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DEPARTMENT OF HISTORY

THE PRACTICE OF AGRICULTURE AND THE DEVELOPMENT OF AFRICAN COMMUNITIES OF ANCIENT EGYPT AND NKWEN FONDOM, NORTH WEST REGION OF CAMEROON

A Dissertation submitted in Partial Fulfilment of the Requirements for the Award of a Master of Arts (MA) Degree in History

Option: Civilizations, Religions and Egyptology

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To my lovely mother Arrah Mary Ndip

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ABSTRACT

Our study titled "The Practice of Agriculture and the Development of African Communities in Ancient Egypt and the Nkwen *Fondom*" discusses African traditional agricultural methods and technics as a starting point of all socio-political and economic institutions. It is a comparative study of the various agricultural practices that were undertaken in Ancient Egypt (New Kingdom)[1] and the Nkwen *Fondom* in the North West Region of Cameroon (morden time). It should be recalled that agricultural practices in ancient African communities has always been organised in season and the most predominant type of agricultural practices were the subsistent and irrigation methods of agriculture. As such, the practice of agriculture by the Ancient Egyptians and the Nkwen people tremendously helped in the socio-political and economic development of African and other modern world communities. Thanks to the qualitative methods used, and based on our oral and written sources, we arrived at the conclusion that due to some favourable agricultural factors and the organisational farming capacities of the Ancient Egyptians and the Nkwen people agriculture played a very important role in the development of African communities, irrespective of some difficulties faced.

[1] The New Kingdom (1550–1077 BCE) is the period covering the 18th, 19th and the 20th dynasties of Egypt. Source: The New Kingdom, compiled by Howie Baum, downloaded at www.egyptoursportals.com, pdf, November 7, 2022, 4:34:20 PM

RESUME

Notre étude intitulée « La pratique de l'agriculture et le développement des communautés Africaines dans l'Égypte Ancienne et le Nkwen Fondom » traite des méthodes et techniques agricoles traditionnelles Africaines comme point de départ de toutes les institutions socio-politiques et économiques. Il s'agit d'une étude comparative des différentes pratiques agricoles qui ont été entreprises dans l'Égypte Ancienne (Nouvel empire) et le Nkwen Fondom dans la région du Nord-Ouest du Cameroun (temps modern). Il convient de rappeler que les pratiques agricoles dans les anciennes communautés Africaines ont toujours été organisées en saison et que le type de pratiques agricoles le plus prédominant était les méthodes d'agriculture de subsistance et d'irrigation. En tant que telle, la pratique de l'agriculture par les Anciens Égyptiens et le peuple Nkwen a énormément contribué au développement sociopolitique et économique de ses communautés Africaines et d'autres communautés du monde moderne. Grâce aux méthodes qualitatives utilisées, et sur la base de nos sources orales et écrites, nous sommes arrivés à la conclusion qu'en raison de certains facteurs agricoles favorables et des capacités d'organisation agricole des Anciens Égyptiens et le peuple Nkwen, l'agriculture a joué un rôle très important dans leurs développements communautaires, malgré les difficultés rencontrées.

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LIST OF INITIALISM, ABBREVIATIONS AND ACRONYMS

Here, constitutes the meaning of some initial letters or contracted form of words.

AD:	After the birth of Jesus Christ.
BA:	Bachelor of Arts degree
BC:	Before Christ, used with dates to mean before the birth of Jesus Christ.
Ca:	From Latin *cirea*, it is used before dates to indicate approximation.
DEA:	*Diplôme d'Etudes Approfondies*
DIPES:	*Diplôme de Professeur de l'Enseignement Superieur*
EA:	El-Amarna, used before the Amarna Letters
Ed. /eds.:	Editor/editors
ENS:	*Ecole Normale Superieure*
HTTC:	Higher Teacher Training College
Http:	Hyper Text Transfer Protocol
Ibid:	From Latin, it means from the same source as the one just mentioned
Inc.:	Incorporated
Km:	Kilometer
Ltd:	Limited
M.Sc.:	Master of Science Degree
MA:	Master of Arts Degree
OUP:	Oxford University Press
PA :	*Presence Africaine*
PDF :	Portable Document Format
PhD :	Doctor of Philosophy Degree
PUF :	*Presses Universitaires de France*
SIL :	*Société Internationale de Linguistique*
SOPECAM :	*Société de Presse et d'Edition du Cameroun*
Sq :	Square
UCL:	University of California
UNESCO:	United Nations Educational, Scientific and Cultural Organisation

Vol./vols:	Vol./volumes
www:	world wide web

GLOSSARY

This section will serve as an alphabetical list of the ancient egyptians' language and that of the Nkwen people, in other words its's a brief dictionary. As sources, we made use of books concerning the egyptain grammer such as *Egyptian Grammar Study: Being an Introduction of Hieroglyphs*[2] amongst others. While for Nkwen grammer, we had sources online at http://www.nwufortherese.education and some oral sources who helped us with Nkwen words and transcriptions.

Terms in Ancient Egypt

 mniw/*meniou:* fondations

 isft/ *isfet :* evil, disorder, chao

 *Hwt-ntr/ Hout netjer:* domaine of the god

 *M3't /Maât*: order, harmony

 *m3't/ maât*: justice, order, law, harmony, equity, truth

t3-ntr/Ta-netjer: the land of the gods

 *pr-'3/per-aa* : great house, palace or pharoah

 *Kmt*/*Kemet*: Ancient Egypt

 *t3/ta*: the country, the land

 *shmty*/*Sekhemty:* double crown

 *t3* mhw/*Ta-mehou:* South Kemet or Upper Egypt

 *nsw-bity*/*Nesu-bity:* the sovereign

 *hrw/Herou:* eldest son

 *nsw-s3 /nesu-sa* (sa nesou): the prince

[22] S. A. Gardiner, *Egyptian Grammar Being an Introduction to the Study of Hieroglyphs*, Third edition, Griffith Instute, Oxford, 1957

 *nb-t3wy/neb-Tauy:* the lord of the double country

 *T3wy /Taouy:* the double country formed by Taresi and Tamei, South Kemet and the Delta

 *rmt/remetj:* men, mankind, people, population of *Kemet*

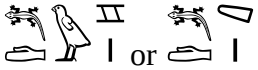
 *Kmtyw*/*Kemetyou:* Ancient Egyptians

 Hout: rural establishments or town halls

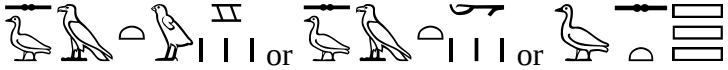
 *sp3t* /*Sepat:* province (nome)

 *t3ty/ Tjaty:* head of civil administration

 *niwt/Niout*: town

 *šdw/shedou :* state land

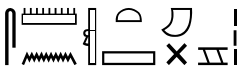
 *whyt/ouheyt*: the nation

 *s3tw/satou* : piece of land

 *T3-šm ‘w*/ Ta *shemaou*: farms

 *hbsw/ khebesou :* state farm

 *pr dt*/ *per-djet* : eternal home

 *smn t3sw/ semen tashou :* extend the borders

 *t3s /tash :* the stele-terminal

 /*hem-ka:* servant of *ka*

Terms in Nkwen

Nywe- God

À biƉətiŋə- believes

noŋsə̀ làià- traditon

Ntuwimo- harmony

bɔ̀bɔ̀ – pawpaw or papaya

Bàtə: calabash

shə̂ – to weed

ǹdzàà: an axe

Ɗ̀kha: a fence

ǹnà: meat

Fɔrə: a rat

Àyiyɛ̀: a weaver bird

àliliŋə: a bat

Ǹjijì'ì: a fly

Wàrə̀: a hawk

àlwɛnà: a name

Ghəghanə; butterfly

Kaa: a crab

ləŋə: to stir

mma: mother

ǹnà: meat

nyə: to drink

Ɗɔrə: moon

Ǹtɔ̀: a pot

àlàrə̀: a bridge

Sŭ: to wash

shə̂: to week

tsà: a hall

àkù: foot

TABLE OF CONTENTS

GENERAL INTRODUCTION

1. CONTEXTE OF THE STUDY

The development of communities in Africa had different roots and took different courses among people living in drier savannah/ sahelian regions, close to rivers and those living on mountainous areas alongside Grassfields zones. From a common broad-spectrum, resource utilisation including hunting, gathering, and fishing, differences in natural conditions such as landscape favoured the various courses of human habitation in different areas[3]. In Ancient Egypt, before the Old Kingdom (2575–2134 B.C.E.)[4], the foundations of the Egyptian civilization was laid over thousands of years, as people living near the Nile crescent increasingly focused on sedentary farming[5], which led to the development of their communities. This was as a result of the fertility of the Nile river crescent which played a very important role as far as agriculture and human habitation were concerned. However, in Nkwen *Fondom*, mountain slopes enabled the cultivation of crops during raining seasons and swampy areas enabled cultivation during the dry seasons.

From these analyses, we can notice that the establishment of people in a particular area was due to the fact that the place was fertile for agricultural practices which provided food for the growing population. As such, we are tempted to ask the following questions: How did Pharaonic Egypt and the Nkwen *Fondom* practice agriculture? And how did their practice of agriculture influence the development of their communities? But before we get answers to these questions, let's examine other important parts of the general introduction, which will be the reasons why this topic was chosen.

2. REASONS FOR THE CHOICE OF TOPIC

This topic was inspired by a good number of reasons which stimulated the choice of this topic, while taking into consideration the lifestyle of the two cultural entities used for this study.

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[3] R. Haaland and G. Haaland, "Early Farming Societies Along the Nile", in *African Archeology* (pp. 542-553), Oxford Handbook of African Archeology, published by Oxford university press, Bergen, 2013.
[4] M. R. Bunson, *Encyclopedia of ancient Egypt*, revised edition, fact on file, New York, 1991, p. 1
[5] Sedentary or still subsistence farming is a method of agriculture which consists of cultivating the same farm land year after year. Source: agricultural dictionary (app) developed by Agri- Science society (AgSS), downloaded on play store.

As students of the University of Yaounde I, under the history department, we were introduced to the knowledge of Egyptology. During the academic year 2014/2015, the course HIS112: *Initiation a l'Egyptologie* which was thought by Pr. Tague and Dr. Bitong created in us a sense of curiosity. As we moved to the next level (level 2) the following academic year 2015/2016, we were introduced to the course HIS212: I*ntroduction a l'histoire de l'Egypte ancienne.* From this point, our interest over the subject matter of African civilizations became broad. As a result, we were more curious about the African continent. Ancient Egypt being the cradle of civilizations and the most outstanding in human history, became our point of interest. So, during the following academic year 2016/2017 (level 3) we specialized in Egyptology.

Furthermore, many scholars such as; Theophile Obenga, Cheikh Anta Diop, Aboubacary Moussa Lam, Fabien Kange Ewane, Oum Ndigi amongst others, have scientifically demonstrated that the civilizations of Africa south of the Sahara have similarities with the Ancient Egyptian civilization and still have some common features with the Ancient Egyptian's civilization; as a result, there are common historical-cultural continuity of some aspect of Egyptian's civilization into Africa south of the Sahara civilizations. Therefore, we then intend to bring out these features of negro-African civilizations which owe their origin to the Nile valley. Taking into consideration the present knowledge about the duration, length and uniformity of African civilizations (both ancient and modern). As such, it will be necessary to compare the past and existing civilizations of present black Africa with the civilization of Ancient Egypt. Consequently, we chosed the present natives of Cameroon North West Region in Nkwen, in order to demonstrate how their agricultural practices, let to the development of their community.

In addition, the Nile Valley being the cradle of the negro-African civilisations has always been at the centre of African history and even the world. According to the Belgian Anthropologist L. De Heusch, no study in any domain of the African past, whatever it may be, should not be done without being attach to the pharaoh's country. That is how he wrote on the topic in 1958 about the place of Egypt in African history:

> *La plupart des cultures africaines sont passés du statut technique paléolithique au statut néolithique, voir à l'âge du fer, sous l'influence des grands centres lointains de civilisation. Les Etats évoluent qui s'échelonnent à travers Soudan, du Niger supérieur, présentent entre eux des affinités historiques*

évidentes […]. Ici développa jadis une culture brillante, un raffiné, une mythologie complexe dont les éléments rayonnent encore sur des vastes régions de l'Afrique[6].

As such, the availability of scientific methodological sources from the Ancient Egyptians' documents such as pyramid texts, papyrus, ostraca etc. makes it possible to easily trace their origin and practice of agriculture which led to the development of their society along the Nile valley. Since a good historical scientific research must have sources, this contributes to the reasons why we choosed to study this topic.

Socially, we realised that the social stratification of these different civilisations was based on their well organised system of agriculture and a redirection system that was put in place through farm products that constitutes the materialisation of their culture. In pharaonic Egypt, as well as in the Nkwen Fondom, farm products embodied symbols which varied accordingly to class distinctions. For instance, barley and meat were royal farm products in Ancient Egypt mostly for the  *hm-ntr/hem- netjer* (pharaoh)[7] olive oil and incents were products used to appease the gods during funeral rituals, meanwhile foods such as cereals ***ŋgwasaŋà*** (maize) and vegetable (huckleberry) were highly consider within the Nkwen *Fondom* of the Grassfields zone. From these facts, we choosed this topic in order to best enlighten on the two cultural entities' social organisation through their practice of agriculture.

Moreover, we realised that the natural seasonal change provided a pattern for social activities. The civilization of Ancient Egypt was indebted to the Nile river and its dependable seasonal flooding. The river's predictability and fertile soil allowed the Egyptians to build an empire on the basis of great agricultural wealth. The available archaeological and anthropological evidence strongly suggests that when we talk about the Neolithic revolution,

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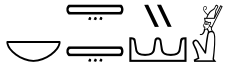
[6] L. Heusch (ed), « Le rayonnement de l'Egypte antique dans l'art et la mythologie de l'Afrique occidentale » JSA, vol. 28, 1958, pp. 91-92. Translation: most of African cultures have passed from the technical statue of Paleolithic to the Neolithic statue, during the Iron Age, under the influence of far great civilisations. States evolve that stretches towards Soudan, Niger in the superior part of the Nile, presenting evident historical affinities […]. Here develops a brilliant culture, a refined art, a complex mythology of which the elements are still visible on the vast African continent.

[7] The use of the term pharaoh to designate  *nsw-bity*/*Nesu-bity* the sovereign of Egypt is of recent. The ancient Egyptians used epithets, more of protocols than non-protocols to designate king. Apart from the term  *hm-ntr/hem- netjer (servant of god),* we also have  *: s3 R^{c}/sa- Râ* (son of ra),  : *nb Tɜwy/neb taouy* (lord of the two lands),  : *nswt-bity/ nesout bity* (he of the reed and bee), etc.

the rise of agriculture preceded the effects of political organization.[8] Agriculture provides a number of preconditions for the emergence of states as centralized political organizations governing over territory.[9] As such, we choosed this topic so as to shape out the various procedures which the practice of agriculture brought about the development of pharaonic Egypt and the Nkwen society.

The parallel developments in the spheres of subsistence economy and political organization are far from being an accident. Rather, the transition from a hunter-gatherer economy to agricultural production was essential for the formation of chiefdoms and subsequently states, as agriculture enabled the advancement of a central political organization. By implication, the earlier a society shifted to agricultural production, the earlier a state could emerge. Therefore, we argued, the timing of the Neolithic revolution in a given region should determine the timing of the origin of state in that very region. This argument needs to be unfolded in more details, so that is why we choose this topic.

Methodologically, the study of African history entails the pursuit of a suitable approach to get the basic facts. The source of African history includes archaeology, myths, legends and oral tradition. In the case of oral tradition especially, the best person to study African history is the African himself. Since speech and narrative is where we meet the past, therefore, the language is the channel to the past and the most important source of historical evidence.[10] It is in this line of reflection that the former Tanzanian president, Julius Nyerere in his opening speech at the conference of Dar-es-Salaam in 1965 holds the view that the African people are the masters of their history[11]. Moreover, the former South African president, Thabo Mbeki holds the same point of view in a speech in 1998: "the beginning of the rebirth of our continent must be our own rediscovery of our soul, captured and made permanently available in the great works of creativity represented by the pyramids of Egypt, the stone buildings of Axum and the ruins of Carthage and the Great Zimbabwe"[12].

This implies that, African history must be seen from within. Thus, the choice of this topic is to focus geographically on Africa, which is in response to the evoked question on the use of the various sources of African history to write history. Before we begin to analyse this

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[8] L. Putterman, *Agriculture, Diffusion and Development: Ripple Effects of the Neolithic Revolution,* London, Economica, 2008, vol. 75.
[9] J. Diamond, *Guns, Germs, and Steel the Fate of Human Societies,* New York, W. W. Norton, 1997, p. 133
[10] Diagne, "history and Linguistics." In J. Ki-Zerbo (ed.), *General History of Africa: Methodology and African Prehistory*, vol. I, Paris, UNESCO, 1981, p. 233
[11] M. Engelbert, *Perspectives Nouvelles sur l'histoire africaine,* Paris, Présence Africaine, 1971, p. 10.
[12] O'connor and Reid, *Ancient Egypt,* p. 39.

research topic detailly, we have to better understand the various terms used in formulating the topic under our conceptual definition.

3. DEFINITION OF KEY WORDS OR CONCEPTS

This part will consist of defining the concepts or key words used in this research topic. As such, we shall edify better the meaning of the various concepts applied in this topic through their etymology from dictionaries online, alongside their definitions put forth by some authors.

This topic tittle Practice of agriculture and the development of African communities in Pharaonic Egypt and the Nkwen Fondom of Cameroon's Grassfields embodies terms brought together to archive a coherent objective study. The mains words to difine are: practice, agriculture, development and communities.

Practice

To begin, the word Practice, is a word derived from Greek *praktike*, feminine of *praktikos,* "fit for or concerned with action, practical"[13]. In English, practice is the noun and practise is the verb, but in American-English it is now common for practice to be used both as a noun and a verb. So as a verb, according to *Oxford Languages dictionary*, firstly, it is "the actual application or use of an idea, belief, or method, as opposed to theories related to it. Secondly, "it is the customary, habitual, or expected procedure or way of doing of something"[14] The *collins dictionary*, defines it as "doing something regularly in order to do it better"[15]. In addition, according to Cambridge dictionary, it is "the act of doing something regularly or repeatedly to improve your skill at doing it"[16]. It goes futher to say practice is "something that is usually or regularly done, often as a habit, tradition, or custom: it was a usual practice for African societies to do farming as a means of producing food". Richard Mayer sees practice as a "continually usage of a skill at more challenging levels with the intension of mastering it"[17].

From the previous definitions, we can therefore infer that practice is not something that is done just once but a rather consistent of frequent activity that aims at mastering and perfection. All forms of practices visualise the development of the practitioner's skills so as to manifest his/her will in carrying out a particular task better. This is the case of the ancient

[13] H. G. Lidedell, R. Scott, *A Greek-English Lexicon,* on Perseus Digital Library
[14] https://languages.oup.com/googl-dictionarry-en, 28/11/2020, 04:20 am
[15] https://www.collinsdictionary.com/dictionary/english/practice, 28/11/2020, 04:22 am
[16] https://dictionary.cambridge.org/dictionary/ English/practice, 28/11/2020, 04:25
[17] R. Mayer, *Learning and Instruction*. Upper Saddle River, New Jessy, Pearson Education, 2008

Egyptians and the Nkwen people of the Grassfields zone in Cameroon's North West Region. In this light, practice affects education, motivation and learning outcomes that brings forth perseverance and success in the face of difficulties. This goes along with the saying that "practice makes perfect". Therefore, practice is often scheduled, to ensure enough of it is performed to reach one's training objectives. How much practice is required depends upon the nature of the activity, and upon each individual. Some people improve on a particular activity faster than others.

Agriculture

As for the word agriculture, etymologically speaking, it is a late Middle English adaptation of Latin *agricultura,* from *ager* "field", and *cultura*, "cultivation" or "growing"[18]. As such, agriculture according to National Geography is the art and science of cultivating the soil, growing crops and raising livestock[19]. It includes the preparation of plant and animal products for people to use and their distribution to markets[20]. Meanwhile, according to the International Labour Organization, it is the "science, art and business of producing crops and livestock for economic purposes"[21]. It goes further to define agriculture as "all forms of activities connected with growing, harvesting and primary processing of all types of crops, with the breeding, raising and caring for animals, and with tending gardens and nurseries". But to a greater extend, agriculture is define by an agriculture dictionary as "the science or practice of farming, which includes cultivation of the soil for growing crops and rearing animals for food and other products"[22].

Still about agriculture, David Harris and Dorian Fuller, define agriculture as "the most comprehensive word used to denote the many ways in which crops plants and domestic animals sustain the global human population by providing food and other products. Moreover, they state that, many different attributes are used to define particular forms of agriculture, such as soil types, frequency of cultivation, and principal crop or animals. They go further to say the

[18] C. Glynnis, *The Oxford Dictionary of Word Histories*, New York, Oxford University Press, 2002, p. 14
[19] Htttps://www.nationalgeographic.org/encyclopedia/agriculture, 28/11/2020, 08:18 am
[20] Ibid.
[21] International Labour Conference, Report VI on Safety and Health in agriculture, Geneva, 88th Session, 2000, p. 77. Agriculture as an art, embraces knowledge of the way to perform the operations of the farm in a skillful manner but does not necessarily includes an understanding of the principles underlying the farm practices. Meanwhile, as a science, it utilizes all technologies developed on scientific principles such as crop breeding, production techniques, crop production, economics etc. to maximize the yield and profit. Furthermore, agriculture as a business aims at maximum net return through the management of land labour, water and capital, employing the knowledge of different science s for production of food, feed, fibre and fuel.
[22] Agriculture Dictionary, ERMILOGIC application, android version, last update 18th May 2020

term agriculture is occasionally restricted to crop cultivation excluding the raising of domestic animals, although it usually implies both activities[23].

From the above analyses, if we have to judge according to the context of this present research, agriculture implies the art and science found within the cultivation of plants and livestock, which implies the work out of farms in a skillful manner with the use of technology. Agriculture therefore is the skilful cultivation of plants and livestock with the use of methods and technics aim to prevent, control and contain diseases, vectors and pests in order to enhance agricultural productivity that will generate income aim at promoting the development of sustainable domestic and foreign trade[24].

