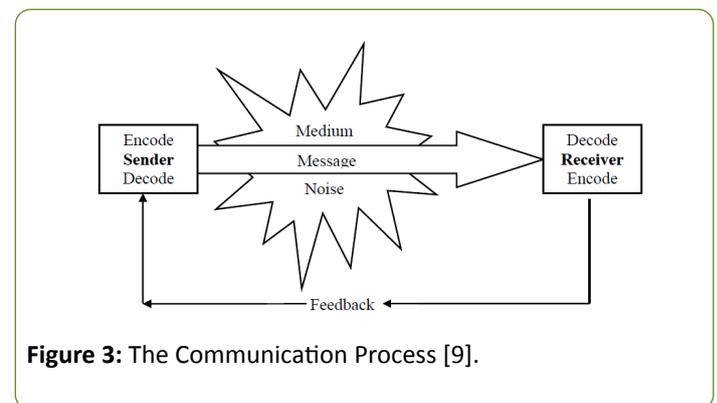
Pertinent to the agricultural system are farmers (either crop or livestock) and other key players (marketers, government, associations, and so on) within the system. These individuals who are targets of the sustainable development goals would be better equipped with its knowledge through communication as these goals are expected to be action-oriented, concise, easy to communicate, limited in number, aspirational, global in nature and universally applicable to all countries while taking into account different national capacities and levels of development and respecting national policies and priorities [6].



**Figure 2:** Agricultural System (Caldwell, 2015).

## Communication

The word "communication" derives from the Latin verbs "communicare" and "common" which means "to share" or "to make common"; it is the sharing of information, the giving and receiving of messages, as well as the transfer of information from one or more people to one or more people [7]. It is also described by Keyton [8] as the process of transmitting information and common understanding from one person to another. These definitions underscore the fact that unless a common understanding results from the exchange of information, there is no communication. These therefore implies that to achieve the sustainable development goals in the agricultural system, there should be the sharing of the SDG's information to make it common among the key players within the agricultural system for their common understanding. In order to achieve this properly, it is important to describe the communication process (**Figure 3**).



**Figure 3:** The Communication Process [9].

Keyton [8] while describing the communication process states that the sender encodes the idea by selecting words, symbols, or gestures with which to compose a message; the message is the outcome of the encoding, which takes the form of verbal, nonverbal, or written language. The message is sent through a medium or channel, which is the carrier of the communication. The medium can be a face-to-face conversation, telephone call, e-mail, or written report. The receiver decodes the received message into meaningful information. . Noise is anything that distorts the message. Different perceptions of the message, language barriers, interruptions, emotions, and attitudes are examples of noise.

Finally, feedback occurs when the receiver responds to the sender's message and returns the message to the sender. Feedback allows the sender to determine whether the message has been received and understood. Santucci [10] pointed out the major forms of communication. These are verbal and non-verbal communications. Verbal communication occurs whenever words are used; it is the most important form of human communication and is the foundation of the human societies. Non-verbal communication entails the use of symbols, gestures, signs and pictures.

In the Nigeria agricultural system, professionals in the field of agriculture such as extension agents are those principally with the expertise to disseminate any kind of beneficial agricultural information. Abdusalam-Sagir, Ashimolowo, and Lawal-

Adebowale (n.d) posited that agricultural extension agents are government officials employed chiefly to advise farmers on farming and marketing techniques. They can also be described as advisors employed by the government to assist rural dwellers with methods of farming and home economics. In this context, the information about the SDG's are processed, packaged, and generated in the best forms for education and learning for farmers and other stakeholders.

This information is the stimulus as well as the message which must have been encoded by selecting and using the appropriate words, symbols and gestures that would convey the appropriate and definitive meaning for better understanding. Language, both verbal and non-verbal, is thus employed to encode the message that is intended to be communicated. It is imperative that the encoding be done in a language that conveys or for that matter communicates [11].

Channel is the means through which the encoded message travels or gets transmitted. This could be through mediums such as face to face trainings such as workshops, seminars, and conferences with the aid of audio-visual extension training tools such as video documentaries, charts, posters, drama and so on. For instance, a study carried out by Ayobolu [1] indicates that video documentaries are effective audio-visual instructional training tool that enhance learning. Other channels of conveying the message include sending of e-mails, phone conversations, online chats, video conferencing and so on. The sending and feed-back channels may not necessarily be the same, but the type of message to be disseminated is important when choosing the most appropriate channel for communicating effectively.

