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PHYSICAL PLANNING AND SUSTAINABLE FOOD SECURITY IN AFRICA: LESSONS FROM THE CREATION STORY

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ABSTRACT

Purpose*: In this era of food insecurity in Africa, it is apt to search the archive for how it was planned during creation. Food security was and will remain a problem on the continent if good governance is not in place to plan and manage the various activities. This paper makes a comparison between the Divine provisions during creation and what exists now in Africa, presents the lessons to learn from the story, and recommends the best approaches to plan for sustainable food security in Africa.*

Design/methodology/approach*: Data were sourced through secondary means, and extracts from the story of creation were made. A comparison method of evaluation was adopted, whereby extracts from the story were compared with reports from the literature on Africa. This helps in identifying areas for improvement. The main conceptual framework for this study was the concept of food security.*

Findings: *Findings revealed that Africa is blessed with fertile land, but lost to agricultural land mismanagement, many rural and urban areas in Africa lack adequate water supply, and Africa is characterised by bad governance or institutional failure, which impacts on food system.* ***Research limitations/Implications:*** *The limitations include the use of only the creation story, and no quantitative data were involved in the analysis. The contribution to knowledge is that this study adopted a storytelling method to analyse and proffer solutions to food insecurity in Africa.* ***Practical implications:*** *It is recommended that comprehensive planning is required when it comes to the issue of food security, but not incremental, as is being adopted by some planners in Africa; planning of phases should be sequential without skipping any activity, and good governance should be put in place by the government at every level.*

Originality/value: *The study revealed that food security in Africa is determined by good governance, planning and management of resources.*

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Keywords: Creation story, Food security, Lessons, Physical planning, Sustainable

1.0 INTRODUCTION

According to Saaka (2016), the issue of food insecurity is most times linked to a problem of accessibility, availability, stability, and utilisation. The World Bank (2020) projected that in the year 2020, an estimated of about 115 million people were living forced extreme poverty, with difficulty to eat, in the developing countries. In the same vein, the 2021 World Health Organisation reports that climate, conflict, bad governance, and economic slowdown were the drivers of food insecurity in developing and some developed countries.

To delve into sustainable food security, there is a need to understand what food security is. According to the International Food Policy Research Institute (2019), food security is a situation where all people, at all times, have physical, social and economic access to sufficient, safe, and nutritious food that meets their food preferences and dietary needs for an active and healthy life. This does not include begging, stealing, scavenging, or eating substandard foods. That means, the food must be nutritionally adequate and safe foods, gotten in socially appropriate ways, with adequate water and sanitation (United States Department of Agriculture (USDA), 2019). One of the strategies to achieve food security is tilling the land. Land is considered to be a basic input in farming that contributes to food security (Maxwell & Wiebe, 2018). Livestock can also provide safety to maintain sustenance during food-insecure periods (Mapiye, Chikwanha, Makombe, Dzama, & Mapiye, 2020). Therefore, sustainable food security is when food can be guaranteed by individuals, households, regions, states, and nation now and posterity. A sustainable food security nation is a nation that can manage short-term and long-range planning processes to balance economic growth, environmental protection and social harmony (Oyediran, 2021). The creation story's themes of Divine provision and stewardship can be seen as a metaphor for the significance of sustainable food security in Africa. According to Altieri (2009), the concept of food sovereignty, as well as food security, can inform physical planning decisions that good governance can take over food production and distribution. Studies such as Crush & Frayne (2011), FAO (2018) and Oyediran (2024) have shown that agriculture, if well planned, can improve food security and reduce poverty in African cities.

The concept of planning is generically defined as the first bold step at envisioning and actualising a predefined end (Oduwaye, 2011; Ikiriko & Dapa, 2023). The general interpretation and activities involved revealed that every individual on the surface of Earth is a planner. This is why the word physical is attached to it to give the words the intended meaning. The Holy Bible in Genesis 1: 2930 states a command by God on food security as it says that:

> 29. And God said, See, I have given you every plant yielding seed that is on the face of all the land and every tree with seed in its fruit; you shall have them for food. 30. And to all the animals on the earth and to every bird of the air and to everything that creeps on the ground—to everything in which there is the breath of life—I have given every green plant for food. And it was so.