Development

Talking about development, it is a word that originated during the mid-17th century from French "*developer"*. According to Francois Perroux, development is the combination of "the mental and social changes of a population which make it capable of accumulatively and sustainably increasing its real global product". Development implies the improvement of the wellbeing of the entire population and results in through an increase in food intake and better access to health and education services[25]. According to Alan Thomas, there are three ways the word 'development' is used; firstly, development as a vision or description of how desirable a society is. The vision of development briefing explores these further. Secondly, development as historical process sees into social changes that takes place over a long period of time due to inevitable processes. For example, arguments have been made that both capitalism and communism are unavoidable results of progress. And thirdly, development as action deliberate efforts to change things as for the better. For example, providing food aid to alleviate hunger[26]. Furthermore, according to Streeten Paul, development concerns expanding the choices people have, to lead lives that they value, and improving the human condition so that people have the chance to lead full lives[27]. Thus, human development in turn, has important effects on economic growth. If a central element of economic growth is allowing agents to discover and develop

[23] D. R. Harris, D. Q. Fuller, "Agriculture: Definition and overview". In: C. Sith, *Encyclopedia of Global Archeology*, Springer, New York, on http://doi.org, visited on 30/11/2020 at 04:23am
[24] https//www.agriculture.gov, visited on 30/11/2020, 04:30 am
[25] http://www.memoireonline.com/05/, visited on 30/11/2020 at 04:33pm
[26] T. Allan, "Meanings and Views of Development", In Tim Allen and Alan Thomas (eds.) *Poverty and Development in the 21st Century*, Oxford, Oxford University Press, 2000
[27]P. Streeten, "Human Development: Means and Ends", in *The American Economic Review*, Vol. 84, No. 2, May 1994

their comparative advantage, an increase in the capabilities and functioning of individuals should allow more of them to pursue occupations in which they are most productive[28]

Communities

As for the word communities, it is the plural form of the word community which is derived from the Latin word *communitas*, that implies fellowship, which in turn, is derived from *communis*, or "common", the prefix "com" signifies "with, together, in conjunction, joint"[29]. Meanwhile, according to Kathleen M. Macqueen, David S. Metzger, Eleanor and al McLellan-Lemal and Sun Kegeles in an article, a community emerged as a group of people with diverse characteristics who are linked by socialites, share common perspectives, and engage in joint action in geographical locations or settings[30]. This implies that people in a community are not all the same in terms of characteristics but due to common social values which could be farming and conception of the universe, brought about unity and understanding amongst them. As we have earlier seen, the other terms applied in this research topic were examined under the geography and historical presentation. Now, we have to proceed with the interest of this research topic.

4. CHRONOLOGICAL AND GEOGRAPHICAL PRESENTATION

A- Chronological delimitation

According to the nature of this research and the level in the academic ladder, this research could not encompass the whole of the historical period of Pharaonic Egypt and Nkwen *Fondom*. In this light, we are going to delimit the research to particular periods in history.

As concern *Kemet's* practice of agriculture, this research will go from the Old Kingdom, given the fact that during this period, Egypt attained its first sustained peak of civilization known as the "age of pyramids". The period goes from 2649 - 2100 B.C.E., a period covering the 3rd to 6th dynasties of Egypt. It encompasses the reigns of the of Djoser, Khufu, Khafre and Menkaure amongst others[31].

Nevertheless, it should be noted that most of *Kemtyu* historical agricultural facts on reforms concerning cultivable lands were recorded during the Old Kingdom where we have

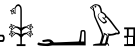
[28] R. Gustav and F. Stewart, "Economic Growth and Human Development: Comparative Latin American Experience", Yale University Economic Center Discussion Paper 826, 2000
[29] https://www.etymologreek.com, visited on 30/11/2020 at 04:33pm
[30] What is community? An evidence-based definition for participatory public, Article in American journal of public health, 2012
[31] B. R. Margaret, *Encyclopedia of Ancient Egypt*, Revised Edition, Facts on File, New York, 2002, p. 244

puyramid sources. As such, there is the possibility to exploit the records on agricultural practices from pyramids and documents[32].

As for Nkwen Fondom, the modern period will be our point of departure. This period goes from 1500- 1800 A.D. This period is chosen because it is the time when the Nkwen people settled in their actual place of settlement and began the practice of subsistence farming. Let's analyse the methodology that will be used to study the information collected.

B- Geographical and historical presentation

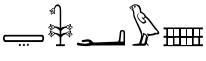
Talking about Ancient Egypt or *Pharaonic Egypt*, it should be noted that etymologically, the word Pharaoh came from the Ancient Egyptians' word  *pr-'3/per-aa* which is translated as "Great House" or "Palace"[33]. It was translated into Ancient Greek as *pharaoh* from the Hebrew Bible (*Par'oh* in Hebrew) during the New Kingdom period (1550–1070 B.C.E.), the ruler of Ancient Egypt[34]. The word Pharaoh is the english version of the *per-aa* translated and *Pharaonic* is the adjectival of the non-Pharaoh.

Ancient Egypt or Pharaonic Egypt, in the context of this study therefore, refers to the period of about 3100 BC beginning from when  *t3 mhw/Ta-mehou* (Lower Egypt) and  *T3-šm'w/Ta shemaou* (Upper Egypt) became united as  *: Tȝ-Mry,*under a single ruler around 3150 BC, till the Macedonian conquest led by Alexander the Great in 322 AD. Other names used by the Ancient Egyptians to refer to their country were  *Kmt/Kemet* (the Black Land) – due to the fertile black soil that the Nile used to deposit after flooding and  : *Tȝwy/Tauy* (the two lands; that is Upper and Lower Egypt which was united as one under Pharaoh Menes). They referred to themselves as the 

[32] Ancient History Encyclopedia

[33] R. O. Faulkner, *A Concise Dictionary of Middle Egyptian*, Oxford, Griffith Institute, 1991, p. 89. See also E. A. W. Budge, *An Egyptian Hieroglyphic Dictionary*, vols. I &II, London, John Murray, 1920, p. 238 and A. H. Gadiner, *Egyptians Grammar: Being an Introduction to the Study of Hieroglyphs*, Revised 3rd Edition, oxford, Griffith institute, 1957, p. 75.

[34] M. Bonheme and A. Fogeau, *Pharaon: les secrets du* pouvoir, Paris, Armand Collin, 1988, p. 35; It should be noted that in ancient Egypt, the word *per- aa* was never used to mean "sovereign" in most or even almost all of pharaonic history. It was used by the Greek to refer to Kemtyu sovereigns. The first known non-posthumous use of *per-aa* as a title followed by the personal name of the sovereign is attested during the reign of Siamon (978 - 960 B.C.), last ruler of the 21st Dynasty in the inscriptions of the *Annals of the Great Priests of Amon* carved in the heart of the Temple of Amon at Karnak

Kmtyw/Kemetyou meaning people of the Black Land. Pharaonic history saw its doom when Alexander the Great triumphantly penetrated the Nile valley in 322 B.C., in his series of conquest of western provinces of the Persian Empire[35]. According to Wallis Budge, the Ancient Egyptians called Egypt Baq or 'Baqet; Ta-vierd; and Kami. Baq seems to refer to Egypt as the olive-producing country, and Ta-mera as the land of the inundation; the name by which it is most commonly called in the inscriptions is Kam, which is "Black" due to the darkness of its soil. It was also called the "land of the sycamore," and the "land of the eye of Horus" (i.e., the Sun). It was divided by the Egyptians into two parts: Upper Egypt Ta-res Ta-qemd, "the southern land" and Lower Egypt Ta-ineh, "the northern land". The country was sub-divided into  *sp3t /Sepat:* nomes, the number of which is variously given; the list given by some of the classical authorities contains thirty-six, but judging by the monuments, the number was nearer forty. The nome was divided into four parts; the capital town  *niwt/Niout* , the, cultivated land  *T3-šm ʿw/Ta shemaou*, the marshes, which could only at times used for the purposes of cultivation; and 4, the canals, which had to be kept clear and provided with sluices, for irrigation purposes[36].

As for the term Nkwen, it was a name given during the advent of western exploration and colonization. But before then it was known as *Bafreng*. Thus, in the course of this historical study, the term *Bafreng* will refer to the Nkwen people. The *Bafreng* people are an integral part of the Bafut tribe which originated from Tikari and moved through Kom via Wum to Mbebeli, a quarter in present day Bafut. The people claim racial affinity with the Tikari group that migrated from north- eastern Cameroon, around the Adamowa and Lake Chad Regions, settled westwards in the Western Grassfields, either from the Ndobo or Kimbi area in the upper Mbam river around Foumban[37]. While at Mbebeli, the first settlement of the Bafut village, a struggle for kingship arose between two princes; Suhfuh and Nebafuh. Both sons of the same mother with Suhfuh being the elder brother of Nebafuh. The conflict ended with Nebafuh as *Fon* of Bafut while Suhfuh left Mbebeli with his followers and settled at Atiella in a neighboring

[35] M. Bonheme and A. Forgeau, *Pharaon : les secrets du pouvoir*, p. 35
[36] E. A. Wallis Budge, *The Nile Notes for Travelers in Egypt.* Thos. Cook & Son (Egypt), Ltd, Ludgate Circus, London, 1895, p. 28-29
[37] F. B. Nyanjoh, "African American Seeking origine in Cameroon: Notes on Multiple Dimensions of Belonging", article, downloaded online at http://www.nyanjoh.com, on 23/07/2023, at 7:12am

chiefdom called Mbelewa. He discovered this area during a hunting expedition while he was still at Mbebeli. Here, Suhfuh was installed *Fon* and his chiefdom took the name Bafreng[38].

The term *Fondom* comes from the word *Fon* which is the name generally given to the ruler of the centralised grassfields societies in the North West Region of Cameroon. The people had different ways of referring to their rulers before European arrival, these appellations included *Mfoi, Mfon, Fua, Foyn, Nfor, Fo* and it was the Europeans that generalised it as *fon* therefore calling the area under the *Fon's* jurisdiction as Fondom[39].

The term Grassfields, on the other hand, dates back to the period of German protectorate in Cameroon (1884-1916). It was used to designate that part of the hinterland that was characterized by high altitude and grassy vegetation. The Cameroon Grassfields, as the name implies, is the area west of the Republic of Cameroon which most part is covered by grassy vegetation in dispersed and unforested highlands, plateau and valleys. It is a fairly distinct geographical unit lying between latitude 5º and 7º north of the Equator. The Mbam River and the Noun marshes mark its beginning from the east. It covers today the West and North West Regions of the Republic of Cameroon. The North West Region is what was referred to as the Bamenda Grassfields, where the *Bafreng Fondom* is located[40]. Now, before we proceed, we must know what then the interest of this research topic is.

5. AIMS AND INTEREST OF THE STUDY

A- RESEARCH OBJETIVES

This topic titled the "Practice of agriculture and the development of African communities in Ancient Egypt and the Nkwen *Fondom* of Cameroon's Grassfields" has been carefully chosen to demonstrate the importance of agriculture in the development of African civilizations over time and space. This research seeks to reveal, firstly, the manner in which agriculture was practiced in Pharaonic Egypt and in the Nkwen *Fondom*, and, secondly, how the practice of agriculture brought about development amongst the Grassfields communities of North West Cameroon.

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[38] https://www.bamenda3council.org

[39] M. D. Delancey et al., Historical Dictionary of the Republic of Cameroon, 4th edition, Maryland and Toronto, The Scarecrow Press, 2010, p. 166. See also W. T. Samah, "Chiefs (Traditional Rulers) in Anglophone Cameroon and Modern Governance 1961-2000", Ph. D. Thesis in History, University of Yaounde I, 2006, p. 1.

[40] P. N. Nkwi, *Traditional diplomacy: A Study of Inter-Chiefdom Relations in the Western Grassfields, North West Province of Cameroon,* Yaounde, Department of Sociology of the University of Yaounde I, 1997, pp. 1-2, see also Delancey et al., Historical Dictionary p. 195.

Also, the subsidiary objective of the study is based on a two-fold goal. Firstly, it attempts to demonstrate that no community, be it in the ancient Nile Valley or in modern Cameroon Grassfields was/or is built without agriculture being at its base. This study, is therefore, in line with the little attention given to the area of indigenous agriculture or the practice of agriculture in African history. With the development of African societies, people have attempted to ask if the practice of agriculture in modern sense was applied in ancient and modern traditional Africa. Secondly, the study is aimed at a comparative analysis of the many years of local and ethnographic surveys of single sovereignties in the western Grassfields and in Ancient Egypt. The tradition in the history of Egyptology in the University of Yaounde I has been for the student-researcher to become a specialist in the civilization of *Kemet* in line with one or more civilizing principles that operated within the people(s) elsewhere in Africa, in order to demonstrate its homogeneity with that of the *Kemtyu*. For a proper scientific work to be establish, there is the need for literature reviews as it shall be examine as follows.

B- INTEREST OF THE STUDY

In order to better understand the inter-play of variables among the people of the ancient Nile Valley and the Cameroon Grassfields people (particularly the Bafreng), it will be imperative to examine or look at the interest of this study. In this case, it is necessary to dwell on the "practice of agriculture" and its composition in both Ancient Egypt and Nkwen community. That is, how the people's agricultural system was established to enable developmental action. As for Ancient Egypt, the emphasis will be on the  *nswt-bity*/ *nesoutbity* and his exercise of power over lands used in agricultural practices for the benefit of the Ancient Egyptians  *Kmtyw*/*Kemetyou*. Meanwhile, in the Bafreng *Fondom*, this will deal with the traditional chief and the powers of handling and managing cordial and peaceful coexistence with their subjects in the Grassfields, who practiced agriculture and contribute in the development of their traditional societies. The interest of this topic results from the little attention given by youths to the practice of agriculture nowadays in African societies; that is many youths turn to fine more interest in "white collar" jobs (office work)[41]. As such, working on this topic will enable present and future youths to see the importance of agriculture for their wellbeing and development of their society, because agriculture is one of the rare sectors where academic certificates, degrees or qualification are not needed to get started. With the practice

[41] Africa Agriculture Status Report: Youth in Agriculture in Sub-Saharan Africa, Nairobi, Kenya, Issue No. 3, 2015

of agriculture, people are almost guaranteed to get a job, as agricultural graduates and non-graduates are in very high demand. Furthermore, with the agricultural sector, one is bound to fine an activity which matches with his/her own unique skills and talents[42]. In addition, this topic is interesting due to the fact that agriculture pays better than national average, it has better retention and satisfaction rates and is more likely to give people a good living standard[43]. Almost everyone in the agricultural sector comes out on top when compared to similar positions in other sectors. This means, people will be more likely to get employed and they will be more likely to be paid better than other sectors[44].

This study on the practice of agriculture is also interesting in the sense that agriculture will always be needed due to the exponential population growth, which implies more food and drinks. One of the biggest problem today in African societies is knowing how to feed the future growing generations. As such, a huge part of the agricultural sector is devoted to solve this problem. Consequently, this study will bring in additional scientific information on the production of food and drinks, thereby fighting against food shortage. More to this, demand for agriculture is only going to rise, and with it, the job opportunities and salaries will too. So, carrying out research and finding a job in agriculture is a good place to be.

Moreover, being a student specialised in Egyptology or Egyptian History, we wanted to bring to the limelight the similarities or links that exist in between Ancient Egypt and black Africa or Africa south of the Sahara, with the notable case of Nkwen in the North West Region of Cameroon. However, it is imperative to understand the objective or goal of this study, as it shall be examine as follows.

6. LITTERATURE REVIEW

History cannot be written without sources and the best kind of source to be used in written history are those specific to the research subject. In order to get the best and the most coherent historical data for our analysis, we exploited the following historical documents. As concern sources of Pharaonic Egypt, Marie-Ange Bonheme and Anni Forgeau's in their book, *Pharaon les secrets du pouvoir*[45] gives knowledge on the conception of power and the person

[42] Skill Development and Agriculture Education and Training (AET) For Youths at www.youthspower.org
[43] www.payscale.com, 03/12/2020, 05:55 am
[44] www.fao.org, 03/12/2020, 06:03 am
[45] M. Bonheme and A. Forgeau, *Pharaon : Les Secrets du Pouvoir*, Paris, Armand Collin, 1988.

of the Pharaoh in *Kemet*. The book analysis the nature and portrait of the Pharaoh, that is, the role and divine origin of the Pharaoh. It vividly handles the Pharaonic functions; the administration of *Kemet* and the combat or aggrandizement function of the *Kemet* government under the Pharaoh.

Still on Pharaonic Egypt, we have Micheal Rice[46] who has written a very important book on the origin of Ancient Egypt, as his work evokes the fascination and wonder of the most ancient period of Egypt's history, from the origins of the Egyptian state to the end of the Old Kingdom. Combining detailed attention to archaeological evidence with a dynamic and readable narrative, the text covers a vast range of topics. These include: the origins of the first Egyptians, the roots of the kingship, the development of the nation-state, early cities such as Hierakonpolis, Naqada and Abydos, the splendours of the Pyramid Age, the nature and effects of Egypt's contact with Western Asia, the earliest development of the historic Egyptian personality. To a lesser extent, the author does not analyse historical agricultural facts which could enlighten us better on our topic.

In the same light concerning Ancient Egypt, George Rawlinson[47] in a book examines the history of the Ancient Egyptians through a vivid description. He begins from the general shape of *Kemet*, the map of *Kemet*, the size of *Kemet*, and sees *Kemet* as a gift of the river Nile. The author analysis the history of the Fayoum and also talks about its fertility, alongside the geographical situation. In addition, the author in his work analysis the Nile, as a means of communication. He goes further to study the oddity of the inundation, and also the climate of Egypt, without leaving out the geology, flora and fauna. George Rawlinson, in his work studies the  *Kmtyw*/*Kemetyou* and their religious practices, he expands his study to the first historical Egyptians, the first Pharaoh, alongside the pyramid builders and descriptions of the pyramids. It should be noted that this author does not examine agriculture as a whole but in parts without really focusing on the organization, importance and organization of agriculture. Nevertheless, the author has enabled us to have a vivid description of *Kemet* land and people.

[46]R. Michael, *Egypt's Making the Origins of Ancient Egypt 5000–2000BC*, Second Edition, New York, Routledge, 2003

[47]G. Rawlinson, *The Story of Ancient Egypt*, London, Stationos' Hall, 1897

Jules Janick[48] in an article, goes from the notice that the Egyptians' civilization has a long history. He proceeds with the origin of the Ancient Egyptians' agriculture in time and space, then he forwards to the types of crops cultivated and expands' his studies with the system of cultivation technology[49]. He draws a conclusion that, the Ancient Egyptians' agriculture and cultivation provided the resources to enable them develop their civilisation. As such, the agriculture subsequently influences their believes and practices. It should however be noted that this author did not analyse the symbolism and function of the agricultural products in funeral rituals. Moreover, this author situates his studies mostly on events that surrounds agriculture and not on the essence of the products. All the same, the document has enabled us to enter into the Ancient Egyptians' mind set on agricultural technology through drawings and pictures which all have impacted our ideas over the topic.

Flinders Petrie[50], in his book illustrates the different tools used by the Ancient Egyptians. In chapter XII, Flinders studies the agriculture tools and cattle, as such, this scientific work can enable this research study to have proper knowledge on the practice of agriculture and the development of the Ancient Egyptians tools. However, it should be noted that, the work put forth by Flinders, does not examine the relationship which exist between agriculture and the use of the tools, because Flinders work limits itself only at the imagery illustration. As a result, we cannot have details on how agricultural work or soil cultivation was carried out with the tools. Nevertheless, the work of Flinders is an important document to this research study, since it enables this research study to have perception over the type of tools through images.

Wallis Budge[51] in his book illustrates the gods of *Kemet* or still the Ancient Egyptians mythology. From his work, it can be seen how the gods impacted the elements of agriculture, such as wind, the Nile, the hours of the day, night, the months, seasons and years. Through Budge's study, it can be understood that each natural element of the Egyptians society was attributed a god. Budge in his work further illustrate to us the significance or symbol and importance of some animals and birds within the Ancient Egyptian's community. For instance,

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[48] J. Jules, "Ancient Egyptian agriculture and the origins of horticulture". In: S. Sansavini and J. Janick (ed.), *Proceedings of the international sympsoium on mediterranean horticulture issues and prospects*. acta. hort. 582.55-59., 2002

[49] Cultivation technics implies the types of tools and methods used to carry out farming on a farm land.

[50] W. M. Flinders, *Tools and Weapons*, London, Hazell, Watson and Viney, 1916

[51] E. A. W. Budge, *The gods of the Egyptians or Studies in Egyptian Mythology*, Volume II, London, Printed By Gilbert And Rivington, 1904

the pig as mentions by Budge, possessed a reputation for evil in *Kemet*, as in many other countries of the East, and the Egyptians always associated the animal with Set or Typhon[52]. As a result, his study enables this research study to view the conception of the *Kemtyous* over their agricultural products. But, it should be noted that, this study those not examine the essence or nature of the practice of agriculture and how it brought in development. Nevertheless, this research study acknowledges Budge work because it unveils the Ancient Egyptians' mythology.

Harco Willems,[53] carries out studies on the ways the *Kemtyous'* culture reacted to the constraints and possibilities offered by the Nilotic landscape. He further examines the information on thousands of plots of land, their location, the type of land concerned, the identity and profession of their owners, and so on. In addition, the document analysis records referring to canals west of the temple, and perhaps also to its east. The rest of the study offers a fascinating overview of excavated embarkments of different periods and of the results of geomorphological research in the same area. But it should be noted that, the document does not study the practice of agriculture and its development of the Ancient Egyptian community. Notwithstanding, the document gives a good knowledge of the Nile and land owners along the river banks.