Information Communication Technologies (ICTs) are important vehicles of information dissemination in recent times. These technologies facilitate the creation, processing and transfer of information across space and time. It is any device, tool, or application that permits the exchange or collection of data through interaction or transmission. They enable performing tasks quickly, efficiently and comprehensively, and also facilitate the flow of large volumes of information to a wide audience across numerous geographical locations [12].

ICT is an umbrella term that includes anything ranging from gadgets like radio to satellite imagery to mobile phones, tablets, laptops, etc. It also includes various online platforms like Twitter, Facebook, Instagram, WhatsApp, and others for information dissemination, interactions and feedback that transcend time and space irrespective of geographical locations. Information about the SDG'S was shared via these various ICT platforms when they were finally decided on in September 2015; this gave a wide and platform for the goals to reach as many people as possible. It created a forum for further discussions and contributions about the goals and its targets.

In developing countries, the use of ICT in disseminating sustainable development goals to stakeholder is receiving very fast response. In Nigeria today, the concept of ICT has been felt through its application in every segment of our natural life, especially through the mobile phone, radio, television, internet, video, camera and computers. ICT has played and is playing a tremendous role in facilitating and promoting the collaboration

between agricultural researchers, farmers, extension agents and other stakeholders. For instance, the use of digital camera and mobile phone with video capabilities has gain popularity because an individual can best retain 20 percent of what he or she hears in any learning activity or in any teaching and learning session. The use of radio is the most popular among ICT tools because of its special interest and focus in broadcasting to audience in their local language.

The significant impact of ICT in disseminating sustainable development goals depends on information exchange between and among a broad range of stakeholders in agricultural system because they can relate directly with one another through the use of ICT tools. Some of the potential application of ICT's in disseminating sustainable development goals to stakeholders in Nigeria agricultural system must follow the steps below:

- ICT has the capacity to reach a large audience, for instance the use of radio, TV and Internet. These three channels are suitable for Nigeria situation where there are poor roads for communication. They can get information across to every nook and corner of the rural areas where it is very difficult to make direct contact.
- ICT can be effectively used for audio-visual trainings and demonstrations through television, video compact disc players (VCD) and CD-ROM. Video documentary can be used to inform stakeholders such as farmers of a new innovation and things or operation that needs immediate attention.
- ICT can be used for the search and packaging of information on demand and for exploring of alternative production options and technologies for instance the use of search engines, the web and data base.
- ICT tool such as GSM (Global System for Mobile Communication) can be used for normal weather forecasts and as a warning system for disease/pests outbreaks and other disasters before they occur and also for the provision of timely and sensitive market information.
- ICTs are important for networking among and between the key stakeholders such as members of Research Extension Farmers Inputs Linkage System (REFILS) with the use of Telephone, Video and SMS (short message service).
- ICTs can also be effectively used for community mobilization, learning and action for instance Radio, TV, public address systems and the Web.

## Barriers

According to Eisenberg [13] communication channel is a complex, give-and-take process and because of this nature some barriers associated to communication channel includes; process barriers, physical barriers, semantic barriers, and psychosocial barriers.

Processing barriers are known to arise from the sender, means of encoding, medium of communication, means of decoding, receiver and feedback as a result of misinterpretation, emotional discharge or fear of criticism.

Physical barriers occur as a result of interference or distraction with the means of communication channels.

Semantic barriers occur due to the use and interpretation of words. Technology plays a part in this aspect of communication barriers.

Psychological barriers are as a result of people's backgrounds, perceptions, values, biases, needs, and expectation can also pose serious barriers to the SDG message.

## Limitation in the Use of Communication Channel

**Inadequate infrastructural facilities:** Most developing countries have very poorly developed communication tools such as poor and limited number of telephone lines, most of which are still in the analogue mode.