Bjornlund *et al*. (2022) report that Africans cannot claim to be food secure. This was corroborated by Al-Barwan, Al-Mamari & Al-Balushi's (2023) submissions that Africans have been suffering from food insecurity for a long time, and thousands die every day from starvation. In sub-Saharan Africa, there are 239 million hungry people, and the probability of an increase in this figure in the near future is very high (Sasson, 2012). Some authors attributed the causes to climate change and environmental disasters (International Committee of the Red Cross (ICRC), 2022), conflict/governance (Oyediran, 2021b; Al-Barwan *et al*., 2023) and an increase in population that leads to high demand and pricing (Ash, 2013; Fawole, Ilbasmisk, & Ozkan, 2015). Beyene (2023) predicts that food security in Africa could increase by 20% yearly if an appropriate solution is not proffered. Therefore, in this era of food insecurity in Africa, it is pertinent to search the archive for how it was planned during creation. Food security was and will remain a problem on the continent if physical planners who are supposed to plan and manage the various activities continue to fail in performing their roles. Thus, the objectives of this paper are to make a comparison between the divine provisions and what exists in Africa, present the lessons to learn from the story, and recommend the best approaches to plan sustainable food security in Africa

2.0 LITERATURE REVIEW 2.1 Concept of Food Security

Food security is a situation whereby food is available in quantity and quality, accessible by individuals through legally and socially accepted means, properly utilised, which guarantees safe and clean food and is adequately accessible at all times (FAO, 2006). The concept of food security evolved in 1975 (Heidhues *et al*, 2004). Since then, many scholars such as FAO (1983), Clay (2002), FAO (2006) and Oyediran, Oyelade & Abubakar (2020), because of its multidimensionality, have carried out studies on the various aspects of the subject. In a nutshell, food security focuses on ensuring that food security is incorporated into national, sub-national, household and individual poverty reduction strategies and has a particular emphasis on reducing hunger and extreme poverty (Stamoulis & Zezza, 2003).

Food and Agriculture Organisation of the United Nations (2001) submits that food security is achieved only when food is available, accessible, stable and properly utilised. To corroborate this, Gibson (2012) presents the simplest definition of food security as he views it to mean regularly having enough food to eat; not just for today or tomorrow, but also next month and next year. The implication of this is that food is available around the year for individuals as well as households. According to Peng & Berry (2019), the effects of food insecurity are felt at different levels that include national, household, individual and may be considered as a time dimension that affects all the levels. The authors identify availability, accessibility, utilisation and stability as the four pillars of food security and stated that food sustainability is the fifth pillar. It is noteworthy that the concept of food security is flexible, as reflected by the many attempts to define it (Peng & Berry, 2019), and it is viewed as a multi-headed beast with many different masters (Food First Information and Action Network, 2012).

According to Berry, Dernini, Burlingame, Meybeck & Conforti (2015), food security implies a situation that occurs when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Indeed, reflecting on the concept of food security, it appears that its scope is very

broad that researchers such as Ruxin (1996), FAO (2011) and Oyediran & Abubakar (2017) view it from the nutrition security, the pollution of freshwater from agriculture, or the linkages between food security and health, health care, poverty alleviation, education and human rights perspectives. Various definitions of food security have been considered. This paper assesses how physical planning was done in the creation story to guarantee food security, and how it is being practised in African countries. The current situation in Africa was viewed as a disappointment because the number of people in food-insecure households/individuals continues to increase every day, despite the relevance of physical planning. Therefore, the processes adopted by the Creator (God) concerning food security were assessed. Furthermore, physical planning was seen as an activity that plans, provides, and maintains/manages food security for people. Conclusively, the living and sustenance of human beings in Africa depend largely on food security efforts.

2.2 Food Governance

Governance is the act of governing a place, event and/or activity (Oyediran & Ogundiran, 2013). Food governance tools are considered to be a possible mechanism to contribute to sustainable development and the 2030 Agenda for Sustainable Development, particularly Sustainable Development Goals (SDGs) (Morgan *et al.* 2006; Schiff, 2008; Ilieva, 2017; and Oyediran (2021a) observe that food security issues have been narrowed down to agri-business sector and representatives from vulnerable sectors such as governance noticeably absent.

The ongoing challenge of tackling food insecurity has revealed that planning for food governance is crucial in providing enabling conditions to ensure equitable access, availability, stability and proper utilisation of food (Moragues-Faus, 2020; Oyediran, 2021a). The failures in food security could be attributed to the disregard of some underlying principles of good governance, such as effectiveness, responsiveness, equality, fairness, accountability, efficiency, and inclusiveness, which are required to address the root causes of food insecurity and eradicate hunger (Candel, 2014).