Another important book written by the Oriental Institute title *Before the Pyramids, the Origin of the Egyptian civilization*,[54] highlights the many threads that combined to form the tapestry of an ancient state society or civilization- kingship or centralized political power, social stratification, elite group, economic specialization, warfare, writing, and trade, to name just a few. The catalog is a remarkable volume that puts together the most recent research by the world's leading scholars on predynastic Egypt. It outlines the fascinating story of Sir Flinders Petrie's initial discovery of the predynastic period and explains the ways art, political organization, craft production, burial practices, international trade, and the invention of writing served as key elements that defined the emerging Egyptian state in the fourth and early third millennia B.C. This scientific study does a wonderful job thereby highlighting the manner in which the earliest Egypt differed, and gave rise to, the later, better known magnificence of the

[52] E. A. W. Budge, *The gods of the Egyptians or Studies*…, p. 368
[53] H. Willems, D. Jan-Michael (eds.), *The Nile: Natural and Cultural Landscape in Egypt,* Mainz Historical Cultural Sciences, Volume 36, Germany, 2017
[54] Oriental Institute Museum Publication 33, *Before the Pyramids, the Origin of the Egyptian civilization*, edited by E. Teeter, Chicago, 2011

old kingdom. But, it should be noted that this study does not give analysis on the practice of agriculture and how it was organized nor on how it let to the development of the Pharaonic community. Nevertheless, the study edifies us broadly on the origin of the Ancient Egyptians from predynastic period, which is an important part of our studies.

Moreover, the book of William Stevenson Smith titled *Ancient Egypt as represented in the museum of fine arts, Boston*[55], carries out a chronological historical study of the Ancient Egyptians' civilization. The study begins with Egypt before the Old Kingdom, then moves to the Old Kingdom, later on the Middle Kingdom and furthers with the New Kingdom and ends with the late period. Within these periods, it studies the historical background, religious beliefs and their effect upon Egyptians' art, the sculpture and minor arts. However, it should be noted that, the study does not study the system of agriculture and its impacts on the development of the Egyptians society. Notwithstanding, the study enables a chronological study and views upon the different art works including agriculture, which existed during the various periods.

The article of Alan Bowman and Eugene Rogan titled "Agriculture in Egypt from Pharaonic to modern time",[56] examines the Egyptians' land, resources and population. The article states that the geography of Egypt was the fundamental unifying factor of agricultural history, though obviously not in itself unchanging[57]. The article goes further to study the monthly changes of the Nile river. It states that, from May to June there is low water and from mid-September there is high water[58]. In addition, the article analysis the impacts of the flood on the practice of agriculture and how it influenced the technics of the Ancient Egyptians agricultural practices. However, this article does not make mention of the issues related to the practice of agriculture, such as socio-economic, political and religious issues. But all the same, the article is important because it brings out Egypt's agricultural historical evolution from Pharaonic to modern time. The book of Marcel and Laurence titled *A History of the World Agriculture, From the Neolithic Age to The Current Crises*[59] is also an essential book to this study. The book brings out the study on humanity's agrarian heritage, the historical evolution of agriculture, the Neolithic agricultural revolution, the evolution of hydraulic agrarian systems in the Nile Valley, Systems of Irrigated Cultivation and even the social organization and the

[55]W. S. Smith, *Ancient Egypt as Represented in the Museum of Fine Arts, Boston,* Massachusetts, Sixth Edition, 1960
[56] A. K. Bowman and E. Rogan, "Agriculture in Egypt from Pharaonic to Modern time", article,
[57]Ibid, p. 1
[58] Ibid, p. 2
[59] M. Mazoyer and L. Roudart, *A History of World Agriculture, From the Neolithic Age to the Current Crisi*s, translated by James H. Membrez, London, published by Earthscan, 2006

role of the state. It should be noted that, the book does not bring out how agriculture impacted the religious lives of people. Notwithstanding, the book gives us some essential aspects on the practice and historical evolution of agriculture.

The geo-archaeological article on Late Quaternary Climate Change and Egypt's Earliest Pre-Pharaonic Farmers, Fayoum Basin, Egypt,[60] studies firstly, the reason why agriculture in Egypt was introduced four millennia later than in the adjacent Eastern Mediterranean and Southwest Asia. Secondly, it studies the reasons why the Fayoum basin has long been recognised as representing the earliest example of agriculture in Egypt, as domesticated Emmer wheat and barley were discovered in hearths at two Neolithic occupation mounds and in nearby grain storage pits. But, the main aim of this geoarchaeological research is to test the environmental explanation for the apparent lag in the entry of agriculture into Egypt. It should be noted that this article doesn't study the various organization of agriculture in ancient Egypt and how it contributes to it development. Notwithstanding, the article clarifies us on the origin and practice of agriculture in the Fayoum basin, which is an important aspect in this research.

Another article titled "Agriculture in Ancient Egypt"[61], is interesting to our study because it partially examines the other functions that agricultural products plays to the Ancient Egyptians. This article makes mention of the fact that, papyrus, for example, was used to make paper. Additionally, papyrus was made into sandals, rope, toys, boxes, baskets, mats, window shades and even small fishing boats[62]. Furthermore, this article makes mention of other plants such as the castor oil plant, which was crushed and made into lamp oil or consumed as a health tonic. The author of this article also talks about one of the most important crops called emmer. This grain was used in the production of bread, a daily part of the Egyptian diet. It was also used to make beer, the most popular drink that most of the deceased consumed in the afterlife as such necessary in funeral rituals. The article highlights on the facts that after papyrus, emmer was probably the most important crop grown in Egypt. More to all these, the article goes further to examine the type of methods and technics used to cultivate the agricultural products and also brings out the various crops cultivated during Ancient Egypt times.

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[60]A. Koopman – S. Kluiving – W. Wendrich – S. Holdaway, *Late Quaternary Climate Change and Egypt's Earliest Pre-Pharaonic Farmers, Fayoum Basin, Egypt*, Volume 3, Edited by G. Graßhoff and M. Meyer, 2012, pp.63–69

[61] Ancient History Encyclopedia, agriculture in Ancient Egypt., on 08.01.17

[62] These are mostly objects put at the disposals of the deceased to undertake his journey to the afterlife

To conclude, this article also studies how farmers were trading, as such, it will enable this research study to have more knowledge about the Ancient Egyptians agricultural organisation and value of their products. It should be noted that this encyclopedia does not examine funeral rituals. Nevertheless, this document is important to this research, because it put forth the understanding of certain important agricultural products. From this numerous literature reviews on Ancient Egypt, it will be necessary to examine some written documents on the Nkwen *Fondom*. However, it should be noted that very little has been written about the Nkwen *Fondom* traditional agriculture practices.

Talking about literature reviews on Nkwen *Fondom* in the North West Region of Cameroon, we have the Bamenda III council developmental plan, main document and annex[63], financed by the Grassfields Participatory and Decentralized Development Project (GP-DERUDEP), which adopted to realise the Council Development Plan (CDP) through a participatory approach carried out in 07 clearly defined stages, while involving various stakeholders including the council staff, councillors, and community leaders, inhabitants of the council area (Nkwen). Administrative and private services, socio-professional groups, GP-DERUDEP staff, and the population at large at every necessary stage. Various tools/ techniques were also used to collect primary and secondary data.

The results were compiled in separate documents namely council institutional Diagnosis (CID) report, Urban Space Diagnosis (USD) report, Baseline Report and Participatory Village Diagnosis (PVD) report. The result at every stage were resituated either to the steering committee, or to the sector heads. These results, together with problems identified per sector were compiled into the consolidated report. These documents constituted very important annexes to this CDP. The results of the CDP process for Bamenda III Council present major axes of development as prescribed in Cameroon's vision 2035. It has reference situation and problems identified in all the sectors of the community including agriculture. Through this council developmental plan, a total sum of information that concern this research topic, for instance under the sector of agriculture development plan, a survey was carried out between July and August 2012 on the climate characteristic, soil type, cultivation system, crops cultivated, animals reared and even the problems encountered by the agriculture sector of Nkwen including other aspect of agriculture which we shall examine in this research. In addition, the document also highlights on the transportation sector that is farm to market roads

[63] Ministry of territorial administration and decentralization, North West Region, Mezam Division, Bamenda III council Development Plan, main document, elaborated with the support of Grass Field Participatory and Decentralized Rural Development Project (GP-DERUDEP)

including trade and infrastructure developmental plans. Furthermore, the document highlights on the different quarters of Nkwen community and even the social stratification. Notwithstanding, this documents and development plan came two years before the out break of the socio-political crises that began in 2016. This implies that most of the development plan was not undertaken. Nevertheless, the document has enlightened this research topic more on the situation of agriculture in Nkwen *Fondom*.

Furthermore, there are other scientific works such as "Urban Expansion and the Dynamics of Farmers' Livelihoods: Evidence from Bamenda, Cameroon"[64] which is an article that shows the link between urban expansion and farmers' livelihoods in most parts of sub-Saharan Africa (SSA), including Cameroon. This article takes into consideration two key areas; Mankon-Bafut axis and the Nkwen-Bambui axis which study and analyzes the trends and effects of urban expansion on farmers' livelihoods with a view in identifying ways of making the process more beneficial to the farmers. It should be noted that this article does not highlight on the system of agriculture, types of agriculture and crops cultivated. Notwithstanding, the article brings out the link between urban expansion and farmers livelihoods in Bamenda.

In addition, another article titled "Urban and Peri- Urban Agriculture in Bamenda: A Policy Narrative"[65], provides information on the situation and role of urban and peri-urban Agriculture (UPA) in Bamenda. The policy presents a typology of urban and peri-urban farms and gives an overview of the general characteristics, challenges and opportunities. The aim of the article is to contribute to the Bamenda city's including Nkwen, sustainable development by offering both research insights and policy recommendations, and facilitates policy dialogue on UPA amongst the key Stakeholders and Urbanfood. It should be noted that the article does not study the different crops cultivated neither the tools used nor the agricultural technics studied. Nevertheless, the document is vital for this research study, because it provides information on the situation and role of agriculture in Bamenda peri-urban cities.

[64] S. Akhere Gwan and J. Ndzifon Kimengsi, *Urban Expansion and the Dynamics of Farmers' Livelihoods: Evidence from Bamenda*, Cameroon, Published: 18th July 2020

[65] D. Brtrand Njoh, T. Feldt, C. Seeger, N. Dittrich, H. Karg, E. Gawum, A. Witte, R. Van Veenhuizen, Urban and Peri- Urban Agriculture in Bamenda: A Policy Narrative, Bamenda, 2018

T. E. Ngengong,[66] in her master dissertation, highlights on the Grassfields geography and ethnographic survey alongside the traditional economy of the region that is based on subsistence agriculture, animal breeding and handicraft. The dissertation, enumerates crops that are mostly cultivated in the Grassfields and gives the reason why their growth is favourable in the region. The thesis also makes mention of the origin and settlement of the various ethnic groups in the Grassfields and also discuss about their socio-political organizations. However, it should be noted that the thesis is not an agriculture research document that can best enlighten on this research topic. Nevertheless, the thesis touches some parts of this research topic such as the geography of the Grassfields, origin of the Nkwen people and their settlement in the North West Region alongside their economic and socio-political organization. Now, let's examine the problem statement of this research topic.

7. STATEMENT OF THE PROBLEM

The practice of agriculture along the Nile Valley dates back to as early as 11000 and 3500 B.C,[67] when animals and crops were domesticated in Ancient Egypt, as the River Nile provided water needed for irrigation and for domestic use. As such, the civilization of Ancient Egypt was indebted to the Nile River and its dependable seasonal flooding. The river's predictability and fertile soil allowed the Egyptians to build an empire on the basis of great agricultural wealth, crediting them as being one of the first groups of people to practice agriculture on a large scale and also one of the most outstanding civilizations in the world. This practice was later passed on to other states in Black Africa like the Nkwen *Fondom.* Consequently, this research seeked to go into the past of African history and ask questions such as; how was agriculture organized and carried out in Pharaonic Egypt and in Nkwen *Fondom*? and how their agricultural practices impactes their development? in order to bring out the homogeneity of agricultural practices and development of African communities. As such, these questions are the main concern that will guide this comparative study. The next point is base on the delimitation or justification of the study.

8. METHODOLOGY OF STUDY

Data collection served as one of the most important steps in conducting this research. Being the process of gathering and measuring information on variables of interest, in an

[66] T. E. Ngengong, From Friends to Enemies: Inter-Ethnic conflict amongst the Tikars of the Bamenda Grassfields (North West Province of Cameroon) C. 1950-1998, Degree Master of Philosophy in Peace and Conflict Transformation, Faculty of Social Sciences University of Tromsø, Norway, November 2007

[67] https://www.thepatriot.co.zw/old_posts/history-of-land-and-agriculture-in-africa

established systematic fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes. As such, the goal for all data collection was to capture quality evidence, when possible, the use of audio and video records rendered the data rich for analyses and building of convincing and credible answers to questions that were posed[68]. As such, for this work to be done, we made use of a comparative approach method. This method aims at describing, exploring and explaining similarities and differnces of the cases under study. Comparative methods can be qualitative and quantitative[69].

Concerning the qualitative method, it should be noted that qualitative data are mostly non-numerical and usually descriptive or nominal in nature. This means the data collected were in the form of words and sentences. Often (not always), such data captures feelings, emotions, or subjective perceptions of something. Qualitative approaches aimed to address the 'how' and 'why' of a given topic and tend to use unstructured methods of data collection to fully explore the topic. Qualitative questions were open-ended[70]. Qualitative methods included focus groups, group discussions and interviews[71]. Qualitative data collection methods played an important role in impacting evaluation by providing information useful to understand the processes behind observed results and assess changes in people's perceptions of their well-being. Furthermore, qualitative methods were used to improve the quality of survey-based quantitative evaluations by helping to generate evaluation hypothesis; strengthening the design of survey questionnaires and expanding or clarifying quantitative evaluation finding.

As such, after haven taken the initiatives of studying documents on the practice of agriculture and development of the Ancient Egypt and Nkwen F*ondom*, from scientific publications which has been obtained from libraries and internet search, alongside national achieves from the ministry of agriculture in Yaounde and from the national achieve in Bamenda. In addition, group and focus interviews with the use of questionnaires as guide lines were also been applied. Interviews have been carried out with historians specialise in Egyptology, sociologist, anthropologies and other fields of studies that has to do with this topic from the University of Yaounde I. The research also extended to other universities through social media mediums such as Facebook, yahoo etc. Furthermore, groups interviews were

[68] S. K. M. Syed, article on Methods of Data Collection, on 25th June 2018,
[69] C. Ragin, *The Comparative Method: Moving Beyond Qualitative and Quantitative Strategies*, published by the university of California, 2014, downloaded online http://www.jstor.org/stable/10.1525/j.ctt6wqbwk, on 23/07/2023, at 9:07am
[70] Researchers may change the data collection strategy by adding, refining, or dropping techniques or informants
[71] They rely more heavily on interactive interviews; respondents may be interviewed several times to follow up on a particular issue, clarify concepts or check the reliability of data

carried out during field work in Bamenda (North West Region) with the *Fon* of Nkwen and his royal collaborators (notables). From there, other groups interviews implicated the local population involved in agriculture were also carried out.

On the other hand, the quantitative data was numerical in nature and could be mathematically computed[72]. Quantitative approaches addressed the 'what' of the program. They usee a systematic standardized approach and employed methods such as surveys and asked questions. The quantitative data collection methods relied on random sampling and structured data collection instruments which fitting diverse experiences into predetermined response categories. They produced results which were easy to summarize, compare, and generalize. If the intent was to generalize from the research participants to a larger population, the researcher would have employed probability sampling to selected participants.

From the above examined characteristics, the quantitative method consisted of comparing the different information collected during the interviews through counts so as to determine the numbers of repeated similar information given to us by the informants. That is, if 6 or 12 people were interviewed and 3 or 6 gave the same answers according to the questionnaires, the numbers of answers were taken into considerations to fill the information needed for our research. But before this decision was taken, there was the need for an afterward examination of the data that were collected so as to confirm its quality and credibility seen below from the technics chosen to analyse the information. After haven collected information, we will analyse the differences and similarities existing between the two cultural entities[73].

However, in every scientific work, there are always difficulties encountered during the research which hinders the progress and construction of a proper scientific work as shall be examine below.

9. DIFFICULTIES ENCOUNTERED

In the course of carrying out this research, a number of difficulties were encountered, which in one way or the other, influenced this research. Firstly, there was the problem of inconsistency of dates and proper names especially in *Kemet* history and civilization. Different sources were found which gave different dates for the same events. For instance, the beginning of the Old Kingdom is attributed by some authors as 2686 B.C. while others 2681 B.C., as well as several different names and/or spellings for the same name. For example,

[72] Observing and recording well-defined events (e.g., counting the number of people living in a community at specified times of the day).
[73]https://methods.sagepub.com/reference/the-sage-dictionary-of-qualitative-management-research

Menes/Mena/Narmer, *Djehuty/Thot* etc. But the problem of dates was worst because of cases wherein even *Kemtyu* primary sources do not agree giving the researcher different dates for the same events thereby making work pretty difficult. In addition, one of the biggest problem that was encountered during written sources research was the issue of COVID-19. This world pandemic has let to the lock down of certain libraries, as a result, internet sources and oral sources were the available options.

Also, during the two weeks' field work that begun on the 22nd of November 2020 in Nkwen, there was the problem of getting access to certain information which could not be obtain because most detainees of the oral tradition in the Nkwen *Fondom* were dispersed and lived in fear as a result of the socio-political crises in the North West Region. Furthermore, some people were not willing to disclose their identities or talk to strangers who came for research reasons, due to the fact that they trusted no one and even said "*we no even trust we own selves*"[74]. The information of some informants with whom interviews were held with, were not collected, for instance some royal family members and natives of Nkwen who had some important personalities were closer. More to these problems encountered, the issue of communicating with age people of about 90 years and above was very complicated, as some of them had forgotten certain traditional knowledge which were transmitted to them by their parents including their own personal experiences. In addition, it was impossible to have an interview with the *Fon* of Nkwen, given the fact that he seemed too busy with the socio-political affaires of his *Fondom*.

Above all, these problems encountered during the field work in Nkwen, was the problem of inaccessibility into other rural areas of the *Fondom* where agriculture on large scale are mostly carry out was encountered. For instance, Aitelah-Mbelewa, Atiesu-Mbelewa, Ntensu-Mbelewa, Ntela, Nkwenjang, Ntasen, Njejefor, Mubang, Atieba, Mbung amongst others, are highly infested by the socio-political crises, consequently we couldn't penetrate into these areas for research.

[74] Members of the Nkwen royal family, when I met them farming, names unknown for security measures, encountered on the 21st December 2020, at Fruju near the royal palace.

10. ORGANIZATION OF THE STUDY

The study is made up of four chapters. It begins with a general introduction and ends with a general conclusion.

Chapter one entitle the factors that favoured the practice of agriculture in Ancient Egypt and Nkwen *Fondom* examines the various factors which favoured the practice of agriculture pratices in Ancient Egypt and in Nkwen *Fondom.* It emphasises on the religious foundation of agricultural in Egypt and in *Nkwen Fondom*.

Chapter two entitle the type of farming practiced and organization in Ancient Egypt and the Nkwen *Fondom,* dwells on the different types of farming methods and organisation in these two African communities.

Chapter three entitle impact of the practice of agriculture on the development of Ancient Egypt and the Nkwen *Fondom,* analyses the impacts of the practice of agriculture on the development of both Ancient Egypt and Nkwen *Fondom.*

Chapter four entitle the problems encountered and proposed solutions to agricultural practices in Ancient Egypt and the Nkwen *Fondom,* focuses on the difficulties encountered during the practice of agriculture in Ancient Egypt and the Nkwen *Fondom.* The work study ends with a general conclusion.

CHAPTER I

FACTORS THAT FAVOURED THE PRACTICE OF AGRICULTURE IN ANCIENT EGYPT AND IN NKWEN FONDOM

The practice of agriculture in African communities couldn't be established out of nothing. There were a good number of elements which favoured the establishment. This could be classified under different factors such as; natural, economic, social, and political factors. According to Smriti Chand, in his article published on your article library[75], he mention's that "geographical factors played a vital role in the development of agriculture, inspite of the technological and scientific factors". With this assertion, the practice of agriculture in both Ancient Egypt and the Nkwen *Fondom* was in relation with the geographical characteristics within their environment. However, it should be noted here that the establishment of Ancient African communities occurred after a transition of the early man hunter-gatherers (nomad) period to farmers (agrarian). The objective of this chapter therefore, is to study the various factors that favoured the practice of agriculture in Ancient Egypt and the Nkwen *Fondom*. The first part will analyse the geographical and climatic factors, followed by the human and animal factors, and lastly, this chapter will analyse how space in terms of land and cultural factors encouraged the Ancient Egyptians and the Nkwen people to practice agriculture.

I. THE RELIGIOUS FOUNDATION OF AGRICULTURAL PRATICES IN EGYPT AND IN NKWEN FONDOM

Religion and agriculture have functioned as a natural bedfellow throughout recorded history. This could be observed how religious traditions across the world have habitually shaped agricultural practice and developement[76]. According to Fernand Schwarz: "All study of sacred geography of a society has to be referred to the cosmogonic fundamental myth [because], the cosmogonic myth tells how things have passed from a virtual state to the current reality"[77] this exhortation makes it possible to grasp the importance of the cosmogony of an explanation and the understanding of the cultural facts of a people in its environment that is to say in other words that cosmogony in its religious apprehension is capital to explain the facts of life of a civilization, for religion itself is a conception of the world. Such an observation

[75] https://www.yourarticlelibrary.com, visited on 11, 04, 2021, at 4:30 am
[76] M. Kpughe, "The role of Religion in Agriculture: Reflections from the Bamenda
[77] F. Schware, Initiation au livre des mortes égyptienne, Alban Michel, 1998, pp. 36-37

invites us whose cosmogonic foundations, agrarian divinities and the conception of agriculture as expression and sacredness have been shown in this articulation.

1. Cosmogony Foundation and Agrarian Deity amongst the Kemtyou and Nkwen

The word cosmogony is derived from the combination of two Greek terms, kosmos and genesis. Kosmos refers to the order of the universe and/or the universe as an order. Genesis means the coming into being or the process or substantial change in the process, a birth Cosmogony thus has to do with myths, stories, or theories regarding the birth or creation of the universe as an order or the description of the original order of the universe. One type of narrative portraying meanings and description of the creation of the universe is the cosmogonic myth. These myths, which are present in almost all traditional cultures, usually depict an imaginative religious space and time that exist prior to the universe as a normal habitation for human beings. The beings who are the actors in this primordial time are divine, superhuman, and supernatural, for they exist prior to the order of the universe as known by the present generation of human beings[78].