- **Low computer literacy among stakeholders:** Most stakeholders lack competence and confidence in handling and operation modern communication tools.
- **Low deployment of communication gadgets among stakeholders** as a result of low level capacities of gateways and portals to international networks/satellite systems.
- **Lack of skills associated with the use of new techniques** by rural communities and stakeholders in agricultural system.
- **Illiteracy among stakeholders and low level of education:** Most stakeholders are not educated and as such are not aware of the benefits associated to sustainable development goals.
- **Lack of training and skill development:** stakeholders should undergo training in order to appreciate the benefit associated to sustainable development goals.
- **High charges for radio/television presentation.**
- **Erratic and unstable power supply and high cost of alternative power through standby generators.**

Limited and very high cost of telephone services either by land lines or GSM. It has been estimated that Nigeria has the highest GSM call rates in all developing countries that have the facility.

## The Diffusion of Innovation Theory

The concept of diffusion was first studied by the French sociologist Gabriel Tarde in late 19th century and by German and Austrian anthropologists and geographers such as Friedrich Ratzel and Leo Frobenius. The study of diffusion of innovations started in the sub-field of rural sociology in the mid-western United States in the 1920s and 30s. Agricultural technology was advancing rapidly, and researchers started to examine how independent farmers were adopting hybrid seeds, equipment, and techniques.

The diffusion of innovation theory popularized by Everett Rogers in the 60s was one that seeks to explain how, why, and at what rate new ideas and technology spread. He argues that diffusion is the process by which an innovation is communicated over time among the participants in a social system [14]. He further proposes that four main elements that influence the spread of a new idea are; the innovation itself, communication channels, time, and a social system. The categories of adopters

are innovators, early adopters, early majority, late majority, and laggards. There are five stages in the adoption process as stated by Rogers, these are discussed in details as follows:

### Awareness/knowledge

Awareness, or knowledge of an innovation, is the first stage of the adoption process. From a strategic point of view, for an innovation to be known extensively, there is need for proper communication channels through which such knowledge intensive technologies can be communicated to the target audience.

### Interest-understanding

Here individual perception towards the innovation is key; if the individual has not developed interest in the technology it will be very difficult for such an innovation to be adopted.

### Attitude formation

This may consist of thinking hypothetically about what would happen if the innovation were applied to their situation. It also often entails seeking the opinions of one's peers for better understanding to make informed decisions.

### Initial decision

The attitude formation stage eventually leads to an initial decision about whether to adopt, or at least try the innovation. Most individuals do not adopt an innovation without first trying it on a limited basis.

### Implementation

This stage is when the innovation is actually put into use. Sometimes a given innovation may go through a substantial evolution and divergence as it is implemented in different contexts. It is even thought that a high degree of such re-invention leads to faster adoption and greater sustainability of the innovation, because it indicated a high degree of flexibility for the innovation to be adapted to different circumstances.

### Confirmation

At this stage, empirical evidence is accumulated that reinforces or counters the decision to implement an innovation. A decision to discontinue use of an innovation after initially deciding to implement it is not uncommon.

In relation to this study, the diffusion of innovation theory explains the theoretical process of the SDG's. The players within the Agricultural systems in Nigeria would first have to be exposed to the information through the various available media both traditional (Newspapers, Television, Radio, Adverts, etc.) and modern (digital media and the internet) thereby creating awareness. This information would then be processed in form of the other immediate stages of the innovation theory of interest and understanding, attitude formation leading to the initial decision on accepting and adopting the contents of the

information. This then lead to the implementation and confirmation.

## Methodology

This study is a quantitative study designed in form of a one-day workshop with the same title as this study on the SDG's. The selected respondents were invited to participate in the workshop which began with a pre-test to determine their residual knowledge of the SDG's. They were thereafter exposed to knowledge and information about the SDG's and the roles that communication would play in disseminating it. After concluding the workshop, questionnaires were administered to collect data from the respondents while the Statistical Product and Service Solutions version (SPSS) was used to analyse data for comparisons and results. The population for this study was made up of registered stakeholders in the Agricultural systems in both Oyo and Ogun States, south-west, Nigeria. Two hundred and forty respondents were selected using the multi-stage sampling technique. The sample size was calculated bearing in mind the type 1 and type II error which might occur in the study, and these are automatically 1.96 and 0.84 respectively. The variance of proportion (p) which was 50% was also considered in calculating the actual sample size for this study. In order to validate the research instrument, face validity and content validity were used to verify and correct the questionnaire items. The questionnaire items were given to scholars to examine and make corrections. Descriptive statistics such as percentages and frequencies were used to describe the results.