2.3 Physical Planning and Food Security

Physical planners have their ways of thinking and passing judgment on issues, most especially activities, resource distribution and food security. These professionals, because of their nature of training and knowledge acquired in different fields such as social and natural sciences, are involved in food security planning for the present and future generations. The training and knowledge acquired made these professionals be able to perform the following listed functions by Cavrić (2004), Olanrewaju (2019), and Moloi (2025): 1) technocracy and information provision; 2) regulation and land development co-ordination; 3) negotiation and mediation; 4) facilitation and initiation; 5) political advising; 6) designing; and 7) advocacy.

Hiraskar & Hiraskar (2010), and Rautio, Filatova, Lehtiniemi, & Miettunen (2013) aver that town planning is an art of shaping and guiding the physical growth of a town, laying-out of buildings and environments to meet the various needs such as social, cultural, economic and recreational; and to provide healthy conditions to live, work, and to play/relax. Mourits, van der Velden, & Molleman (2021) and UN-HABITAT (2025) express that the orderly arrangement of town and environment is meant to achieve good health, convenience and beauty. Thus, to make extracts from what physical planning is, one could say that this profession focuses on food access, availability, stability and utilisation (Oyediran, 2024). In addition, Oyediran (2021) establishes that town planning standards, which are parts of the development control tools, address land-use changes,

deforestation, intensified agriculture and livestock production, habitat destruction and biodiversity loss, rapid urbanisation and population growth, extractive activities, and the wildlife trade. The submission of Oyediran (2018) caps it all by saying that physical planning also addresses the issue of health, safety and well-being of the people (public interest).

According to Cavrić (2004), the proactive approach of the physical planners towards food security, physical development and environmental issues sustains the profession in this world of limited natural and social resources. The author acknowledges that the game of planning is the mother of resource distribution, in which planners and their multidisciplinary skills are more useful. This acknowledgement described the profession as a profession of resource (including food) distributor, and the acquisition of multidisciplinary skills made it easy for them. It is noteworthy that food is connected directly to many dimensions of community sustainability such as urban-rural food flow linkages, gender and equity, climate change, water quality and availability, land tenure and economic opportunities, access to adequate amounts of nutritious and culturally appropriate food and good health (Dawson & Morales, 2016; Mason & Lang, 2017; Blay-Palmer *et al*., 2018; Oyediran, 2018). Therefore, as it is prohibited to separate planning from housing, water and air, the same is to food. It is pertinent to note that food security inclusion in some planning strategies, regulation, and decision-making is very necessary bearing in mind limited studies in this area.

2.4 Major Constraints to Food Security

Although, God made sustainable food provisions for everybody, notwithstanding the sex and social status. One of the major constraints is the population growth rate. This problem (food insecurity) will persist because the Africa population growth rate and food provision are not at the same pace (Oyediran, 2024). The cause of this may be attributed to mismanagement /misuse of the planned resources in a sustainable way. Vasylieva & James (2021) submit that population growth and urbanisation are core driving forces affecting the sustainability of food security. According to FAO (2020), to achieve sustainable food that meets the needs of present and future generations, environmental health, social, and economic equity must be protected. Another constraint is inability to tap the provided water resources such as rivers, streams, lakes, oceans and so on due to technology or ignorance. This may be because methods for achieving food security are complex, cross-jurisdictional, with limited or no guidelines and regulatory mechanisms.

Shetty (2003) opines that globalisation is the reduction in barriers to the cross-border movement of goods, services and capital, increased flow of commodities, technologies, information, financial capital, modes of distribution and marketing, to a certain extent, migration of people and labour are also guaranteed. Olayiwola, Soyibo & Atinmo (2007) establish the common features of globalisation as a convergence of many institutional, legal, economic, social and cultural practices and processes across different countries. In terms of food systems, changes should occur right from the production to the table-ready levels. The authors express that globalisation can expose countries to new technologies and ideas, which can create jobs, improve incomes and reduce poverty, thereby improving food access.

In Africa, the common trend is that the urban population is always surpassing the rural population because of some benefits derivable from urban areas, such as providing dual opportunities for agriculture. These include: 1. Urbanisation correlates with economic growth as it amplifies the purchasing power of food consumers, increases their ability and willingness to pay more for qualitative and diversified agricultural products and expands domestic markets (Knorr et al., 2018); and 2. Urbanisation leads to the reduction in viable farmland, environmental contamination, and ecological degradation (McKenzie & Williams, 2015; Katan *et al.*, 2018). In addition, the influence

of the built environment on food access, such as farmland loss, pollution of freshwater and the linkages among food security, poverty, and health is another major issue.