In the Kemtyou and Nkwen universe, there are several cosmogonies. In Kemet, for example, cosmogonies were formulated around the main deity of a specific theological city. Thus, in the city of Hilos (Hermopolis), Atum is at the center of the formation of the world. Akemenou (Hermopolis) Thoth is the main deity of the formation of the world so much so that in Memnefer (Memphis) cosmogony is established around Ptah. But it should be noted that this difference between the names of the main deities is not a rigid distinguishing mark.

The cosmogony of Hilos is called the Heliopolitan ennead. The main god is Atum Re. This cosmogony highlights the existence of a primordial ocean called Nouou. It is from this primordial body of water that I hail the creative seed called Atum Re. Théophile Obenga explains this episode in these terms:

Msi.i m Nhw/ Mesii em Nenou
When I swam in the Noun

N sp h prt pt/ en sep khen peret pet
Before the sky comes into existence

N sep h prt t3/ en sep kher pert ta
Before the earth comes into existence

N sp h prt smn. ti/ en sep khe peret semeneti

[78] https://www.encyclopedia.com, visited on 1st November 2022, at 2 :45 am

Before what was supposed to be firm came into existence

N sp h prt bnnw/en sep khe peret benenou
Before torment comes into existence[79].

From this excerpt it emerges that the Nouou is an intimate element in the formation of the world. It existed long before anything that was going to be. We understand that it is from this primordial ocean according to the Kemtyou, who came into the world. The other elements that constitute the order of creation if this is the case agriculture expected as a fact of creations and civilizations of men also made contained in the primordial ocean that is the Nouou. In other word the agricultural fact expected as cultivation of plants is among the reality sleeping in the primordial ocean before are ordering. What more can I say? Agriculture according to this episode was still in its state of nature it took other important facts for which become a fact of cultivation. By the following it is from the Nouou which an androgenic deity that is to say both man and woman called Atum arose. The latter thus forms a totality that alone recognized the conception and diffusion of life. He is the one by whom the other eight deities were begotten. He generated by the principle of Kheper transformation the first divine couple Shou (air) and Tefnut (moisture).

It should be noted that between his two divine couples, one was characterized by the principle of fertility, namely Ousir and Aset, and the other characterized by sterility Nebet-hout and Seth[80].

The fecondity of Osiris and Isis its manifested by the birth of Horus considers to be the ancestor of the pharaohs this cosmogony also report that creation was done by a principle of transformation Kheper or Atum begat Shou and Tefnut. According to a principle of the family can be said that the father and mother who plants or seeds, the seed having germinated becomes the offspring of the one who has sown so much say that the fruits produced by this little child of the one who has sown from the beginning. This cosmogony shows the very principles that govern the agricultural act of having a grain a space to sow favorable conditions for the condition of the plant that germinates and the fruits that are produced. We can also see in this cosmogony of agriculture as an act of heterogeneous sexual practice and between an evil principle and a female principle. Indeed, has well observed this cosmogony we notice that there are male principles and female principles as for them are: Tephnut, Nut, Aset and Nephthy without forgetting Atum who was androgenic each male and female principle fertilized here

[79] Th. Obenga, *La philosophie africaine de la période pharaonique 2780- 330*, Paris, Harmattan, 1990, p. 29
[80] N. Guilhan et J. Peyre, la méthodologie égyptienne, Paris Marabout, 2005, p. 374 and p. 396.

constitutes a metaphor for the combination of conditions favorable to agriculture. Much more agriculture can be possible when all the right elements are in place. For this purpose, we saw Atum as the solar energy useful for photosynthesis as Shou and Tephnout are the metrology condition outside Nut and Geb constitutes the spaces of the practice of agriculture and the idea of the evolution of a plant.

We can assimilate its as a characteristic of agriculture or the seed here is the seed of Atum which transforms it and makes two new entities. This term spawned Geb and Nut considered here as fruits from the seed planted by Atum and which germinated. It emerges from this cosmogony that agriculture coexists with the formation of the world but in its state of nature. Is evolution from the state of nature to the state of culture this fact by Osiris and Isis recognized as two fertile deities. Referring to Plutarch we learn that it was Osiris t Isis who carried out and taught humanity the practice of agriculture to convince themselves Guilhou and Peryre[81] associates these two divinities with the cultivation of cereal wheat etc. Thus the agrarian deities who appear among others Osiris and Isis. Since the Nile was important have associated Happi with agrarian activity. Among the Nkwen, we could not properly find a cosmogony which was purely related to our study. However, we had some myth from our oral sources which narrates as follows. According to the myth, there was a vast forest where there was a cave from which came out two people, a woman and a man. The two lived in this forest and gave birth to children. From this union, all the great families of the Grassfields were born. These families began to occupy and exploit large areas by practicing agriculture as *Nywé* (god) thought them.

In this story we can highlight the presence of agrarian activity. The one if in the same way as in ancient Egypt associates two main male and female fertile. We can also see the spaces necessary for agriculture. This prerequisite cosmogony Kemtyou and Nkwen then makes it possible to understand that agriculture is an art of sacralization of life and the extension of creation.

2. Agriculture: Conception of Life Sacrality and Extension of Creation

The world forms catch the cosmogony has seen to be an Egyptian civilization that if in reality forms a whole[82]. Indeed, every thing in this space and according to this civilization has its place. Just as with the Nkwen every gesture counts, every detail has meaning, everything is

[81] N. Guilhan et J. Peyre, la méthodologie égyptienne…, pp. 285-296
[82] Ibid. 258

codified and ritualized. In its two cultural worlds the divine or the religious considers the slightest little action. In the Kemtyou as in the Nkwen the world of the gods, the religious world and the world of humans constitutes an entity. This is the reason why the practice of agriculture is greatly imbued with a religious sense. Agriculture according to the Kemtyou and the Nkwen is considered to be a practice investing in the sacralization of life on the one hand. on the other hand, agriculture is the religious manifestation of the extension or perpetuation of creation. That is, the maintenance of life on earth and even after life. Indeed, the Kemtyou and the Nkwen think that when we plant and careter for plants, it implies giving life and yet nothing is more important to creation than life. These explains why Léopold Sedar Senghor made mentioned of the fact that the negro identifies letters with life, as his metaphysics is an existential ontology[83].

This African thinking is strongly expressed among the Kemtyou and the Nkwen in their conceptions of agriculture. According to its people, agriculture is an art of giving and maintaining life. It is linked to the fertility of the woman. This is the reason why the woman among the Nkwen, for example the best being indicates to cultivate the land. In reality the earth among the Nkwen is considered the mother, that is to say an entity of the cosmos that carries, gives and maintains life[84].

For this purpose, there is no doubt then if among its people a non-fertile land is comparable to a barren man or woman. Here the non-fertile earth is barren to the extent that just as the human being judges so is in a capacity to give life. Following the example of Seth among the Kemtyou, the non-fertile land is unable to make plants emerge, that is to say, life on its plant form useful for nutrition.

By practicing agriculture, man sets out to support the earth and nature. The fruits from the cultivation of this land make it possible to feed men and animals. That is to say, it allows to maintain life. Among the Kemtyou, deities like Ptah and Khnum consider as craftsmen sculptors of life can be associated with the practice of agriculture' if to the extent that the person who cultivates the land way in a space-time gives life[85].

[83] L. S. Senghor, "L'ésthtique négro Africaine", in *Diogenes*, N^0 16, 1956, p. 45.
[84] A. B. Ngo Issock Foe, " Droit foncier Kemtyou (Nouvel empire) et Béti (XVII – XXI siècle)", mémoire de master en Histoire, Université de Yaoundé I, 2018, p. 67
[85] C. Traunecker, "Pharaon Ritualiste" …, p. 87

In view of the above, the reality emerges that agriculture as expected as the cultivation of the soil is an activity that sustains life and promotes the creation and sustainability of creation. This conception is supported among the Kemtyou and Nkwen by an ethic.

3. Kemtyou Agrarian Ethic and the Nkwen

General ethics is a set of social norms that aims to empower human actions in the quest for well-being. It is a question of controlling the trajectory of the behavior of any individual in his quest for success through the different activity at the moment of agriculture that he leads ethics is also the set of moral concerns relating to a specific area of human activity such as agriculture. As Michel Zoa Otto points out: "the application of ethics to a profession or profession leads to the development of ethics. That is to say, a set of duties that engages individuals exercising a trade. »[86]Thus the search for well-being by carrying out an activity such as agriculture cannot be done without respect for the rules published by a society according to its religion. Indeed, its various rules are intended to verify the active morality in the practice of the cultivation of the soil in short in agrarian activities. His last regular summers with the Kemtyou by the ma'at and the Nkwen by Ntuwimo'o. The Kemtyou ma'at is a permanent quest for the collective good and not only the individual good. Thus, when we practice agriculture it is the good of the community that is sought. The individual caught in isolated handling in his agrarian activity can not be fulfilled because the purpose of his activity according to the ma'at is to be able to feed a large number. It is to emphasize the primacy of society and society between the individual and his community when he undertakes an activity that a proverb: bé ta tu ké tu fen, that is to say "a single tree does not make the forest."[87] To this end the ma'at is expressed as a principle of the ethic of solidarity respected by an individual who intends to practice agriculture is in this sense that Jean Claude Goyon thinks that the ma'at is an established order to allow any Kemtyou to escape anarchy. He then affirms: "Working for *ma'at* and according to the ma'at the order for life, the people of Egypt have locked their history in the conviction of their common responsibility, freely consent or imposed by the fear of a disruption of balance. By pulling the cosmic catastrophe."[88]

Similarly, among the Nkwen the ethics in the practice of agriculture is also visible through the respect of religion that frames agrarian practices. Indeed, among its people, agrarian ethics consist in the respect of a set of prohibitions. The latter are linked to respect for nature when

[86] C. Traunecker, “Pharaon Ritualiste” …, p. 87
[87] V. Ngami, interviewed on 23rd December 2021
[88] D. Basdevant, *Dieux et Pharaon d’Egypte*, Paris, Hatier, 1991, p. 25

cultivating the land. This is why we note, for example, that it is forbidden among the Nkwen to cut down certain trees in anarchic manner, to practice bush fire and defile the earth by a crime or by sexual intercourse even on the ground.[89] This prohibition was also in force among the Kemtyou. Among the 42 commandments of the *ma'at*. It is clear that it was forbidden to maintain sexual intercourse on the ground, to practice bush fire, to cultivate the land dedicated to a deity[90].

In summary, this part of the chapter allowed us to identify the religious foundations of agriculture among the Kemtyou and the Nkwen. Thus it emerges that religion has always been what guides, governs and organizes agrarian activities among its peoples. In this, religion has been central to the practice of agriculture. But other factors have also allowed the emergence of this activity in Keret and Nkwen country. Next, we are going to examine the geographical and physical factors.

II. GEOGRAPHICAL AND PHYSICAL FACTORS

According to national geography[91], geography is defined as the study of places and the relationships between people and their environments. In addition, it is a field of science devoting its studies on lands, features, inhabitants, and phenomena of the earth and planets. Consequently, geography is an important part of history. For it is part of everyday life, since it includes: land, weather, economic structure and people's culture. However, it should be noted that agricultural practices for example, are determined by geographical elements because, geographical location determines the temperature, climate and available materials for farming. Just like the founding fathers of these communities identified and understood how geography impacted their identity and life style through settlement pattern, evolution, ideas and works. From these analyses, to better explain early human communities' life style and to make sensible judgements over their agricultural practices, it is necessary to highlight on their environmental context since humans adapt to nature and not nature adapting to humans. So, the interest of this chapter is to know how the various characteristics of Ancient Egypt's and Nkwen *Fondom's* landscape, weather and vegetation favorized the practice of agriculture.

[89] D. Basdevant, *Dieux et Pharaon d'Egypte, …*
[90] Th. Obenga, *La Philosophie Africaine*, …, p. 53
[91] https://www.nationalgeographic.org/encyclopedia/geography, visited on 11.04.2021, at 4:30 am

1. Landscape of the Ancient Egypt and Nkwen *Fondom*

Meriem Webster dictionary online, amongst other definitions, defines landscape as a portion of territory that can be viewed at one time from one place. It goes further to define landscape as a particular area of activity (scene)[92]. From these definitions in reference to the context of this research study on the practice of agriculture, landscape will refer to features such as hills mountains, plains, valley and desert on which the Ancient Egyptians and the Nkwen people settled to carry out their daily activities and agricultural practices. The landscape of an area seems to have been very important for early human settlements and their activities. Farmers preferred to settle and practice agriculture on flat, open areas such as plains and valleys that could enable them cultivate crops on vast surface of land. According to Rosalie, the Ancient Egyptians, believed that their country was divided into two distinct geographical sections, the black land (the fertile banks of the River Nile) known as *Kemet* and the red land (the barren desert that covers the rest of the country) known as *Deshret*[93].

Rosalie sates that the muddy soil along the river banks made the land very fertile and productive for the growing of abundant crops. Thus, this favored the practice of agriculture[94]. However, mountainous areas were less convenient for human habitation, as steep mountains were hard to cross over, and their jagged peaks, cold temperatures, and rocky land made farming difficult and almost impossible. Nevertheless, it should be noted that mountains played a defensive role for communities, as people could settle down in security and carry out agricultural practices in valleys and plains. Mountains created a natural barrier to the Ancient Egyptians and the Nkwen people from invaders who could come and interrupt their farming activities with raids and wars. Meanwhile, dry lands or deserts discouraged settlement given the fact that they were very hot, dry and almost barren or unproductive especially where oasis were not in existence. They contain very little water for farming, and they were characterized by sandstorms which occurred when strong winds carry dense clouds of sand creating sun blockage. All these desert characteristics hindered movement and settlement and helped to protect people living in the Nile River Valley[95] from neighboring incursive tribes or states.

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[92] https://www.merriam-webster.com/dictionary/landscape, visited on 18/03/2021 Thursday at 05:30 pm
[93] R. David, *Handbook to Life*, pp. 119-120
[94] Ibid, p. 112
[95] Geography and The Early Settlement of Egypt, Kush, And Canaan

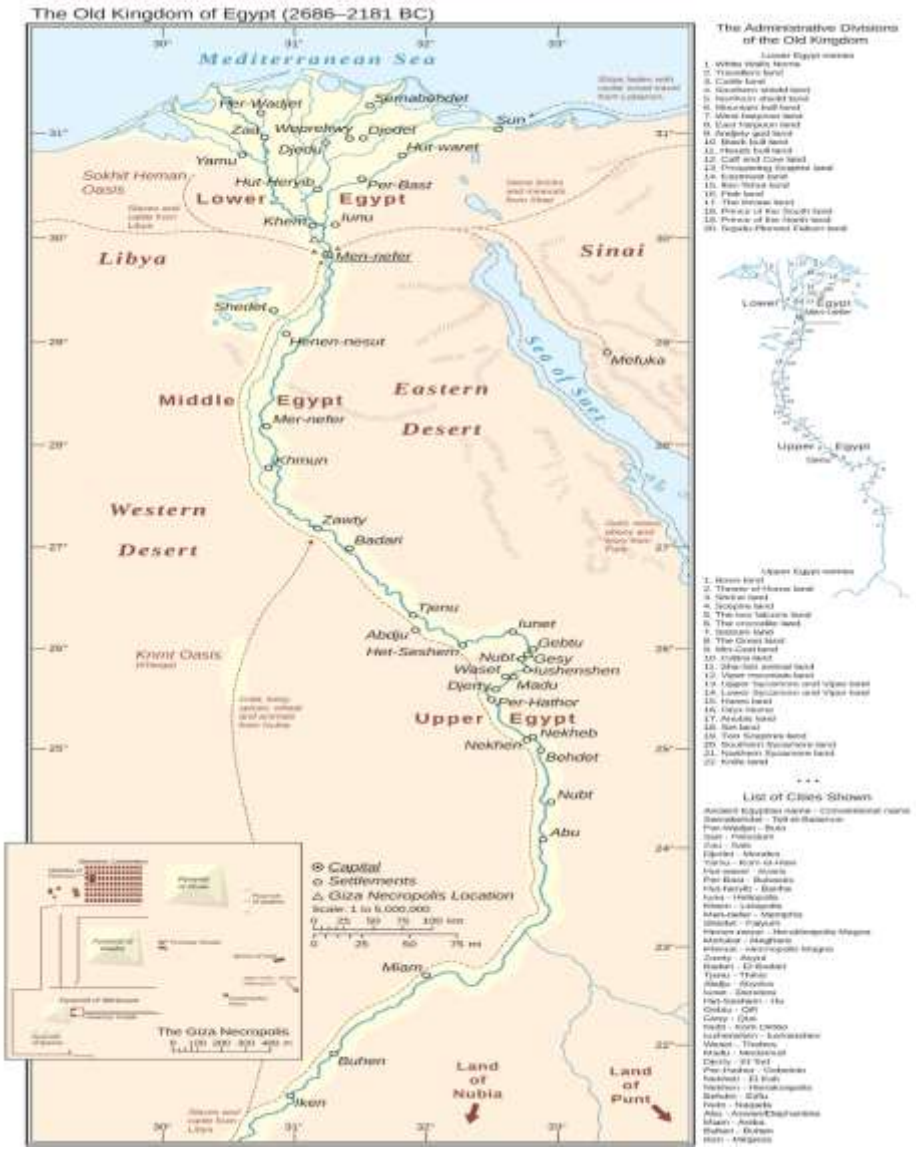
Ancient Egypt landscape as earlier mentioned, was largely made up of valleys, sand dunes and some mountainous areas (**see map 1**). Still according to Rosalie, landscape for the Ancient Egyptians, provided a sharp contrast between life and death in terms of cultivation and the desert[96], as the Ancient Egyptians believed their country was divided into two distinct geographical sections, the black land which is cultivable is found in the Nile Valley and the red land which is barren is found in the desert. As for Haring[97], the agricultural landscape of Egypt can be divided into two main parts: the valley of the River Nile in the south (which can be quite narrow in some places), the Fayoum depression and broad delta formed by the branches of the same river in the north. These two parts conventionally referred to by egyptologists as "Upper" or Southern, and "Lower" or Northern Egypt as the Nile river flows respectively. However, the most fertile land is found in the central reaches of the Nile Valley, which stretches some 700km from the first cataract at Aswan to the Delta and comprises a ribbon of cultivatable land. The Fayoum is a fertile depression some 100km to the South-West of the apex of the Delta, watered by a branch of the Nile[98]. The map below shows the map and landscape of Ancient Egypt.

[96] R. David*, Handbook to Life in Ancient …*, pp. 119-12

[97] B. Haring, "Access to land by institutions and individuals in Ramesside Egypt (Nineteenth and Twentieth Dynasties; 1294-1070 B.C.)", in, B. Haring and R. De Maaijer, *Landless and Hungry? Access to Land in Early and Traditional Societies,* Netherlands, African, 1998, p. 26

[98] K. Alan and R. Eugene, "Agriculture in Egypt from Pharaonic to Modern Times", 1996, p. 3

Map 1: Map of Ancient Egypt showing upper Egypt, lower Egypt Nubia, towns, the Nile, cataracts and the predominate centers.

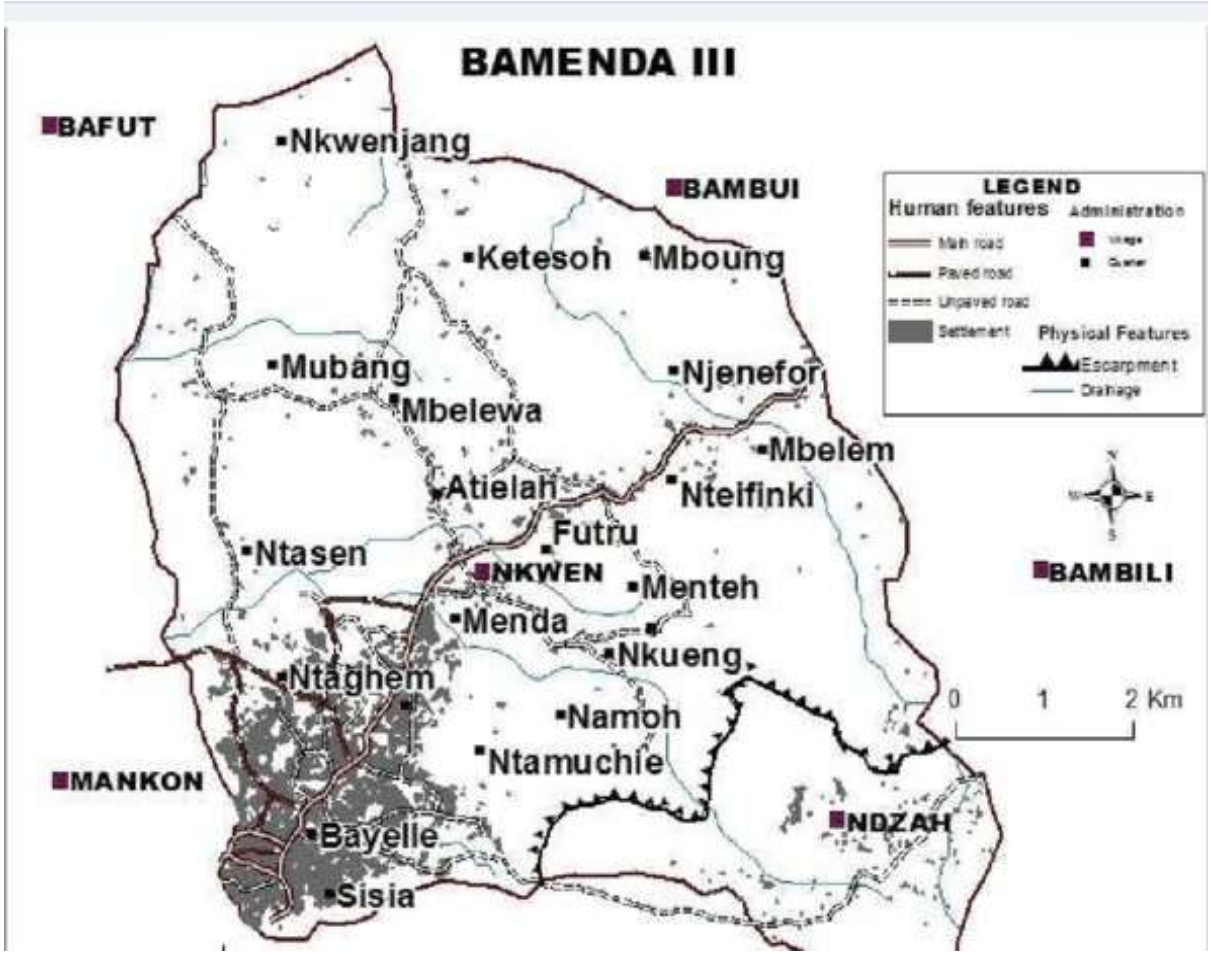


Source: https://en.m.wikipedia.org, visited on 23/07/2023, at 6:20am

In the case of the Nkwen *Fondom*, the valleys or plain lands are the most fertile places where agriculture was practiced and suitable for settlement. Characteristic features include many hills made of gentle slopes. Most of the high-altitude parts of Nkwen *Fondom* are found on the highland's mountain chains of the North West Region of Cameroon. The vegetation is mainly grass with fringes of forest along the gentle slopes and narrow. 600 years ago, the settlement of the Nkwen or *Bafreng* people in this landscape was greatly influenced by the fact that the hills served as natural barriers from invaders coming from near-by tribes and after obtaining security, the people were able to practice agriculture on the plains and valleys as the

soil was fertile and had the possibility to contain water for long term cultivation[99]. The plate below shows the landscape of the Grassfields in the North-West region of Cameroon. The map below is an actual map of Nkwen which shows quarters and main roads.