## Results

### Socio-economic characteristics of respondents

**Table 1** shows the socio-economic characteristics of stakeholders in the agricultural system in both Ogun and Oyo states, South-West Nigeria. Majority of the respondents are male (67.5%), while 32.5% were female. This suggests there were more male than female among the stakeholders in the agricultural system. This is related to the findings of an earlier study that men are mainly involved in in pre-planting and planting stages of crop production and not post-planting activities carried out mostly by women. The age distribution of the respondents shows that that 26.7 percent of them were between forty-one to fifty years, while 22.1 percent were less than forty years. Respondents within the greatest proportion amongst the respondents are between forty-one to fifty years; also, 79.6 percent are married. As regards the level of education of the respondents, 33.8 percent of the stakeholders had secondary education in the two states, while 28.3 percent had primary education. 25.8 percent had no formal education at all while a percentage of 12.1 had tertiary education. This shows that a greater percentage of the stakeholders have some form of basic education. This is related to Rogers (2003) who stated that having some form of basic education and literacy would influence adoption of an innovation. Majority of the respondents are farmers (41.8%), while 25% of them are in Agribusiness, the other respondents who are also stakeholders in the agricultural system were 8.3% respectively. Also, a higher

percentage of 74.2 of the respondents from the two states earn within ten and a hundred thousand as their income per annum, while ten percent of the respondents earn within a hundred and one to two hundred thousand (**Table 1**).

**Table 1:** Socio-economic Characteristics of Respondents (n=240) (Field Survey 2017).

Variables	Frequency	Percentage %
<b>AGE (yrs)</b>		
21-30	21	8.8
31-40	53	22.1
41-50	64	26.7
51-60	45	18.8
61-70	39	16.2
71-80	18	7.5
<b>SEX</b>		
Male	162	67.5
Female	78	32.5
<b>Marital Status</b>		
Single	15	6.3
Married	191	79.6
Separated	13	5.4
Divorced	9	3.8
Widowed	12	5
<b>Education Level</b>		
No Education	62	25.8
Primary	68	28.3
Secondary	81	33.8
Tertiary	29	12.1
<b>Occupation</b>		
Farmers (Crops and Livestock)	100	41.8
Extension Agents	20	8.3
Government Officials	20	8.3
Agribusiness (Marketers, Processors, Retailers, etc.)	60	25
Agricultural NGO's	20	8.3
Researchers	20	8.3
<b>Income Level</b>		
10,000-100,000	178	74.2
101,000-200,000	24	10
201,000-300,000	17	7.1
301,000-400,000	5	2.1
401,000-500,000	7	2.9

501,000-600,000	9	3.8
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**Table 2** shows the results of findings from the respondents as regards their previous knowledge of the sustainable development goals. About 50.4% of the respondents were not aware of the SDG's while 49.6% of them knew. Also, majority of the stakeholders had no previous knowledge nor understanding of the themes of the SDG's (64.9%), while 65.0% of them do not agree with the themes since they had no previous knowledge.

**Table 2:** Test for Previous Knowledge on SDG's (n=240) (Field Survey 2017).

Previous Knowledge of SDG's Variables	YES		NO	
	(F)	%	(F)	%
Are you aware of the United Nations sustainable development goals (SDG's)?	119	49.6	121	50.4
Do you know the various themes in the provision of the SDG's?	83	34.9	157	64.9
Do you understand the themes provided in the SDG's?	83	34.9	157	64.9
Do you agree with the themes provided?	84	35	156	65