Martin-Shields & Stojetz (2018) establish that food insecurity has been in existence for a long time, affects the lives of millions of people in Africa and increases conflict. The literature revealed that conflict is a major driver of extreme poverty and suffering. Martin-Shields and Stojetz (2018) submit that food security suffers when people are unable to access (a pillar of food security) their land or markets because of conflict that makes such movements impossible, or fleeing separates the people from their livelihoods and normal sources of food.

According to the Asian Development Bank (ADB) (2011), the major sources of threat to food security include a number of global phenomena and their rising intensity. The increasing global climate change was identified as the first threat that will produce large impacts on food production systems and food security (ADB, 2011). The author stresses that losses of crop, lower livestock and poultry were mentioned as the consequences of excess heat, drought and oversaturation of soil and physical damage from increased rainfall in others. Climate change is the transformation of the climate that is characterised by changes in the normal climate of a region in terms of temperature, precipitation, and wind (Oyediran, Abubakar & Damina, 2022). The cause of climate change was traced to human activities such as industrialisation, urbanisation, deforestation, agriculture and changes in land use patterns that lead to emission of greenhouse gases (Mahato, 2014). Climate change is anticipated to be the most important threat to global food supply, mostly in the developing countries (ADB, 2011).

Water quality and the hygiene of the environment one lives in have a direct impact on food utilisation (another pillar of food security). The health consequences of relying on unsafe water sources and lacking access to sanitation undermine food security as it reduces the body's ability to absorb the necessary nutrients (Koc, MacRae, Mougeot & Welsh, 1999). When a country/region is susceptible to land degradation and persistent degradation leads to desertification (Olujimi & Enisan, 2013). In a situation where land degradation occurs, food security cannot be met. Therefore, water and sanitation pose a serious risk to food security. Other constraints listed in the literature include market liberalisation, HIV/Aids, biotechnology, productive farmland loss, access to food, pollution and water contamination, and access to land and security of tenure. Any factor that does not guarantee food accessibility, availability, utilisation and stability is a constraint to food security.

3.0 METHODOLOGY

The general approaches to this study were exploratory and descriptive, based on qualitative research techniques. This is because the qualitative enquiries helped to explore the diversities in every situation or phenomenon regarding the creation and food security. Secondary data that includes a review of some literature on physical planning and food security was used. Excerpts from Genesis 1: 1-30 from the Holy Bible were made to be able to capture the story of creation and make deductions from the story. The case study involved the collection of multiple sources of evidence and qualitative techniques for data collection, such as direct observations, description of the subject's behaviour without influencing it in any way, and document analysis (Yin, 2009). Evaluation methodology was used to evaluate the sequence of activities in the creation. Steps involved in the adopted comparison method included identifying the subject (food security practice in Africa), using contents of the creation story as standards, analysing the differences and

similarities between the subject and standards, and drawing of conclusions to identify areas for improvement. It was adopted because it facilitated a deeper understanding of food governance and identified areas for improvement. Additionally, the choice of evaluation method was justified by previous scholars such as Davidson (2005), Patton (2015), and FAO (2018), and attested that it was adequate for research of this nature.

4.0 PRESENTATION AND DISCUSSION OF RESULTS

Good and productive soils (earth) are the basic requirements for food security as they predict the rate of food production, everything being equal. Without fertile soil, it may be difficult for many crops on the surface of the earth to grow. Table 1 presents that Africa is blessed with fertile land, but is lost to agricultural land mismanagement such as overuse, deforestation and climate change (Oyediran & Adebayo, 2014; Raheem, Oyeleye & Adeniji, 2014). It could therefore be inferred that bad governance is threatening food security, sustainability, and human relationships with the environment.

Also, the subject Table depicts that the creation of a firmament that separated the waters (below) from the waters (above) was the next activity. It is a well-established fact that food sustainability, which encompasses the planning and management of the ecosystem, is incomplete without provisions for water. Many rural and urban areas in Africa lack adequate water supply (Ludi, 2009; Adeniran, Daniell, & Pittock, 2021). Apart from water adequacy, it could be deduced from the story that a sequence (a process) was followed – land before water creation. Therefore, the first activity should not be left until last when planning for sustainable food security in Africa. Food availability is a function of land, water resources and other resource availability. Good and productive soils (earth), in addition to climate, are the basic requirements for food security as they predict the rate of food production (*Giller et al.*, 2021). World Bank (2002) posits that 39% of people on fragile (arid and semi-arid) lands live in Africa. Yet, this resource is being lost to agricultural land mismanagement, which is a result of bad governance or institutional failure. In Africa, subsistence farming, fishing, hunting, and trading and selling products are the major activities that make food available and secure (Raheem, Oyeleye & Adeniji, 2014). However, this has changed in African countries with recent global trends in national economic development moving from being primarily agriculture-based toward service industries and production of export goods (Oyediran, 2024).