Map 2: Map of Nkwen showing the various quaters



Source: https://www.researchgate.net, visited on 12/08/2022, at 4:37am

From these facts, we can notice that water availability was indispensable and necessary for early agriculture communities. So, the question we may be asking ourselves is how water was made available and what made the soil fertile to carry out agricultural practices given the fact that agriculture could not be practiced on dry land and barren soils? Let's see how the characteristics of land scape in *Kemet* and *Bafreng Fondom* favorized the practice of agriculture.

[99] Interview with a notable of Nkwen, Victor Ngami, Ex- secondary school teacher, on the 31st December 2020.

a) The existence of a valley in Ancient Egypt and in the Nkwen *Fondom*.

In Ancient Egypt, the Nile Valley provided a true geographical habitation for plants, animals and cultural shelter for the emerging people of the region. The Nile valley is said to be about 900 km from north to south, with a width of about 10 km and on several places, it measures 25 km and water ways are created by the Nile river[100]. The valley dominates Upper *Kemet*, with sandstone cliffs and massive outcroppings of granite. These cliffs marched alongside the Nile sometimes set back from the shore and sometimes coming close to the river's edge. The same valley provides water for the *Fayoum* oasis and delta regions for agriculture. When it was time for flooding in *Kemet*, the river inundated the banks. Long stretches of flat lands are bordered by perpendicular mountains and filled up by constant rhythmic seasonal flooding. All these characteristics features of the Nile Valley influenced by the river Nile greatly favoured the settlement of the Ancient Egyptians along the banks to carry out agricultural practices. For agriculture in *Kemet* depended upon the annual Nile inundation, which provided the basis for the *Kemtyous* agriculture practices calendar consisting of three seasons known as: *akhet* "the flooding," when the flood waters covers the fertile riverbanks and canals could be opened to water inner and higher lands; *peret* "the coming forth," when plowing, sowing, and germination took place; and *shemu* "drought", when the harvest was gathered[101]. Actually, the Nile was the "gift of the gods" to *Kemet*, for indeed their existence is due to, the Nile river. The inundation was a regular environmental feature that made water available and agricultural practices possible[102].

In addition, due to the valley, people who lived there were a melting pot of many ethnic groups, with many different origins. Prior to 5000 B.C., the Nile Valley did not have any settled people because the surrounding area was rich in vegetation and was inhabited by a number of nomadic hunter-gatherer tribes, which hunted large animals such as lions, giraffes, and ostriches as a source of food[103].

Furthermore, the Nile Valley and river favoured the practice of agriculture due to the fact that the Nile was a source of variety of fishes for consumption, and the Egyptians became skilled at catching fish. Fishes were netted or caught in baskets, while spear and angling fishing

[100] J. Blasweiler, "The Inundation of the Nile and the Islands of Osiris", A Compilation of Fragments of Some Articles and Books, 2017
[101]M. Bunson*, Encyclopedia of Ancient…,* p. 357
[102] Ibid, p. 108
[103] C. Booth, *The Ancient Egyptians for Dummies,* West Sussex, England, 2007, p. 12

were done from small rafts made of papyrus. The Nile valley also provided a variety of waterfowls such as ducks and geese[104].

In *Bafreng Fondom*, the raining seasons begins from March to mid-October, with a rainfall that ranges between 2000mm to 3000mm per annum[105]. The waters run down the gentle slopes into the valleys and plains, making cultivation possible. Alongside the seasonal rainfalls, there are also several water bodies such as rivers, streams and springs. Some of the main rivers include; *nki mefuh, nki ntse, nki njembere, nki mbekewa, nki santary, nki njengang, nki chichi* amongst others. During the raining seasons (*mbunnkokeur)*, the rivers water rises and inundates the banks, rendering cultivation in the valleys (*nenkonun)* almost impossible. As the waters recede towards the dry seasons from November - December *(norekresemEne- norekresemene)*, cultivation (*ali*$^{?}$*i)* is made possible by making ridges and canals for the circulation of standing water. The running of water bodies into valleys comes along with minerals washed from the hill tops, as a result, the swampy zones soil is made fertile.

b) The existence of mountains

Farming activities in mountainous regions faces natural constraints that inhibit high productivity. Instead, such areas were often of high natural value and attractive landscape features. They provide important ecosystem services, such as maintenance of genetic resources, storage, and purification of water, as well as cultural and heritage services like the case of the Ancient Egyptians and *Bafreng* people as shall be examine later. Due to low productivity on mountainous regions, the provision of agricultural goods from these regions was less eco-efficient than in the lowlands. Food produced in the mountains usually causes higher negative environmental impact, such as landslides, soil erosion and higher global warming potential[106]. At altitude, arable crops such as cereals, and permanent crops such as fruits and olive trees, give way to permanent grassland and animal grazing: 60% of the land was used for pastoral farming.

In *Kemet*, the hieroglyphic sign for mountain  is known as *djew*, which can be seen depicted with two peaks and a valley running between them. This image approximated the hills

[104] R. David, *Handbook to life*…, p. 122
[105] Bamenda III Council Development Plan (Main Document), 2007
[106] https://www.frontiersin.org/article, collaboration between mountain and lowland farms decreases environmental impacts of dairy production, M. Silvia, G. Luscher, M. Corson, M. Kreuzer and G. Gaillard, https://doi.org/10.3389/fenvs.2016.00074, 16th November 2016

that rose up on either side of the Nile Valley[107]. This mountain also became a symbol in agriculture, whereby the concept of a "hill" or "heap" of such things as grain are often represented by the *djew* sign. The use of the hieroglyphic shape is an effective tool to convey not only the shape but also the large heaps of grains harvested (**see plate 1**). Some of the major mountain ranges in *Kemet* are the Sinai high mountain region, Halayeb riangle and Eastern Desert mountain range[108]. Gebel katherina, or mount Catherine, is located in the Sinai high mountain region and it is the highest mountain in the country with a summit elevation of 8,625 feet. The southern end of the mountain, called Gebel Musa, has ample religious significance[109].

The highest mountain in the Halayeb Triangle was Gebel Elba at 4,708 feet. Located just miles away from the Red Sea, the Elba mountain receives more precipitation than any other coastal mountains in the area and has the widest range of plant species in all of *Kemet*. Mount Shaiyb al-Banat was the highest peak in the mainland of *Kemet* outside the Sinai high mountain region. The mountain itself has a group of four peaks, with Gebel Shayeb El-Banat as the highest at 7,175 feet. However, it should be noted that these mountains brought down minerals and traces of organic debris which contributed massively in the fertility of the Nile valley that favored the practice of agriculture in the region[110]. The plate bellow show grain recording in Ancient Egypt.

Plate 1: Recording of large heaps of grains, reflecting the *djew* (mountain) sign

Source: http://www.egyptianmyths.net/mountain.htm, visited on 07 June 2021, at 3:14am

Like in *Kemet,* where mountains were considered as an important element of landscape, the *Bafreng* people also visualized mountains as an important aspect in regards to their

[107] http://www.egyptianmyths.net/mountain.htm
[108]https://www.reference.com/geography/major-mountain-ranges-egypt-cbbf8b97a0eafb81, April 8, 2020 6:08:49 pm
[109] Ibid.
[110] M. Bunson*, Encyclopedia of Ancient…,* p. 144

protection. They call the mountain *ntah*. *Ntah* plays a great role in favorizing the practice of agriculture, giving the fact that it protected the early settlers like *Fon* Suhfuh from attacks by neighboring tribes, as a result, him and his first followers could cultivate their crops without being destroyed during raids by neighboring tribes[111].

c) Vegetation type in *Kemet* and in the *Bafreng Fondom*

Vegetation is a general term use for the plants in a region. Vegetation plays an important role in the ecosystem and also supports the biosphere in various ways. It refers to the ground cover provided by plants, and is, by far, the most abundant biotic element of the biosphere. Vegetation helps to regulate the flow of numerous biogeochemical cycles, most importantly those of water, carbon, and nitrogen; it also contributes in the local and global energy balances. Furthermore, vegetation serves as wildlife habitat and the energy source for the vast array of animal species on the planet. Vegetation is also critically important in the use of fossil fuels as an energy source, but also in the global production of food, wood, fuel and other materials use by humans. Furthermore, vegetation is psychologically important to humans, who evolved in direct contact with, and dependence on, vegetation, for food, shelter, and medicines. However, it should be noted that plants are known as the primary producers, they can manufacture their own food by themselves through the process of photosynthesis using sunlight and they also form the starting point of the food chain and then provide food for other animals that directly depend on them. The type of vegetation formed within an area is influenced by the soil formation, topography, climate and human impact[112].

However, Kemet's desert is associated with seven vegetation types namely: mangrove swamps, reed swamps, salt marshes, sand dunes, rocky ridges, wadis and mountains. Desert vegetation is a large dry region covered with sandy soil and rocky soil, the trees in this vegetation include short shrubs which occur in patches and are characterized with thorns, thick stems, long roots and wax coated leaves and stems. Examples of plants in the desert vegetation are cactus, date palms, acacia, horny bushes and coarse grasses. The deserts vegetation is sometime made up of little or no plants and animals, it has high temperature and receives little amount of rainfall. This type vegetation influenced early human settlement and the practice of agriculture in several ways. Most important, plants were a source of food as the land that did not flood regularly provided scrub vegetation suitable for pasture and plots that could be

[111] Interview with Victor Ngami, retired school teacher, age 86 years.
[112] https://www.agriculturjournal.com, visited on 06-05-2021, at 10:30am

developed for orchards. Meanwhile, poorly drained land formed swamps with rich seasonal populations of water-birds and fishes.

Bafreng being situated in the tropical-savannah zone, is endowed with different types of vegetation: a sub mountain forest and a sub mountain landscape. The vegetation is mainly characterized by grass with fringes of forest along the gentle slopes and narrow valley. Extensive grass cover is found in *Bafreng* giving a touch of beauty to the landscape. Grassland vegetation is a natural plant cover that is dominated by grass. This grass-like vegetation has been formed by nature. Most of the grasslands are located in the temperate zone (between latitude 23^0N and 66^0N in the Northern hemisphere and between latitude 23 0S and 660S in the southern hemisphere. This type of vegetation greatly influences the grazing of herbivorous animals such as goats, rabbits, cattle, cane rats, antelopes etc. From these analyses on the atmospheric condition that prevail in Kemet and in *Bafreng Fondom* it can be deduce that the landscape and weather characteristics favorized the practice of agriculture. Now, let's examine how water was made available and how the soils were fertile

2. Climatic Conditions

As previously examined on how visible geographical elements such as landscape, mountains and vegetation favorized the practice of agriculture in Ancient Egypt and Nkwen Fondom, let's get to comprehend the invisible geographical factors made up of the climatic conditions. Climate here will refer to the state of the atmosphere or weather, which includes temperature, pressure, wind, humidity, precipitation, and cloud cover[113]. This is important because it has a considerable impact on the water, sunlight and temperature of an ecosystem as mentioned in an article published online by the University of Illinois. These factors play a serious role by influencing the types of plant and animal wildlife that can survive in the area[114]. The historical atmospheric condition of *Kemet* has been subjected to many speculations based on information from geomorphologic and archaeological studies for example Sanford[115], Murry[116] and Butzer[117]. However, according to Egyptologists, climatic changes which occurred around 5000 B.C., caused the zone surrounding the Nile Valley to become dry and could no

[113] https://www.nationalgeographic.org/encyclopedia/weather, visited on 06-05-2021, at 11:30am
[114] https://www.reference.com/science/weather-important-dbd07f2f55932ea8, visited on 06-05-2021, at 11:30am
[115] K.S. Sanford, *Paleolithic Man and the Nile Valley in Upper and Middle Egypt*, Chicago University, Orient, Fast. Publ., 1934, p. 131
[116] G.W. Murry, The Egyptian Climate, A Historical Outline. George's Journal, 1951 pp. 422-434.
[117], K.W. Butzer, *Pliocene Palaeoclimates of the Kurkur Oasis, Egypt*. Canadian Geographer, 1959, pp. 125-140.

longer sustain the large animals and plants. Consequently, the climate shift meant that the nomadic tribes all converged on the Nile Valley because the river became the only source of water in the region. In the north of *Kemet*, the origins of the people were more in the near east, creating a paler people[118]. By 3100 B.C. and the start of the Pharaonic period in the history of the Ancient Egyptians, a brand-new culture was formed recognised today as the *Kemtyous'* culture, developed from a collection of different people, cultures and languages. As a result, this favoured the practice of agriculture in the Nile Valley as the various cultures brought different ideas and technics of cultivation. Let's further examine how the atmospheric condition such as temperature, pressure, wind, humidity, precipitation, and cloud cover favoured the practice of agriculture in Ancient Egypt and in the Nkwen *Fondom*.

In the history of ancient Africa communities, the atmosphere was cool and dry, primarily as a result of the last ice age, when ice pushed southward and covered much of what is now Europe. Later, Africa became much warmer and moister, leading to monsoon rains. Later still, temperatures dropped again, and weather patterns dried out. These changes, which were not unique to Africa, led to changes in vegetation, sometimes turning forests into deserts and deserts into forests. After the advent of agriculture, such climatic shifts required Africans' to adapt the crops and farming practices with the new conditions. Ancient peoples were driven by their need to find ways to adapt to their environment and one of their primary needs, of course, was fresh water. Accordingly, early peoples tended to form settlements along the banks of rivers or adjacent to lakes, but living in these types of regions posed special problems, such as floods. However, climatic conditions in Ancient Egypt and in the Nkwen *Fondom* played a very important role in favoring the practice of agriculture as we shall examine below.

a) Temperature

The weather of *Kemet* was much the same as it is today; a hot, dry desert climate with very little rainfall. Coastal areas would benefit from winds coming off the Mediterranean Sea, but in the interior, these winds were hardly felt and temperature was high, especially in the summer[119]. Between March and May, a hot, dry wind called the *khamasin* blows through the desert. This wind causes humidity to drop and temperatures to soar over 110 degrees Fahrenheit. Rain and clouds are more prevalent near Alexandria, which is influenced again by the Mediterranean Sea. The mountainous region of Sinai has the coolest temperatures during

[118] C. Booth, *The Ancient Egyptians for Dummies*, West Sussex, England, 2007, pp. 12
[119] https://www.ancient-egypt-online.com/ancient-egyptian-geography, visited on 06-05-2021, at 11:30am

the night, due to its elevation. Winter temperatures can drop as low as three degrees Fahrenheit during the night in some towns[120].

Regular rainfall ceased over the country below the 500m contour some time about the close of the Plio-Pleistocene period: 3-4 million years ago[121]. There were seasons, and on some evenings the temperature was cold because of the surrounding deserts, but normally the climate remained consistently warm and dry[122]. The average temperature during summer is 30°C and 14°C in the winter. Sometimes the Nile valley frosts and snowfalls during winter[123].

During ancient times, the country was filled with sand deserts, and only the area closest to the nile was inhabited. Over the years, the *Kemtyous* became accustomed to heat. The country only had two seasons: winter, which lasted from November until April, and summer, which was from May until October.

During ancient times, the Egyptians took advantage of the hot, dry air to aid them in their grain preservation. Rain fall in *Kemet* was mostly during the winter months. During this time, the Nile flooded causing problems for those who lived in clay homes along the riverbank. The climate shift caused a cultural response with changes noted in stone tools and pottery. During the Neolithic Period, people living along the Nile valley cultivated wheat and barley, as well as tending to their flocks of domesticated cattle and sheep. For the first time, farmers altered their landscapes with building dykes and irrigation ditches[124]. Atmospheric conditions favored *Kemet* civilization in the predynastic period to develop, as the ancient city of Hierakonpolis provides a good case study. It represented an ideal habitat owing to good Nile flood levels, fertile soil, nearby raw materials in the eastern desert, the proximity of a Nile channel, and an easily established irrigation system[125].

As mentioned above, the temperature of *Kemet* was a favoring factor which contributed to the settlement and the practice of agriculture by the *Kemtyous* along the Nile banks. This was also the case in *Bafreng Fondom* where the temperature condition facilitated the establishment of the *Bafreng* people and their practice of agriculture as we will analyze below. In *Bafreng*, the ecological and temperature variations, have greatly influenced settlement and

[120] https://givemehistory.com/climate-and-geography-of-ancient-egypt
[121] A. M. Zahran1, A. Y. El-Amier1 and A. Ramadan Shawky, Vegetation of the Egyptian Deserts: Ecology and Economic, Journal of Environmenta Sciences Natural, visited on 06-05-2021, at 11:30am
[122] R. M. Bunson, *Encyclopedia of Ancient Egypt*, Revised Edition, New York, 1991, p. 104
[123] https://nataliachelsey.weebly.com/climate-and-vegetation.html,
[124] A. B. Lloyd, *A Companion to Ancient Egypt*, Volume I, London, Blackwell Publication, 2010, p. 8
[125] Ibid., p. 9

agricultural practices. *Bafreng* has a tropical-savanna climate, bordered by a tropical monsoon climate. The climate was marked by two distinctive seasons: the dry and rainy seasons. The raining season usually begins around March to mid-October. The rainfall ranges between 2400 to 3000mm per annum. The dry season is usually from October to February. The nights are very cold while the days are very hot. The annual average temperature varies from 18.7^0C to 20^0C[126]. Strong wind and heavy cloud covers characterize the area. Heavy clouds usually descend from the hills and during such occurrence visibility is very poor.

From the above analyses of temperature both in Ancient Egypt and in Nkwen *Fondom*, it could be determined that; temperature is a primary factor affecting the rate of plants growth. Accumulated temperature is a weather parameter which directly influences productivity of agricultural plants. All biological and chemical processes taking place in the soil are connected with air temperature[127]. The rate of plant growth and development is dependent upon the temperature surrounding the plant and each species has a specific temperature range represented by a minimum, maximum, and optimum. Warmer temperatures expected with climate change and the potential for more extreme temperature events will impact plant productivity. Pollination is one of the most sensitive phenological stages to temperature extremes across all species and during this developmental stage temperature extreme would greatly affect production[128]. Now, let's examine another important element which favorizes the practice of agriculture which is precipitation.

b) Precipitation

Along with Evaporation and condensation, precipitation is arguably the most important agricultural weather parameter as it plays a major part in global water cycle[129]. Defined as the quantity of water falling to earth at a specific place within a specified period of time or still, precipitation is any liquid (rain) or frozen water (snow and hail) that forms in the atmosphere and falls back to the earth[130]. This implies that precipitation is needed to replenish water to the earth. The amount and duration of precipitation event affects both water level and water quality within an estuary[131]. In spite of the lack of precipitation in *Kemet* due to a very high rate of

[126] https://en.climate-data.org/africa/cameroon/northywest/bamenda, Visited on Friday 09 2021, at 2:28pm
[127] J. L. Hatfields and J. H. Prueger, "Temperature extremes: Effect on plant growth and development", article, 2015, downloaded at https://pdf.sciencedirectassets.com, on May 08/04/2022, at 3:32am
[128] Ibid.
[129] B. Shaw, "The Precipitation Problem in Agriculture", article, published on April 17, 2018, online at http://www.precisionag.com, visited on May 08/04/2022, at 3:47am
[130] http://nationalgeography.org, visited on May 08/04/2022, at 3:57am
[131] https://www.fondriest.com, visited on May 08/04/2022, at 4:05am

evaporation, compare to the amount of rainfall, precipitation or water availability came down as a result of the heavy summer rain in the highlands of Ethiopia each year which caused the Nile to flood through Egypt. As a result, where the Nile flood passed and branches arrived, existed an abundant vegetation made up of mainly perennial xerophytic and aromatic herbs, thorny shrubs and bushes, thornless trees with bare branches and some few slender twigs. These varieties of vegetation are mostly found around the coastal strip during spring.

In the Nkwen *Fondom*, there are two major seasons in which: a long, wet season of nine months and a short, dry season of there months. During the wet season, humid, prevailing monsoon winds blow in from the west and lose their moisture upon hitting the region's mountains, there by characterizing the *Fondom* with a cool temperature, heavy rainfall and savanna vegetation. Average rainfall per year ranges from 1,000 mm to 2,000 mm[132]. As previously analyzed, it can be deduced that precipitation is an important component in favorizing agricultural practice in Ancient Egypt and in Nkwen *Fondom* because it helps maintain the atmospheric balance, as it provides a fresh water supply for farmers to grow crops. Moreover, rainfall also determine how fast crops could grow from seed, including when it will be ready for harvest. A good balance of rain and proper irrigation enabled the Ancient Egyptians and the Nkwen people to cut down on the germination time and length between seeding and harvest[133]. Let's further examine how other water sources and soil fertility favorizes the practice of agriculture in Ancient Egypt and in the Nkwen *Fondom*.