**Table 3** shows the results for acceptable communication vehicles for the sustainable development goals (SDG's) after the workshop and training. Majority of the respondents (100%) were aware of the SDG's after training, about 90.0% of them knew the themes of the SDG's while 91.2% and 95.0% understood and agreed with the theme. About 91.2% of the respondents agreed to the need to disseminate the information about the SDG's widely while 93.8% agreed that the SDG's be disseminated through the media. Also, 89.6% of the respondents agrees that information about the SDG's should be disseminated through the radio and television, 33.8% for newspaper and magazines, 33.3% for posters and fliers, 40.4% for the social media/internet, while 90.0% agreed that all of the available media should be used. This corroborates with a report by Movius, that the broadcast media have the ability to disseminate information to large audiences efficiently and television can be a particularly important channel, while Chapman, found that rural radio is effective in improving the sharing of agricultural information. About 90.8% of the respondents agrees that the programme format for information dissemination should be through talk shows, while 91.2% agrees that all listed programmes on the media should be utilized as vehicles of dissemination. Majority of the respondents (96.0%) would prefer the information packaged in the indigenous language only, while 98.0% preferred all the languages listed.

## Discussion

Discussion of findings in this study was done based on analyzed data above which are in line with the objectives of the study. Findings from this study showed that only 49.6% of the respondents had previous knowledge about the SDG's from their

pre-test while a 100.0% of them gave complete affirmation after gaining knowledge from the workshop. This indicates that there

**Table 3:** Test for Acceptable Communication Vehicles for the SDG's (n=240) (Field Survey 2017).

	Acceptable Communication for SDG's Variables	YES		NO	
		(F)	%	(F)	%
1	Are you aware of the United Nations sustainable development goals (SDG's)?	240	100	0	0
2	Do you know the various themes in the provision of the SDG's?	220	90	20	10
3	Do you understand the themes provided in the SDG's?	219	91.2	21	8.8
4	Do you agree with the themes provided?	230	95	10	5
5	Do you believe that the SDG's are relevant to your needs and aspirations?	215	89.6	25	10.4
6	Do you believe in the need to disseminate the information about the goals widely?	219	91.2	21	8.8
7	Would you agree that this dissemination should be done through the media?	225	93.8	15	6.2
8	Which media would you prefer to disseminate the information				
	Radio and Television	215	89.6	25	10.4
	Newspaper and Magazines	81	33.8	159	66.2
	Posters and Fliers	80	33.3	160	66.7
	Social media/Internet (WhatsApp, Twitter, Facebook, Instagram, Myspace, etc.)	97	40.4	143	59.6
	All of the Above	216	90	24	10
9	In which format would you prefer the information in the media				
	Talk shows (Discussion Programmes, Debates, Magazine/Phone-in programmes, Interviews)	218	90.8	22	9.2
	Documentary	151	62.9	89	37.1
	Drama	214	89.2	26	10.8
	Public Service Announcements and Jingles	111	46.2	129	53.8
	All of the above	219	91.2	21	8.8
10	Which language would you prefer for the information packaging?				
	Indigenous language/Mother tongue (Yoruba, Hausa, Igbo, etc.) only	230	96	10	4
	English Language only	36	15	204	85
	Pidgin English only	183	76.2	57	23.8
	All of the above	235	98	5	2

was knowledge intake to close the knowledge gap that existed prior. About 91.2% of the respondents had good understanding of the various themes provided in the SDG's after the workshop as against a previous 64.9%. Majority (91.2%) of the respondents agreed to the need to disseminate the SDG's, with about 93.8% agreeing that this should be done through the media. This shows that majority of the respondents acquired knowledge from the workshop session and would therefore propose the use of various communication channels to reach others providing the same information with 89.6% for radio and television, 33.8% for newspapers, 40.4% for the social media/ internet and a majority (90.0%) for all of the options provided.

## Conclusion and Recommendations

The sustainable development goals 2030 and its various themes were designed to benefit mankind from every nation represented in the United Nations through various sectors and institutions such as agriculture, its numerous practitioners and stakeholders. Nigeria, been one of these nations with a viable and buoyant agricultural sector is not left out of the opportunities that abound from this. Communication is an integral part of everyday life for interactions through words and signage as described in this paper. Therefore, this study recommends that:

It should in its various forms and channels be considered an important part of planning, and disseminating information about the sustainable development goals in the Nigerian Agricultural system.

The various channels of communication should also be highly considered viable vehicles and tools in disseminating information about the sustainable development goals in the Nigerian Agricultural system.

Communication and its various channels would facilitate better understanding of the SDG's as well as implementation of the suggested goals resulting in viable agricultural practices and profit.

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