Regarding food sustainability and availability, Table 1 presents v. 3 of the chapter as the creation of lights, which guarantees the sustainability of plants as it allows photosynthesis (Song & Jin, 2020), also marks seasons for planting foods (availability, access and sustainability). Furthermore, the work on the fifth day, as revealed by Table 1, was the creation of waters that bring forth abundantly and swarm with living creatures, and birds. Lack of water can lead to outbreaks of diseases, shortage of food, death of livestock and crop. You *et al*. (2011) observe that inadequate water supply is one of the reasons for sluggish agricultural Development in Africa. These are the utilisation and availability aspects of creation, which Africans must protect if food security is to be guaranteed.

Table 1 revealed that on the sixth day of creation, God created living creatures according to their kinds: livestock, creeping things, and (wild) beasts of the earth according to their kinds (v.24) and lastly, man (v.27) with a command to have dominion over other creatures (governance). It could be deduced from these activities that: the creation of the same kind was to avoid/reduce the animals from being prey to other kinds of animals (sustainability); and the creation of man was to manage and plan the resources (sustainability). According to Smit (2016), key governance activities that can impact food systems are the provision of support, such as advice, credit, and tax incentives for

the production and processing of food, and infrastructure (water, electricity, and roads), which are essential for the processing. The author adds provision of distribution and storage of food, and education and awareness (formal and informal) about nutrition and diet, and the regulatory environment. Smit (2016) concludes that just a few of these provisions are available in Africa.

Table 1: Verse, Event, and how it relates to Food Security

Day	Verse/s	Event	How it was related to Food Security
1	3	Creation of heaven and earth and light	1. Where every event takes place (access)
2	6	Creation of a firmament [the sky] in the midst of the waters (below) from the waters (above).	1. Provision of suitable habitat for the expanse of cold-blooded animals (Sustainability) the waters that separated
3	9	Collection of the waters in a place and the appearance	1. Creating a platform for farming and (of standing) dams for irrigation (availability) of the dry land.
4	14	Creation of lights in the expanse of the heavens to separate the day from the night, and let them be signs and tokens to mark seasons, days, and years	1. With this, the sustainability of plants is guaranteed as it allows photosynthesis. 2. It marks seasons for planting foods. (availability, access and sustainability)
5	20	Creation of waters that bring forth abundantly and swarm with living birds that fly over the earth in the open expanse of the heavens.	1. Lack of water can lead to outbreaks of diseases, shortage of food, death of creatures, and livestock and crop (availability and utilisation).
6	24 & 27	God created living creatures according to their kinds: livestock, creeping things, and (wild) beasts according to their kinds (v.24) and lastly, man (v.27), with a command to have dominion over other creatures	1. To reduce them from being prey to other kinds of animals (sustainability). 2. Creation of man to manage and plan the resources (sustainability) of the earth and to have dominion over

Source: Author's construct, 2024

5.0 CONCLUSION AND RECOMMENDATIONS 5.1 Conclusion

Food security in Africa is a critical issue that needs urgent attention. It could be deduced from the analysis of the story that the sustenance of man on earth is the result of his efforts to harmonise all sectors of the environment, such as land, water and air; all organic, inorganic matters and living organisms; and the interacting natural systems. Therefore, if the African continent is to be food secure, none of the food security pillars should be treated separately as all are interwoven. One cannot give attention to availability, leaving accessibility, and one cannot treat food access without the issue of utilisation, as evidenced in the story of creation. In conclusion, the identified constraints can be tackled through proper planning and management of the various activities and resources.

5.2 Recommendations

The state of food security in Africa and the World at large requires appropriate solutions. Thus, it was recommended that physical planners should firstly plan for the food security of individuals,

households and communities he/she is planning for in Africa. However, planning should be sequential, that is, a step before the other, and no skipping of any activity, as done in the story. Comprehensive planning is required when it comes to the issue of food security, but not incremental planning, as is being adopted by some planners. The processes involved in comprehensive planning will grant researchers on food security in Africa the opportunity to go in-depth into the root of the problem. Good governance must be advocated

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