3. The Availability of Water and Fertility Soil

Water and soil play a very important role in the practice of agriculture, as they are the main element necessary for the cultivation and growth of crops. Crops need soil for stability, food and growth especially fertile soil alongside with water. Africa is a large, consolidated landmass, much of the continent does not benefit from the tempering effect of water. Thus, temperatures inland in Africa tend to be either higher or lower than those on the coastlines[134]. According to Hassan, for millions of years, hunters and gatherers depended on the wild plants and animals sustained by rainfall, which varied significantly from one place to another, but was on the whole insufficient to provide food for large, dense and settled populations. Around

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[132] M. Gwanfogbe, A. Meligui, J. Moukam, J. Nguoghia, *Geography of Cameroon*, Hong Kong, Macmillan, 1983, pp. 16-17

[133] https://www.sigfox.com > news > how rainfall affects crop health, visited on 15/05/2022, at 12:56 am

[134] P. Bogucki, *Encyclopedia of Society and Culture in the Ancient World*, New York, fact on file,2008, p. 235

10,000 years ago, the structure and dynamics of human societies were radically transformed due to the development of food production in favourable habitats[135]. Some communities settled along the banks of great rivers and others had access to abundant groundwater faced frequent food shortages to which they responded with new ways to make water available and to make the soil fertile. Since then, there is a reciprocal relationship between soil fertility and water supply with food production[136]. For human beings, water is not merely a substance that sustains life. It is above all an elemental ingredient in the way people conceive the world and a principal component in the expression of their thoughts and emotions[137].

a) Water availability

Water being a basic necessity that furnishes plants with growth, replenishes mammals and is a constant reminder of life. In ancient societies, water provided a beginning and advancement opportunity in agriculture in that, it cared for plants, animals, replenished drinking water and was a beacon for trade and vocation. However, one main use of water is to provide fertile silt and fresh water for agriculture and planting necessary crops such as fruits and vegetables[138]. As a result of excessive flooding and heavy rain falls that were common to the complex river societies like *Kemet* and *Bafreng Fondom*, much silt or fine sediment were good for planting.

According to Charlotte Booth, the Nile was and still is the only source of water in Egypt. Without it, no life could be supported[139] even though there exist very little rain fall along the Mediterranean coast. Between 5000 and 2000 B.C.E., the Sahara had greater rainfall than it does now. Parts of it had so much rainfall that the areas were among the most fertile environments in Africa. The Sahel, the grassy area south of the Sahara, extended farther north and covered the areas that are now the southern and central parts of the Sahara Desert. During the rainy season these grasslands became marshy in places, and seasonal lakes appeared. Hunter-gatherers lived on the shores of these lakes, gathering wild plants, fishing, and hunting the animals that came there to drink. The availability of rain water was one of the pull factors that led to the settlement of the early people in this region[140]. The *Kemtyous* settled themselves

[135] F. Hassan, *Water History for our Times,* Essays on Water History, Volume 02, Unesco Publishing, United Nations Educational, Scientific and Cultural Organization, Paris, 2011, p. 5
[136] Ibid. p. 4
[137] Ibid., p. 5
[138] https://www.studymode.com
[139] C. Booth, *The Ancient Egyptians for Dummies,* West Sussex, England, 2007, p. 10
[140] P. Bogucki, *Encyclopedia of Society …,* p. 124

on the narrow strip of alluvial soil along both banks of the Nile (east and west). The annual flooding renewed the soil fertility for farming, as the river brought water and rendered the soil moist and fertile to grow crops each year. When the Nile began to recede at the end of the inundation, the Ancient Egyptians could use dams and reservoirs to store water for the dry seasons of the year[141] and subsequently encouraged the practice of agriculture.

Kemet's water supply contributed to agriculture. Water known as *mw* was considered a fundamental aspect of life, as it constituted one of the most important factors in early human settlement around the Nile valley. Physical features like rivers, lakes and inland seas were good sources of fresh water. Most of which was reliant on Nile water, although groundwater is also raised in importance as a source of irrigation water for the community. Most settlement and development occurred in the Nile valley and between the branches of the river that fork out in the Nile delta before pouring into the Mediterranean. Sparse settlements also exist in desert oases sustained solely by groundwater. Water was a source of food as people could catch fish, hunt water birds and other animals that gathered near rivers and oasis. Moreover, people practicing farming needed water to grow crops, subsequently, they settled near rivers where they could obtain fresh water for drinking and that could support the growth of vegetation. Rivers during natural flooding could help irrigate water into farmlands. Farmers who settled near rivers were able to dig canals or trenches to direct river water to their crops, as it's the case of *Kemtyous* and the *Bafreng* people.

The *Bafreng* people identify water as *nki*, which stands for a symbol of life, due the fact that it plays a major role in their main activity which is farming like the Ancient Egyptians. Agricultural practices in *Bafreng Fondom*, greatly depends on rain-fed in the raining season which goes from the month of *ncre ncumbene* (March) to *ncre nwunne alune* (June) and from *ncre nwaˀasane* (October) to *ncre ngwEne* (November). Other farmers during the dry season depend on irrigation with a majority of farms located along river banks or in wetlands (*nekunum*) and many other streams mostly during the month of *ncre nlwite* (December), *nnre ncyambi* (January) and *nnreabebc* (February). In most of the farm plots at wetlands, farmers dig small wells of less than 3- 4m where they collect water and use it to water their crops either through the use of buckets made up of **Bàtə** (calablash).

[141] R. Margaret Bunson, *Encyclopedia of Ancient Egypt*…, p. 277

From the above analyses we can understand how water could be obtained in ancient Egypt and in *Bafreng Fondom* for agricultural usage. Now, the question is where did rivers come from and what were their compositions?

The Nile river covers a distance of 6670 km, taking its origin at lake Tana in the Ethiopian plateau, (at 1830 m elevation) and Lake Victoria in East Africa (at 1134 m elevation). Annual monsoon rainfalls fill these Sub-Saharan lakes and fed the blue and White Nile, which are the main sources from which the Nile river in *Kemet* flows from. The White Nile rises from the deep pools of equatorial Africa, and the Blue Nile sweeps down from the Abyssinian highlands. The white and Blue Nile meet at Khartoum and flow together northward to the Nile river in *Kemet*. These combine with many tributaries[142], including the Atbara, which joins the Nile at the fifth cataract[143], bringing vast quantities of alluvium and red mud[144]. Limestone cliffs parallel to the river for more than 400 miles, marching beside the shoreline, sometimes close to the water and sometimes swinging back toward the deserts. The cliffs[145] reach heights of 800 feet in some areas, with mesas and plateaus glistening against the sky. Most of the water reaching Aswan comes from precipitation directly related to the Indian monsoon rainfall, so lower monsoon rainfalls could have disastrous effects on the Nile flooding levels.

Inundation was an annual event from the heavy rain falls that occurs every year between May and August causing enormous precipitations on the highlands of Ethiopia whose summits reach heights of up to 4550 m (14,928 ft.) in tropical Africa[146]. Most of this rainwater is taken by the blue Nile and by the Atbarah river into the Nile, while a less important amount flows through the Sobat and the white Nile into the Nile. During this short period, those rivers contribute up to ninety percent of the Nile water enabling the Nile to flood out over its banks, depositing the rich black silt that fertilized the land, but after the rainy season, dwindle to minor rivers. Flood occurs first in the region of the first cataract at Aswan in late June, and a steady increase goes on until the middle of July, when the increase of water became very great. About a week earlier than Memphis, and Luxor five to six days earlier than Memphis. Typical heights of flood were 45 feet (13.7 meters) at Aswan, 38 feet (11.6 meters) at Luxor (and Thebes) and 25 feet (7.6 meters) at Memphis. The effect reached above Memphis in the north at the end of

[142] (of a stream) flowing into a larger stream
[143] A large waterfall; violent rush of water over a precipice
[144] R. M. Bunson, *Encyclopedia of Ancient Egypt*, Revised Edition, New York, 1991, p. 277
[145] A steep high face of rock
[146] R. M. Bunson, *Encyclopedia of Ancient...*, p. 357

September, when the level remains stationary for a period of about three weeks, sometimes a little less, then the waters gradually recedes until they reach their lowest level in the following April. In October it often rose again, and reached its highest level. The average rate of the current is about three miles per hour. As the river bed rises higher and higher the amount of land covered by the waters of the inundation grows more and more[147]. The basins becomes flooded and then closed for about 45 days to saturate the soil with moisture and allow the silt to deposit. Then the water was discharged to lower fields or back into the Nile[148]. From this period, it began to subside, and usually sank steadily until the month of June when it reached its lowest level, again. The flood would then decrease in size about two weeks later, leaving behind a deposit of rich, black silt. This annual miracle brought alluvium or mud which renew life to the parched land and eagerly await by all inhabitants especially farmers of the country for agricultural practices and other activities[149]. The amount of silt left behind due to the height of the Nile determined the amount of crops that the *Kemtyous* farmers could grow, but if the inundation was too low, it would be a year of famine[150]. Annual decisions about cultivation were only taken when the extent of the flood is clear, when a match is to be achieved between cultivable plots and available labor[151]. Water availability in *Kemet* with all the above-mentioned mineral compositions favoured the growth of plants, as a result, this encouraged the practice of agriculture during annual inundations of the Nile which provided abundant water and soil nutrients during the season of *akhet* and *peret* for cultivation.

In *Bafreng*, water is made available during the nine months wet season caused by the monsoon wind blowing from the west, then lose moisture upon hitting the *Fondom's* mountains which provides water to several rivers, streams and springs. However, main rivers include within the *Fondom* includes: *nki nahmo, nki Mefuh, nki ngewa ngewa, nki nebung, nki mbekewa, nki njengang, nki ngongang, nki njembere* amongst others. These rivers tap their sources from streams found on the highlands of Bamenda. There are also waterfalls found on the mountain slopes which contribute to the sources of these rivers such as the *menteh* waterfall and others that flow especially during the rainy season. The flow of the river from the highlands where most volcanic soil is found descends the mountain slope with sediments that drains into

[147] E. A. Wallis Budge, *The Nile Note for Travelers in Egypt*, Thos. London, Cook & Son, Ltd Ludgate Circus. 1895, p. 49
[148] Ibid, p. 45
[149] R. David, *Handbook to Life*…, pp. 116 and 117
[150] http://www.touregypt.net/featurestories/nile.htm, Visited on Monday 5th April 2021 at 4am
[151] B. Alan Lloyd, *Ancient History, A Companion to Ancient Egypt*, Volume I, edited by, United Kingdom, Blackwell Publication, 2010, p. 292

the valley during the dry season from October to February and renders the soil fertile with dark soil mud, which is favourable for crop cultivation. The raining season in *Bafreng* runs from the month of March to the beginning of November with an annual precipitation average ranging between 2500 mm – 3000 mm. The various water sources in *Bafreng* fondom are made possible through rain fall into the rivers, let to the presence of different kinds of bio diversities, which were necessary human survival. As a result, this attracted the settlement of the *Bafreng* people around this area for hunting purpose. This explains why the first *Fon* of *Bafreng* 600 ago known as *Fon* Suhfuh, arrived in Attelia during his hunting session and got acquainted to the place, which he later on came back to dwell and established the *Bafreng* Fondom at Attelia where he began the practice of agriculture with the cultivation of beans. From this point, it can be determined how water bodies attracted people around for settlement and agricultural practices. Now let's see how fertile the soils were for the growth of crops.

b) Fertile soil

Fertile soil contains nutrients needed to grow and cultivate crops that can provide plant habitat and result in sustained and consistent yields of high quality. It is thus the capability of soil to produce plants yield under defined conditions[152]. Many factors influence soil fertility in an integrated way such as: soil depth, soil texture, soil structure, soil pore space, soil temperature, soil compaction and tillage, soil reaction, nutrient content, humus content[153] which are humus and non-humus substances. Thus, with all these various factors required to render the soil fertile for the growth of plants on infertile soils, the *Kemtyous* and the *Bafreng* people made use of soil fertility improvement plants such as cowpeas and beans on marginal lands through nitrogen fixation. This provided the ground cover and plant residues, which minimize erosion and subsequent land deterioration. The deep root of cowpeas and beans help to stabilize soil, and the ground cover it provides preserves moisture; these traits are particularly important in the drier regions where moisture is always needed, soil is fragile and subjected to erosion[154]. However, naturally *Kemet's* soil along the banks of the Nile river was very rich in saline substances such as niter, natron, alum, rock salt, and sea salts which all provided alkaline

[152] Dey Rangana, Assessment of soil fertility and productivity: A Micro Level Study,
[153] A large group of natural organic compounds, found in the soil, formed from the chemical and biological decomposition of plants and animal remains or substances
[154] C. Gomez, *Cowpea: Post-Harvest Operation*, Italy, Food and Agriculture Organization of the United Nation, 2004, pp.6-7

component. Niter[155] forms as an efflorescence[156] on the surface of the soil during dry periods. Natron[157] is collected from the saline (containing salt) encrustations[158] of dry lakebeds forming a valley of natron in the west of the Nile delta[159]. Rock salt and alum are mined from the earth. Outside the areas of Nile silt deposits, the nature of such cultivable soil as exists depends upon the availability of the water supply and the type of rock in the area. Almost one-third of the total land surface of *Kemet* consists of Nubian sandstone, which extends over the southern sections of both the eastern and western deserts. Limestone deposits of Eocene age[160] cover a further one-fifth of the land surface, which constitutes the present-day cultivated land in the delta and the Nile valley, has been carried down from the Abyssinian highlands by the Nile's upper tributary system[161], consisting of the Blue Nile and the Aṭbarah rivers. The depth of the deposits ranges from more than 30 feet (10 meters) in the northern delta to about 22 feet (7 meters) at Aswān. The White Nile[162], which is joined by the Blue Nile at Khartoum, in Sudan, supplies important chemical constituents. The composition of the soil varies and is generally sandier toward the edges of the cultivated area. A high clay content makes it difficult to work, and a concentration of sodium carbonate sometimes produces infertile black-alkali soils. In the north of the delta, salinization has produced the sterile soils of the so-called *barārī* ("barren") regions. The annual flooding, which meant that the crops completed their life cycles in one year because the plants' lives were so short, they had to put all their energy into making many big seeds and little into making stalks or leaves. The crops were easy to cultivate because they did not have complicated fertilization requirements as the Nile flood provided sufficient fertility. Every year, between July and October the flood covers both banks with much water of about 2 feet. When the water receded, very fertile black silt covered the land, as a result, the Nile valley, the Fayoum and the delta region received abundant supply of water during the inundation and where rich in vegetation of varieties of wild grains suitable for human consumption, all of them nutritious and high in calories. Settlement was favored and subsequently agricultural practices.

[155] (Chemistry) a substance of salt and ester (alcohol and acid)
[156] (Chemistry) the formation of a powdery surface on crystals as a solid enclosure that is converted to almost no water. Source: App, advanced English dictionary
[157] A crystalline mixture of hydrous sodium carbonate and sodium bicarbonate. Source: Ibid
[158] A hard-outer layer that covers something.
[159] https://www.metmuseum.org/toah/hd/egfc/hd_egfc.htm, visited on 06th April 2021, 7:00pm
[160] (Geology) Eocene age refers to the geologic epoch within the Paleogene period of about 35 to 55 million years old
[161] A tributary system refers to a branch of water that flows into a main stream, Oxford dictionary, android version 6.1
[162] The White Nile rises from the deep pools of equatorial Africa

The western highlands in the north-west region of Cameroon is characterise of fertile volcanic and alluvial soil[163]. In *Bafreng Fondom*, penevoluted ferralitic soils[164], from volcanic origin are found mostly in the lowly-lying area, while some of the highland areas have orthic soils[165], even though the pH[166] is on the low slide. Given the hilly nature of these areas, most of the top soils containing sediments on the mountain slopes have been washed down to the valleys forming a rich zone of fertile soils. This has greatly influenced the type of crops cultivated such as *moko* (beans), *ngwasan* (corn), cabbage, colocasia (cocoyam) etc. From the above analyses. It can be noted that soil fertility was a crucial aspect which favoured the practice of agriculture in *Kemet* and in *Bafrang*, given the fact that their soil types consisting of volcanic eruption could support the growth of consumable crops such as cereals and vegetables in good productivity in quality to feed their growing population while trading. As such, areas of fertile soil became ideal location for the growth of crops and where the soil where not fertile, they applied animal waste and cultivated crops such as cowpeas and beans to improve on the soil fertility as a result, the practice of agriculture was favorable.

III. LABOR FORCE AND LAND TENURE FACTORS

Labor being a component needed in producing goods and services becomes the backbone of agricultural practices as it's capable of uniting all the previously examined geographical or natural elements. As such, the labor force, or active population in this study, comprises all human actions capable of causing change within the environment with agricultural practices. In both Ancient Egypt and in Nkwen *Fondom*, agriculture would not have been a successful practice if labor force was not applied properly by people. Agricultural practices demanded labor because workers are an important part of the production process of food. Workers used tools and equipment to turn geographical inputs into outputs. Without workers, agricultural practices couldn't be productive and profitable to the Ancient Egyptians and the Nkwen community. The Ancient Egyptians and the Nkwen people acquaintances with their environments enabled them to have awareness and create contacts with tools and animals, resulting to dairy farming which became the next step forward after animal domestication, as

[163] A. Lauren Chester, *Cameroon: Population Growth and Land Resources*, Yaounde, 1986, p. 7
[164] Penevoluted Ferralitic Soils Are Found Mostly in Low-Lying Areas. They are used for the making of sun-dried bricks as well as cultivation of crops. Source: www.pndp.org
[165] orthic soils are soils that are mainly use for the cultivation of grains. It is not classified as one of the other four top soils horizon. source: www.proagri.co.za
[166] Ph from potential of hydrogen, oxford dictionary

people kept cattle, goats, sheep, horses and camels for their milk[167] and other products which they could provide such as labor force. Once known as part of the secondary products revolution, archaeologists are coming to accept that dairy farming was a very early form of agricultural innovation[168].

In fact, earlier human species foraged for millions of years. This was a way of life for most communities like the *Kemtyous* and the *Bafreng* people who considered it a best way of life over a long period. Over many generations, humans were keenly adapted to their environment, forming an intricate part of the ecosystem there. As a result, humans were able to exploit fully the potentials of animals not only for food but also as an instrument for labor, which contributed greatly in their farming activities[169]. Let's begin this part of this study on how human labor favored the practice of agriculture before embarking on how animals contributed in the labor force process.

1. The Existence of Human Labor, Livestock and Animals Breeding

A- The Existence of Human Labor

Most labor involved the search for or production of food. In agricultural communities such as Ancient Egypt and the *Bafreng Fondom*, it would have been impossible for one person or one family to carry out the labor-intensive tasks necessary to meet up the agricultural demands of the community. An increased population was actually an advantage to agricultural communities, because farming on a large scale which is profitable required large amounts of human labor force. The settling down of communities in one place shorten birth intervals from four years to about two. This meant that each woman could have more children which in turn resulted in rapid population growth among early farming communities, and farmers, could live in the same place and work year after year and did not have to worry about transporting young children over long distances. As such, high population created the need for more food and farm labor[170]. This availability of human labor made crop farming successful, and also led to specialization of labor, giving the fact that not everyone needed to be focused on food production[171]. Nevertheless, communities learned to pool their efforts in public works

[167] http://www.britannica.com, visited on 16/05/2022, at 5:00am
[168]M. Mazoyer and L. Roudart, *A History of World Agriculture from The Neolithic Age To The Current Crises*, translated by J. H. Membrez, printed by Earthscan, London, 2006, pp. 229 - 375
[169] Ibid. p. 357
[170] M. Mazoyer and L. Roudart, *A History of World Agriculture…,* pp. 29-74
[171] https://www.msomibora.com/2018/05/history-i-form-five-africa-and-europe.html, Friday 09 April 2021

projects as terracing agricultural lands, building canals and dikes, irrigating fields, and draining swamps which created a relationship between production and productive forces.

In *Kemet*, it should be noted that human labor in agricultural practices was provided by peasants (perhaps representing 80 percent). The peasant worked either with his family or in a gang and cultivated crops for the state and for his own needs. They were responsible for providing the food, resources, and manpower for the whole country. The state organized the irrigation system and also the storage of the country's food supply in granaries. Their work on the land was governed by the annual inundation and the seasons, but they attempted through their arduous labors to produce enough food that will satisfy their own limited needs. For three months each year, when the inundation covered much of the land with water and rendered it impossible to cultivate, the peasants undertook alternative employment. They were liable to corvée duty (the king could call upon them for any duty). Indeed, this applied to all his subjects, but the wealthier could pay someone else to take on their allocated tasks[172]. They may have worked at the royal burial sites receiving food for themselves and their families as payment. Through their payment of taxes, they also fed the rest of the society and supplied the offerings for the tombs and temples (which were ultimately presented to the priests). Officials who controlled these aspects were responsible to the king who in theory owned all the land[173]. Such work would have prevented starvation and ensured that they did not have time and opportunity to cause problems. From the above analyses, it can be determine that settlement and the practice of agriculture by the *Kemtyous* in *Kemet* and the *Bafreng* people in the highlands of the Grassfields in the North West region of Cameroon, let to an increase in food production resulting to population increase and subsequently availability of human labor force. Thus, human labor force favored the practice of agriculture as people worked communally on massive community development projects.

a) Communalism

In African culture, the community always comes first. The individual is born out of and into the community, therefore will always be part of the community. Belonging to a community is part of the essence of traditional African life style[174]. The traditional African societies show

[172] https://www.msomibora.com/2018/05/history-i-form-five-africa-and-europe.html, Friday 09 April 2021, p. 142
[173] D. Rosalie, *Handbook to life…*, p. 119
[174] J. Le Roux, *The concept of 'ubuntu': Africa's most important contribution to multicultural education*, Multicultural Teaching, 2000, p. 43-46.

harmonious forms of life without any antagonism of classes, as it is presupposed in the Marxist type of theory, where there is an ethics of mutual help and of caring for each other. The absence of private ownership of land or other means of production, led to inequality among members of the society[175]. The pre-colonial African societies passed through various modes of production which started with primitive communalism where people lived in small communal groups and slept mainly in rock shelters and they ate wild roots and vegetable. Then developed to advanced communalism where man began domestication and agriculture practicing. The workforce included storehouse recorders, work foremen, overseers, and harvest supervisors, as well as laborers (**see plate 2**).

With the advent of communalism, during the Paleolithic period in hunting and gathering sessions and during the Neolithic period in agricultural practices, such as the clearing of bushes for cultivation, tilling of soil, digging of canals for irrigation, contributed to the factor that favored the practice of agriculture. This act of communalism galvanized each member of the community not to be discourage in undertaking vast farm land cultivation, as a result, agricultural practices were done on larger scale.

Communalism was organized to satisfy the basic human needs of all its members within a community. Most resources such as land were communally owned for the benefit of everyone. For example, in *Bafreng Fondom* villagers grouped themselves to cultivate farms of individuals for a given period of hours of the day and the next day they go to the farm of another group member and work for the same hours. This act of mutuality encourages each member to continue practicing agriculture. In *Bafreng Fondom*, majority of the population were farmers. According to Pa. Dominique Ngante, "a Nkwen man is first of all a farmer before any other profession, because he likes to be satisfied to his fullest when it concerns feeding. Thus, the *Bafreng* people prefer cultivating their own food so that they can eat very well and get full to their fullest". Thus, they have to work in an organized manner through division of labor between men and women, in order that every member of the community part takes in the process of production and development. Young men are mostly involved in tediousness work such as cutting down of trees, clearing bushes and digging the soil. Young women do the leveling of the soil in the form of ridges with the use of hoes. Planting of the crops, is done by age women having generational inherited technics in sowing which they pass on to their

[175] E. Etta, D. Esowe, O. Asukwo, *African communalism and globalization*, University of Calabar, June 2016, p. 304

children as they help them along in sowing. As for grass weeding and mudding, both men, women and children engage all in the work, since the exercise is bulky. When the crops arrive the period activities like cooking is mostly the responsibility of women with the help of the children for commission purposes. This implies that the *Bafreng* people were aware of the fact that in order to control and regulate their communities, and to organize an efficient labor program that will benefit all the members of the community, they had to work communally.

According to Rosalie[176], in *Kemet*, men worked together in group during agricultural practices, so as to facilitate the work which was tedious (**see plate 2**). This aspect of working in group was a communal act imposed by the Ancient Egyptians. In 3100 B.C. Pharaoh Menes unified *Kemet*, but it is evident that an earlier southern ruler by modern name Scorpion, had started this process. Scenes carved on a ceremonial limestone mace head discovered at Hierakonpolis in A.D 1898 show military activities but also depict the Scorpion king undertaking, and perhaps initiating agricultural practices through irrigation program. This mace head may commemorate an early reorganization of the community. This implies that people were aware that in order to control and regulate the Nile waters and to organize an efficient irrigation system to benefit all the communities in the delta and Nile valley they would have to act communally. The plate below shows work organization in Ancient Egypt.

Plate 2: Agricultural practices from bottom to top, farm land preparation, consisting of plowing, planting, crop caring, farmland measurement, grain recording by officials.

Source: https://www.liverpoolmuseums.org.uk/stories/farming-ancient-egypt, visited on 09 June 2021, at 4:15am

[176] D. Rosalie, *Handbook to life*…, p. 120

b) Division of labor.

The *Kemyous* and the *Bafreng* people understood that for them to live in harmony and develop their communities, every member of the community had to participate at different levels of working activities. Both men and women including the children had a role to play especially when it concerns agricultural practices, given the fact that the work was broad and tedious. In *Kemet,* law makers were men, but the *Kemtyous* system safeguarded the position of women and children[177]. Men were mostly involved in difficult and technical jobs such as irrigation, cutting of stalks, plowing and transporting of harvested crops. Division of labor in *Bafreng Fondom* was organized around the family head. The father or mother who are the family heads would mobilize the children, and other relatives of the family to go and carry out clearing (done by boys) and tilling of the soil (done by both girls and boys) then the parents themselves would do the planting base on their planting experiences. As such, with the existence of labor force and division of labor, the practice of agriculture was facilitated and encouraged by every member of the community or family had a role to play in food production.

From the above analyses on how the availability of labor force and division of labor favorized the practice of agriculture in *Kemet* and in *Bafreng Fondom,* it has been seen how population increase let to the demand of more food within communities which subsequently let to an increase in labor force and specialization. Nevertheless, it should be noted that apart from human labor force, animals played a great role with their labor force which favorized the practice of agriculture.

B- Livestock and Animals Breeding

The various animals found in the rich vegetation of *Kemet* along the Nile valley and within the Grassfields of *Bafreng Fondom* on the high lands, favored the practice of agriculture, giving the fact that the animals provided food, materials for manufacture products and some animals were used for cultivation purposes, transportation, and also in ceremonial rituals as we shall examine below.

a) The existence of animals in the environment as food

In earliest times, there was an abundance of animal life in *Kemet* and in *Bafreng Fondom* that served as food. Meat and fowl appeared among the dishes enjoyed by the wealthy and included beef, goat, mutton, pork (although for some social and religious groups, this was

[177] D. Rosalie, *Handbook to life…,* p. 145

forbidden), goose, and pigeon. Butchery in *Kemet* is shown in tomb and temple scenes and was obviously well organized, but meat had to be consumed immediately after slaughter and was a food for feast days rather than part of the daily diet. Nevertheless, animal husbandry provided most of the meat and fowl since by the historic period, hunting had become a sport rather than a means of supplying food, except perhaps occasionally for the royal family or the temples. Fish were caught by many people and provided an important additional element to their diet[178]. By selection of the animals in temple herds the *Kemtyous* were able to improve breeds of sheep and cattle. However, birds such as geese, ducks, cranes, and pigeons were specially breed and fattened for the table. These birds were hunted with boomerangs and with civets, mongooses, and wild cats; large clap nets were used to trap quantities of geese and wild duck, from the large areas of marsh favorable for hunting and fishing[179]. Meanwhile, in *Bafreng Fondom* on the highlands of the Grassfields in the North West Region of Cameroon, there existed a rich fauna made up of goats, pigs, cows, hare, monkeys, squirrel, rat mole and antelopes alongside water fowls birds living around the swamps. These animals attracted hunters who hunted them for food and other nonfood products or for sacrificial purposes especially goats and cows were later on domesticated for religious rituals. The availability of animals within the environment of the Ancient Egyptians and Nkwen people enabled them to have protein as part of their nutrition, as a result, they could obtain the necessary nutritional elements (balance diet) that enabled them to fortify their cells and the growth of their children. Subsequently, they could carry out tedious exercise such agricultural practices thanks to the existence of animals within their environments.

b) Domestication of animals for agriculture.

Long before, the *Kemtyous* and the *Bafreng* people began domesticating animals, during their hunting sessions, they had contact with wild animals that they hunted and trapped for meat and leather. Sheep and goats in particular were abundant in the region of the grassland, and both of them are known to have been domesticated in the fertile crescent of the nile around 8000 B.C.E. Pigs and cattle followed about 2,000 years later, that is around 6000 B.C.E[180]. In choosing animals to domesticate, people observed the habits of the mammals that shared their environment. The Ancient Egyptians determine which animals were incurably dangerous or bad-tempered. They also noticed which animals had a dominance structure that could be

[178] Alan B. Lloyd (ed.), *A Companion to Ancient Egypt*, Volume I, London, A John Wiley & Sons Publication, 2010, p. 27
[179] Ibid, p. 28
[180] M. Mazoyer and L. Roudart, *A History of World Agriculture…,* p. 92

manipulated. Dogs, horses, pigs, and sheep all follow leaders and care about their rank within their group. Humans substituted themselves for animal leaders and, after several generations of selective breeding, soon had domesticated animals. Sheep and goats became the first domestic animals, because they share several characteristics not held by other local large mammals that were equally populous, such as gazelles.

Sheep and goats are fast growing and easily fed on local vegetation. They are herd animals that imprint on leaders, meaning that an entire group of animals will imitate the actions of the animal they accept as their leader. In this way they could be trained to follow humans[181]. They do not mind living in crowded conditions with limited mobility. They are relatively easy to tame. Humans began taking over herds as their own, persuading the animals that they were their leaders, herding them to and from pastures, and manipulating the populations to maximize human interests. They had already been following herds for millennia, going up and down mountains with goats and sheep, so they knew a great deal about herd behavior. Once they had taken possession of the herds, people furthered their advantage with selective techniques. They killed off aggressive animals or poor miller's and according to archaeologists, animals were domesticated between 8000 and 6000 B.C.E. The numbers of sheep and goat bones have been found to increase dramatically in more recent layers at archaeological digs. Domesticated animals of this period are smaller than their wild counterparts, partly because people eliminated the larger and more aggressive males and partly because the beasts did not eat as much as they did in the wild. Another reason for the smaller size of bones is that domestic herds contain many more females than males; herders wanted animals that could produce milk and young and that were less likely to attack them, so they kept females and slaughtered young males. Sheep needed good pastures and hilly grasslands to survive, so they did not thrive in other parts of the fertile crescent of the Nile valley[182]. Goats, on the other hand, are not as particular, and were domesticated throughout the Nile valley and in the Grassfields of Bafreng *Fondom*.

Another domestic animal that soon became common was the pig. Wild pigs ranged throughout the region of *Kemet*. Although pigs do not live in herds, they have a dominance structure that allows humans to take control of them. They eat anything, grow quickly, and produce large litters frequently. Pig bones from about 8,000 years ago show the same decrease in size seen with sheep and goats, indicating that they were under human management. It appears that pigs were domesticated in the central part of the fertile crescent of the Nile valley

[181] M. Mazoyer and L. Roudart, *A History of World…*, p. 94
[182] Ibid., p. 96

and spread to other parts of sub-Sahara African countries such as the tropical savannah-grassland. They never became as common as sheep or goats. Cattle also appear in the historical records of *Kemet* and *Bafrang Fondom*. These cattle were bred from the large and dangerous aurochs[183], wild cattle that roamed the region and had been hunted for thousands of years. Smaller cattle bones appear in the fertile crescent along the Nile valley about 6000 to 5000 B.C.E.

Once humans had learned the basics of plant cultivation and animal husbandry, their lives changed dramatically. Domesticating plants and animals allowed humans to feed more people with available resources. Farmers could feed between ten and 100 times more people than hunter-gatherers could do with the same amount of land. This was because livestock could make land more productive by adding manure to the soil to function as a natural fertilizer. Domestic animals also supplied people with milk and eggs and meat, and they helped people with their labor force as they could cultivate larger plots of land by pulling plows and trampling grains. Employing animals to pull the plow helped farmers produce even more crops. The recorded history of animal power in Africa starts about 6000-5000 BC in Egypt with the first drawings of oxen plowing fields in the III Dynasty. When the animals were no longer useful for labor or the production of milk and eggs, people used their bodies, eating all the edible portions and using everything else for nonfood items, such as leather and bone tools. Agriculture and livestock furnished the raw material for cloth as well. During predynastic times dogs were trained to hunt and guard the herds. By the time of the Old Kingdom donkeys, cows, oxen, and sheep were used for a variety of agricultural practices and other tasks. For instance, after the waters of the Nile river had receded, cows were used for plowing, the invention of the wooden plow around 4000 B.C.E. made this job easier. Sheep and pigs were set loose on the plowed area to trample the ground. During harvest in spring, when short sheaves had been made into bundles, donkeys carried them to the threshing floor where pigs and goats trampled the stalks and separated the ripe grain from the husks[184]. From the above analyses, it has been studied that animals favored the practice of agriculture under different domains such as culinary, plowing, and trampling while others play an important role in transporting agricultural products from the farms to the place of processing. Let's better examine how the animals properly favored the practice of agriculture as they served as another important contributor in labor force provision as means of transportation for people and goods.

[183] large recently extinct long-horned European wild ox; considered one of the ancestors of domestic cattle
[184] D. Rosalie, *Handbook of life*…, p. 122

c) Animals as means of transportation

Domesticated animals also played an important role in transporting humans and also of heavy loads especially from farms to markets places. In various parts of Ancient African societies, cattle, buffaloes, yaks, horses, donkeys, mules, camels, llamas, elephants, reindeer, goats and dogs were used for transport, crop cultivation, water-raising, milling, logging and land excavation or levelling. Domestic donkeys were recorded at Maadi in Egypt 3500-4000 BC. Paintings of pack donkeys appear in Egyptian tombs about 5000 years ago, the main use of donkeys in ancient Egypt appears to have been for pack transport. Harvest was carried on the backs of donkeys or asses, and at the storage areas the crops were ground by oxen[185].

The employment of horses in Egypt appears to have followed the use of donkeys. They do not appear until the about the 13th Dynasty (about 3800 B.C.). Many illustrations in *Kemet* dating 3000-3500 B.C., show horses hitched in pairs for pulling two-wheeled chariots. A ceremonial chariot with light-weight spoked wheels was found in the tomb of Tutankhamun (3300 B.C.). Drawings dating from the same era show animals that appear to be mules or hinnies (hybrid offspring) pulling two-wheel carts or chariots. However, there is no evidence that donkeys were used to pull carts in *Kemet*.

From the above analyses, we have understood how animals favored the practice of agriculture in *Kemet* and in *Bafreng Fondom* in different ways. It has been seen how the presence of different kinds of animals within the environment of the *Kemtyous* and the *Bafreng* people, served for the transportation of heavy goods. Let's now examine how natural resources favored agriculture with the making of tools.

2. The Existence of Farming Tools

Early human beings needed to master their environment in order to find food, protect themselves from hostile strangers, and hide from dangerous animals. A vital ingredient in these endeavors was the use of tools during the Stone Age. The Stone Age was a broad prehistoric period during which stone was widely used to make tools with an edge, a point, or a percussion surface. The period lasted for roughly 3.4 million years, and ended between 4,000 B.C.E. and 2,000 B.C.E., with the advent of metalworking known as the Bronze Age[186]. Thanks to this

[185] D. Rosalie, *Handbook of life…*, p.117
[186] https://www.britannica.com/event/Stone-Age, visited on 17/05/2022, at 3:33am

great evolution in tool making, the ancient Egyptians of the Old Kingdom could easily carry out their agricultural practices with advanced tools

Unlike in *Kemet*, the *Bafreng* people were also attracted to raw materials which could enable them to manufacture agricultural tools out of stones, woods, bone and iron for the making of wooden hoe and rake used to clear the ground before plowing; a sickle for reaping the harvest; a wooden winnowing scoop for tossing grain; and a wooden scoop for collecting the grain off the threshing floor. The fertility of the Nile Valley in *Kemet* and the swampy zones, plains and cultivable highlands of *Bafreng Fondom* encouraged farming which was impossible without efficient tools. The availability of natural resources in the Nile Valley and within the environment of *Bafreng Fondom* favored the practice of agriculture. Natural resources like wood, fire, stones and bones, were the first natural resources in hunter-gatherer communities, who used them to fabricate early tools for agricultural practices. These natural resources were available in large quantities and sophisticated materials for tools making and much easier to handle. They originated during the Paleolithic period before the discovery of other natural resources such as iron, copper, bronze and ivory which were tools that encouraged large scale farming. Let's examine detailly some of the natural tools and how they served as tools in agricultural practices.

a) Stone and fire

According to archaeologists, the shaping of stone first occurred in Africa. The ancestors to modern humans were using sharp rocks as tools some 2.6 million years ago[187]. They may have created these rudimentary tools simply by cracking brittle stones to produce a sharp edge. Later ancestral species and modern humans found ways to work harder stone into tools through abrasion or flaking (breaking or worn off). Stone was common and could be both chipped or ground into the desired shape depending on the kind of stone fine sandstone, limestone amongst others were ground serving as grinding stones and the like, while flint[188] was generally chipped and used for cutting. One of the most common materials used in stone tool making in *Kemet* was chert[189] because it was readily available. Drilling and incision allowed a still greater variety

[187] Ignacio de la Torre, "The origins of stone tools technology in Africa: a historical perspective", article, published by the royal society, 12 April 2011

[188] A flint is a hard kind of stone; a form of silica opaquer than chalcedony

[189] Chert is a hard, fine-grained sedimentary rock composed of microcrystalline (or cryptocrystalline) crystals of quartz, the mineral form of silicon dioxide (SiO2). Chert is characteristically of biological origin but may also occur inorganically as a chemical precipitate or a diagenetic replacement, as in petrified wood. Source https://geologyscience.com/rocks/sedimentary-rocks/chert/

of tools as well as a means of fashioning decorative necklaces, pendants, bracelets, and rings. Stone axes and spear points were useful for killing game, stone adzes for hollowing out tree trunks to make canoes, and simple stone hoes for turning the soil and clearing brush. The techniques of working and shaping stone were most useful for hunters in perpetual search of game[190]. The appearance of more advanced tools like sickle blades can point at the importance of agriculture during that period while other tools such as arrows can point to the presence of hunting. There were different materials and various skills used in stone tool manufacture depending on the time which the artifacts were made in.

In precolonial African communities, the use of fire began around 500,000 years ago even though its usage was not widely spread during this period. However, it is assumed that fire which was commonly used was of natural origin such as: fires, lightning, swamp fires) and that, even if the fire could be preserved, it could not be produced[191]. The discovery of fire, or, more precisely, the controlled use of fire, was one of mankind's first great innovations which favorized the practice of agriculture. Fire enabled the Ancient Egyptians and the Nkwen people to produce light and heat, to cook plants and animals, to clear forests for planting, to heat and produce stone tools, to keep away predator animals, and to burn clay for ceramic objects. Apart from the stone material, wood was another essential material for making tools.

b) Wood

When agriculture was first developed, simple hand-held digging sticks and hoes were used. The rudimentary plough was simply a modified tree branch, which was later adapted by fastening it to the horn of an oxen or a cow to be pulled. Ploughs were mostly made from wood. In addition, hoes, rakes, fire drills, spindles were other wooden equipment. A simple crafted wooden scoop, complete with handle, made to harvest grain easier. *Kemtyous* and the *Bafreng* wood workers alongside furniture craftsmen, employed many different kinds of woods from trees in the making farm tools. The *Kemtyous* used trees like: acacia, fig, almond, date palm, tamarisk, willow, and poplar trees and also exotic timber like cedar, ash, beech, oak, yew, elm, and cypress. Meanwhile, the *Bafreng* people used trees like: fig tree that had two varieties, one with broader leaf known as *ngah* and the other with smaller leaf known as *aguem*; *lon* tree grows mostly on hill tops; *mbang* is a red wood tree; *fap* is mainly use to make hoes and other farming tools because it is easy to calve; *Akukwe* is a type of wood that has a hole at its center,

[190] W. M. Flinders Petrie, *Tools and weapons*, London, Hazell, Watson and Viney, 1917,
[191] M. Mazoyer and L. Roudart, *A History of World Agriculture…*, p. 37

so the *Bafreng* people use this for the fabrication of drums and *ngons; achenebe* is also another tree use for calving.

d) Bone and iron

In *Kemet* and *Bafreng Fondom*, bones from animals that were hunted were an integral part of their tool belt. Some uses of bone included handles for hammers and axes, needles for stitching, and knives. Though it appears, bone was not a commonly used tool until the late Paleolithic Age, however, it played an important role in the development of further farm tools.

Bones were fashioned into tools such as spoons, awls, pins, fish hooks, needles, flakers, hide scrapers and beamers**.** They made musical rasps, flutes and whistles as well as toys of bone. Decoratively carved articles were also made of bone such as hair combs, hair pins and pendants. Bone has been used for making tools by virtually all hunter-gatherer community such as the *Kemtyous* and the *Bafreng* people, even when other materials were readily available. Any part of the skeleton can potentially be utilized depending on its need. Long bones provide some of the best working material, for instance, long bone fragments can be shaped, by scraping against an abrasive stone, into such items as arrow and spear points, needles, awls, and fish hooks.

Gradually the polished stone tools that they had perfected were replaced by much more expensive but effective iron ones. Initially iron was probably used mainly for small and valuable objects such as razors, needles, and knives; later, as the smelting technique became more commonplace, iron came to be used for cutlass, axes, and eventually, hoes, which replaced the old wooden digging stick[192]. Iron was only introduced into *Kemet's* farming between 1000 and 600 B.C., although iron ores found in the Eastern Desert and Sinai had been made into beads and amulets since predynastic times. Although the *Kemtyous* were probably aware of the existence of smelted iron during the New Kingdom (the Hittites had developed production techniques in the fifteenth century B.C.), they were the last people in the area to use this technology, which was brought into Egypt several hundred years later. The craft of metallurgy gave rise to a new class of skilled artisans. Making and working iron were complex, difficult processes that could be mastered only through years of practice. *Kemtyous* and *Bafreng* blacksmiths have been crafting agricultural tools to meet the community varied climate, terrain, soil types and crops, yielding a wide diversity of forms. The pre-colonial

[192] https://www.britannica.com, visited on 28/01/2021, at 2:30am

African societies were developing various science and technology which began with the discovery of fire, iron smelting, mining. The discovery of iron was a significant age whereby man discovered iron and its application. This occurred about 1500 B.C., when iron provided a better cutting edge than stone, copper or bronze. The new iron implements allowed the *Kemtyous* and the *Bafreng* people to hunt more effectively, clear and cultivate larger areas for crops, defend themselves from very wild animals, and defend themselves from raids. Thus, agricultural practices increased with the use of iron hoes, domestication of animals, migration, population growth and trade were all as a result of Neolithic Revolution[193].

From about 900-800 B.C.E. iron and copper metallurgy spread throughout West Africa amongst the Nok culture of Nigeria during the 16th century B.C. The fabrication of iron tools encouraged systematized agriculture[194]. Ancient iron working sites have been found dating back from 3000 - 2500 B.C.E. in parts of Africa[195]. where the iron was made into arrows head and spears, cutlass, head axes and small trinket and razors. Thus, the *Kemtyous* and the *Bafreng* people were motivated by these natural resources and tools to carry out agricultural practices as the activity was made easy with this type of advanced tool. Expertly crafted iron plows, sickles and hoes were essential for the development of agriculture across Africa. Iron tools were better at clearing forests and cultivating the soil. Iron materials increased the food supply, allowing communities to stay in one place longer and grow in population. Iron also made larger areas of *Kemet* and *Nkwen* habitable, as people moving into a new region could clear and cultivate more land effectively. Iron weapons were important catalysts of urbanization; they also strengthened armies in wartime[196].

From the above analyses it can be seen how the availability of materials to make agricultural tools were very essential in favorizing settlement and the practice of agriculture. More to this it could be notice how the tools were developed from simple to complex. The transformation of stone, wood and bone into farm tools such as arrows, spears, hoes, diggers and other farming tools, were all improved to iron tools and weapons which were more sophisticated. Consequently, the practice of agriculture became widely practiced due to more improved tools which facilitated the conquest of more farmlands for food production.

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[193] The Neolithic revolution was a process of transition from a nomadic lifestyle of hunter-gatherer communities to one of agriculture and pastoralism, as well as the start of a sedentary lifestyle.
[194] K. Adekola, "Dynamic of Metal Working Traditions in West Africa", The African Diaspora Archeology Network, Newsletter, 2011
[195] Ibid.
[196] *Encyclopedia of society and culture*…, p. 923

3. LAND TENURE AND CULTURAL FACTORS

Agricultural practices were favored in ancient African communities due to the acquisition of land for cultivation. Land tenure defines the rules on how individuals within communities could obtain and control land. With the manner in which individuals within African communities acquired lands, it encouraged them to engage in the practice of agriculture. Moreover, the population density of precolonial African communities were sparse and scanty while being concentrated around fertile areas where they could cultivate their food crops. African communities such as the *Kemtyous* and the *Bafreng* people that had a well-structured socio-political society (a centralized system), considered their lands to be owned by the gods and placed under the control of the *Nesou-bity* or *Fon*. With the settlement of people on the vast available land, believes began to evolve in relation to land acquaintances and cultural coalitions. As a result, land became part of culture thereby imparting agricultural practices. The *Kemtyous* and the *Bafreng* people conceptualized their cosmogony and believed in life after death, which brought about the cult of ancestral worship implicating the offering of food and drinks during ceremonial rituals. Subsequently, the rituals favorized the practice of agriculture as food was necessarily needed. For further details on how culture impacted agricultural practices, we shall examine it below, but first of all let's see how the availability of cultivable land, alongside the population density and land ownership favorized the practice of agriculture.

A- Farming Land Available

The centrality of land to economic development and social welfare is unquestionable. Land has been used from time immemorial to promote economic growth and human development that is why majority of the *Kemtyous* and the *Bafreng* population live and earn their living out of tilling the cultivable land as farmers. Even though, communities such as the *Kemtyous'* have a greater land portion of 90% found in the desert. However, this has not stopped agriculture from being the base of their economic. This is so because, majority of the population are farmers and they organize their agricultural activities through family labor compose of father, mother and children. The use of family labour has tended to strengthen families and favorized the practice of agriculture. Thus, the availability of vast land and people were essential factors in the practice of agriculture, which will be analyse further in the following part.

a) Availability of vast land

Kemet's red lands comprised its vast stretches of deserts spreading out on both sides of the Nile river. *Kemet's* vast western desert formed part of the Libyan desert and covered some 678,577 square kilometres (262,000 square miles). Geographically it is mostly comprised of valleys, sand dunes and occasional mountainous areas. The total land area of *Kemet* is approximately 997,738 Sq. Kms with an estimated total population that varied over time in relation to the cultivable land. Talking about the population, historians such as Diodorus Siculus from historical library, mentioned that: "This country is extended as far as the Ethiopians … it has 7.5 million men, besides the inhabitants of Alexandria, as may be learned from the revenue of the poll tax"[197].

The total area of cultivable land available, were the three productive zones of in *Kemet*; Nile Valley, delta and Fayoum. From the pre-dynasty period that is 4000 B.C. the Nile valley and delta had roughly equal amounts of cultivable land (in the region of 8,000 sq. km, or 3,089 sq. miles, each), but there was a greater population density in the valley. The Fayoum had a relatively low level of cultivable land (perhaps 100 sq. km, or 39 sq. miles), with a total population of 350,000. During the early dynasty period that is 3000B.C. there was no significant change to the amount of cultivable land, but a higher population density in all areas with a total population of about 870,000. During the Late Old Kingdom that is around 2500 B.C., there was an increase in cultivable land in the delta of about 9,000 sq. km, or 3,475 sq. miles and continued increase in population density in all areas with a total population of 1.6 million. By the Middle Kingdom 1800 BC, agricultural efforts significantly increased the amount of cultivable land and density of occupation in the Fayoum and in the delta, together with a slight rise in population density in all areas with a total population of 2 million. Meanwhile, during the reign of Ramesses II, New Kingdom 1250 BC, there was a significant increase in cultivable land in the Delta (to about 10,000 sq. km, or 3,861 sq. miles) and rise in population density in all areas giving a total population of 2.9 million. During Ptolemaic Egypt in 1500 BC, there was a significant increase in cultivable land in the Delta (to about 16,000 sq. km, or 6,178 sq. miles) and in the Fayoum (perhaps to 1,300 sq. km from the 400 sq. km of the New Kingdom) and rise in population density of about 4.9 million in all areas.

The *Bafreng Fondom* during the precolonial period had a vast land about of 18 sq. km which constitutes hills and fertile swampy zones alongside mountainous chains which enables

[197] https://brewminate.com/estimating-population-in-ancient-egypt, 30/05/2021, at 1:43pm

the cultivation of crops both on the high and low land. Beside the availability of vast land that favorized the practice of agriculture in *Kemet* and *Bafreng Fondom*, there is also the factor of land tenure which was another motivational factor to the practice of agriculture as shall be examine below.

b) Land tenure

Land being a core value amongst African communities and is also linked to the extended family's link with their ancestors. God gave the land to each community through their ancestors and they in turn have the responsibility to look after it for future generations. The placenta of a new born was buried in the soil to connect the new born with God, the ancestors and their responsibility toward the land[198]. Ownership, control, distribution and access to land have historically been used to dominate and empower different nations, races, genders and classes in ancient African communities. During the pre-colonial era, land right was obtained by residence, without allocation through a hierarchy of estate. This was so because, land was generally plentiful and the population were sparse. Individual families within a given usually acquired land by clearing virgin bush either by land transfer or by inheritance[199].

With the unification of Upper and Lower *Kemet*, and the establishment of a capital at *Inebu-hedj* (Memphis), an it's infrastructure for the administration of agricultural production, large royal estates came to being. The most characteristic pattern of landholding in *Kemet* was between private, monarch, and feudal. Private ownership of lands in the Old kingdom traces back to land -grants to members of the king's immediate family and eventually to more distant relatives, as well as officials. As such, most farmers worked on land owned by the nobles or priests or other wealthy members of the society[200]. As a consequence, landholdings often consisted of modest-sized parcels rather than contiguous plots of land. This is the case for small farmers as well as for owners of large estates[201]. Among the information found, the quantity of land and numbers of people assigned by the king to the main temples of *Kemet*; mainly to the estates of his own foundations[202]. It is clear from the data provided by the

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[198] S. P. Munge, "the concept of Equality and access to land: the case of the Anglophone Region of Cameroon", Ph.D. Thesis in Law, University of Buea, 2011

[199] D. Conroy, "Legal aspect of land holding amongst the Tonga", in W. Allan, et al, *Land Holding and land usage among the plateau Tonga of Mazabuka district: A Reconnaissance Survey*, Manchester University press, p. 89-120

[200] K. Butzer, *Early Hydraulic Civitization in Egypt. A Study in Cultural Ecology (Prehistoric Archaeology and Ecology Series)*, Chicago: The University of Chicago Press, 1976,

[201]B. Haring, *Landless and Hungry? Access to Land in Early and Traditional Societies*, Leiden, The Netherlands School of Asian, African, and Amerindian Studies, 1998, pp. 75-77

[202]H. Schaedel, *Die Listen des grolSen Papyrus Hanis. Ihre winschartüche undpolitische Ausdeafimg (Leipziger Ågyptotogische Studien*), Glüclstadt/Hamburg ÀiewNew York, Verlag J.J. Augustin, 1936

Wilbour papyrus that much of the land belonging to the temples was actually held and worked by private individuals. Nevertheless, temples and other institutions played a prominent role in Egyptians agriculture. The Wilbour Papyrus show two records of field surveys concerned with the holds of temples and royal domains undertaken during the regnal year. The surveys covered a section of the Nile valley (upper Egypt) between modern El-Minya and Atfih; a distance of about 134 km. According to a calculation by Fairman, the arable land in this part of the Nile valley as recorded by text A is approximately 17,324 arouras, or about 48 sq.km. The amount of land recorded cannot have been more than a tiny fraction of the total surface used for agricultural purposes[203]. Survey took place during July and August; a period in which many fields were inundated by the Nile[204]. For this reason, Fairman assumed that the surveyors were only concerned with fields sown with summer crops. If so (and it seems rather unlikely that the survey recorded lands actually under water), only the higher situated fields would be recorded. lndeed, most of the fields appear to have been located on what was called *kai* "high land". The royal lands only take a modest place; the largest share of agricultural land in text A of Papyrus wilbour was in the hands of the temples. Text B is specifically concerned with "'*khato*-land' of Pharaoh", and makes clear that much of this land was actually incorporated into temple estates. The temple estates included two types of agricultural domains: "normal domains, cultivated by people working for the temples, and "shared domain" the fields of which were worked by private individuals or by other landholding institutions [205].

In *Bafreng Fondom*, as long as individuals were politically acceptable in the community/village, they acquired a piece of land after consulting the village headman, who in turn had constant contact with the subchief or *Fon*. Once the individual had acquired a piece of land, the community protected his/her rights to its use as long as he/she continued to use it. When not in use, land reverted to the community. The individual did not own the land as such but enjoyed its usufruct[206]. Given the fact the *Fon* did not own the land, he did not extract surpluses from the subsistence cultivation peasantry in the form of a permanent land tax, although the people could give him gifts of food and relish (such as yams and beans) and raffia wine especially at special ceremonies. However, as time went on, with the emergence of a

[203]H.W. Fairman, Review of Gardiner 1948. journal of Egyptian Archaeology 39, 1953, pp. 118-123
[204]P. Grandet, « Le Papyrus Harris », Bibliothèque d'Étude CIX, 2 vols, Cairo, Institute Français d'Archéologie Orientale, 1994,
[205] K. Baer, "The low price of Land in Ancient Egypt", Journal of the American Research Centre in Egypt, 1962, pp. 25-45
[206] G. Kajoba, "Land use and land tenure in Africa: towards an evolutionary conceptual framework", article, University of Zambia, pdf, 2007, pp. 3

centralized *Fondom*, the *Fon* exercised direct control over allocation of land with a descending hierarchy of estates. In *Bafreng*, the *Fon* and the *fonly* classes-controlled land and assigned land right to their subjects.

However, it should be noted that fields circulated among private individuals as the objects of sale, lease, donation, and inheritance. Yet, even in many private transactions and disputes concerned with land, the interest of temples and other land-holding institutions is made apparent. Nevertheless, we can make an attempt towards a brief inventory of the different forms of "cooperation" between institutions and individuals land owning. From this point, moving onward, it is important to determine how cultural practices favorized the practice of agriculture.

B- Agriculture as Part of the People's Culture

Agriculture is a related term of culture. As a noun, the difference between agriculture and culture is that agriculture is the art or science of cultivating the ground, including the harvesting of crops, and the rearing and management of livestock; tillage; husbandry; farming while culture is the arts, customs, and habits that characterize a particular society or nation. From this distinction, we can say that, culture favors the practice of agriculture in the sense whereby, the custom (believes, religion, events, etc.) and habit (culinary, drinking habit, dressing, etc.) or lifestyle determines a community types of plants and animals' domestication. So, culture as a factor that favors agriculture, shall be examine under religion, social organization and food choices in order to determine the main agricultural products use, so that we can see why the *Kemtyous* and the *Bafreng* people had to domesticate some certain type of plants and animals because of their culture.

a) Diet

Food was very important in *Kemet* and in *Bafreng Fondom* as previously mentioned that, it is an element of culture manifested through their eaten habit. The geographic condition of *Kemet* and *Bafreng Fondom* provides a regular form of vegetation and crop cultivation that became a diet. This could be seen from pyramid texts carved on tomb walls, sarcophagus and temples scenes of the *Kemtyous* depicting varieties of agricultural products such as barley, emmer, rice, lentils, garlic, figs, grapes, ducks, quails, and even goose meat obtained during hunting expeditions. They also drank beer and wine. Bread is prepared solely from emmer wheat while beer is prepared from barley. The production of bread and beer was obviously of paramount importance, as they were essential part of every meal, and many different types are

listed on the walls of tombs and temples[207]. It is most probable that varieties of bread were differentiated by their shapes (oval, round, or conical) and by the flours and ingredients which gave them special flavors. It is known that barley, spelt, and wheat were used and that honey, butter, milk, and eggs provided additional ingredients. Beer, was considered the favorite drink of the egyptians, it is frequently mentioned in the ancient texts as one of the offerings made to the gods and the dead. The earliest references occurred at the beginning of the Old Kingdom (2575–2134 B.C.E.)[208]. There were different sorts of beer even in the earliest periods, and residues have even been found in jars of predynastic date[209]. Classical writers like Strabo and Diodorus made mentioned of it: Strabo related that "barley beer" was peculiar to the Egyptians, and he also claimed that its smell and sweetness of taste were "not much inferior to wine." However, it should be noted that according to Rosalie, various plants may have been added to the beer to flavor it, but some of these appear to have been medicinal treatments for which the beer acted as a vehicle rather than actual flavoring ingredients[210]. Wine was another popular drink of the Egyptians. Grapevines were carefully cultivated and trained over trellis work supported by wooden forks or pillars[211].

As for the *Bafreng* people, their diet varied over time. During the establishment of the *Fondom*, grains such as beans, maize, groundnuts, tubers such as yams, macabo, and vegetables such as huckleberry, cabbage alongside fruits such as figs, constituted their main diet. As time went on, they began cultivating cocoyam and banana for the preparation of "*achu*" which became their traditional meal.

From the above analyses of the *Kemtyous'* diet and that of the *Bafreng* people, it can be determine that various types of food which were highly valued by these civilizations, were highly valued in their culture. As such, they mostly cultivated just the main diets were necessary for their consumption. Followed by this let's examine the next cultural factor which favorized the practice of agriculture.

c) Social organization

Kemet's social structure originated in the scattered communities of the Predynastic Period. The communities that were established enjoyed mutual protection and schemes such as irrigation which benefited everyone for settlement and agricultural practices. Each unit retained its independence and had its own capital city and an area of land to support its inhabitants with

[207] C. Aldred, *Les pharaons : le temps des pyramides*, Paris, Gallimard, 1978, p. 122
[208] Ibid.
[209] T. G. James, *Le peuple du pharaon : culture, société et vie quotidienne*, Monaco, le Rocher, 1988
[210] D. Rosalie, *Handbook to life in ancient Egypt*… p. 331
[211] Ibid.

farming. Eventually these units combined to form larger districts and these became the main administrative divisions of later times ( *sp3t /Sepat* known as nomes). Around 3400 B.C. two kingdoms, the Red Land and the White Land, were established in the north and the south, respectively. With the unification of the country in 3100 B.C. the whole area came under one ruler, but the symbolic parallelism of  *T3wy /Taouy* the "Two Lands" was always retained and the nomes continued to form the basis for administering the country[212]. By the Archaic Period some of the political and social systems that continued in later times were already in place. But it was in the Old Kingdom that the pattern of Egypt's social structure had already emerged. The king (regarded as a partly divine being) had a unique status and roll around which the society revolved. Kingship had developed out of the role of tribal chieftain, and theoretically the ruler's duties included political, religious, social, economic, military, and legal commitments. As the kingdom developed, however, these were increasingly delegated to royal officials. The kings were polygamous, enabling him to have a large family that could carry out farming. This family background not infrequently led to rivalry and dispute over the royal succession.

In the Old Kingdom the king had attempted to secure the loyalty of his relatives by granting them the major positions in government[213]. He also gave them gifts of royal land and possessions, and their children were educated at the royal court. He provided them with tombs, funerary goods, and estates to maintain their tombs, and they could only expect to attain immortality through his bounty with the help of a priest. After the king the most important position was held by the vizier (prime minister). He was head of the judiciary, chief royal architect, and keeper of the state archives. The country was divided into districts that were administered by local governors known also as the senior official, followed by thee high priests and nobles, which all constituted the government officials. Below the government officials there were the scribes in charge of education. The scribes formed a special class of literate professionals. They performed important bureaucratic duties such as record keeping, tax accounting, and the management of public works. Under the scribes were the craftsmen and artisans who produced a wide range of goods for the living and the dead. These people worked in communities: Many lived in the capital city, and particular schools or styles of art developed in the great centers; others were employed in the temple workshops; and the elite were engaged

[212] D. Rosalie, *Handbook to life*… p. 331
[213] T. G. James, *Le peuple du pharaon*…, p. 65

in preparing and decorating the royal burial place[214]. They were accommodated near the worksite in specially constructed towns. Advances in technology, originally developed for funerary architecture and goods, were soon employed in the service of the living to produce furniture, jewelry, toiletries, pottery, and clothing. At the bottom of the society were the peasants (perhaps representing 80 percent) who worked on the land. They were responsible for providing the food, resources, and manpower for the whole country. Their work on the land was governed by the annual inundation and the seasons, but they attempted through their arduous labors to produce enough food to satisfy their own limited needs. Through their taxes they also fed the rest of the society and supplied the offerings for the tombs and temples (which were ultimately presented to the priests). For three months each year, when the inundation covered much of the land with water and rendered it impossible to cultivate, the peasants probably undertook alternative employment. They may have worked at the royal burial sites receiving food for themselves and their families as payment. The peasants were liable to corvée duty (the king could call upon them for any duty). Indeed, this applied to all his subjects, but the wealthier could pay someone else to take on their allocated tasks[215].

Meanwhile *in Bafrang Fondom*, the social organization begins by the village head who is the *Fon* and the custodian of the village. He is the administrative head of the village and he reaches to every quarter through the members of the traditional council. The *Fon* is followed by the traditional administrative officials who also constitutes the secret society made up of the '*Kwifon'*, the '*Manjong'* and the '*Tekembeng'* for men and women respectively. The '*Kwifon'* acts as the supreme judge when there is a dispute. However, it can only be seen by initiated men. It is also charged of supervising land distribution and passing on sanctions when atrocities are committed within the village. Therefore, each secret society has its areas which are no go zones to non-members. Here, they perform their sacrifices and rituals, like pouring libations to the ancestors to ask for blessing like woman and soil fertility, rainfall for crops to do well, and for protection of the land from any mishaps, with agricultural products such as palm oil, palm wine, offering of sacrifices with goats and cows[216]. Under the secret societies, there are the notables who represent the quarter heads that are charged with the responsibility of protecting and representing the quarters at the village level in all matters concerning the quarter. Lastly, each family heads have as the closest set up a household made up of husband as the head, wife

[214] F. Trassard (ed.), *La vie des Egyptiens au temps des Pharaons*, Quebec and Paris, Larousse, 2002, pp. 122-134
[215] F. Trassard (ed.), *La vie des Egyptiens*…, p.125
[216] Interview with Azinue Ngufor, quarter head of Bayelle, on 23/12/2020

and children. Each household is attached to a big compound with a compound head that has discretionary powers on each family member of the compound. The compound head is a traditional title holder and he is given a cup which he uses to perform traditional rites within and outside the family whenever need arises. The compound head is also charge of organizing the family to carry out farming activities[217].

From the above analyses, the social organization in Kemet and in *Bafreng Fondom* greatly favored the practice of agriculture in the sense that, the class distinction enabled a better organization of farming activities within the families. More to that, the bottom of the social organization is made up of more peasants who are mostly farmers. Farming for the production of agricultural products was an essential part of the maintenance of the social classes, given the fact that food was needed to feed both the living and the dead.

C- A Great Importance to Agricultural Products

From a geographical, human, animal and cultural perspective it has been seen how agricultural practices in *Kemet* and *Bafreng Fondom* were favored. Agricultural products obtained from the farms, were considered very important for the human life, given the fact that agricultural products served as food, and also form the making of other non-consumable products. Food was necessary because life is dependent on the energy inside the body, and food is the only source of vital energy for the body. Agricultural products play an important role in promoting health and diseases prevention. In general, these products contain nutrients, such as carbohydrates, proteins, fats, minerals and vitamins which are consumed to provide nutritional support for the human organism. The demand for agricultural products increased in *Kemet* and in *Bafreng Fondom* from subsistence agriculture to commercial, due to the population increase. Moreover, in *Bafreng* traditional practices (marriages, funeral ritual etc.) and festivals (end of year feast) became too rampant up to the point where agriculture products such as goat, sheep, cow, cereals, vegetables, raffia, oil palm, palm, peas, groundnuts, kola nuts and other fruits were highly consumed. Agricultural products did not only provide food and raw material but also employment opportunities to a very large proportion of population. In addition, agricultural products play a crucial role in the economy of a community. It is the backbone of African communities' economic system[218].

[217] Interview with Azinue Ngufor, on the 27/12/2020, at Bayelle
[218] P. N. Nkwi, *Traditional diplomacy: A study of inter-chiefdom relations in the Western Grassfields, North West Province of Cameroon*, Yaounde, Department of Sociology, University of Yaounde I, 1987

From the above general introduction on how important agricultural products is to a community, it can be observed that the practice of agriculture was indispensable for the *Kemtyous* and the *Bafreng* people. Let's examine detailly how the *Kemtyous* and the *Bafreng* people attributed a great importance to their agricultural products under the domain of health, payment and trade, so as to also understand how these domains gave a great importance to agricultural products and favoured agricultural practices.

a) Health as a factor that attributed a great importance to agricultural products

The *Kemtyous* and the *Bafreng* people gave a great importance to their agricultural products not only because it was a cultural aspect, as it was examined under the previous point (**III: 2**.), but also because the agricultural products were a fundamental aspect of their health. The health benefits derived by the *Kemtyous* and the *Bafreng* people from the crops and animals which they domesticated and ate encouraged them to practice agriculture.

It should be noted here that the *Kemtyous* were creative in their usages of plants, especially for medicine, religious practices, and in the production of cloths. Herbs perhaps had the most varied purposes; they were used for cooking, medicine, cosmetics and for embalming. With the use of agricultural products such as acacia seeds, garlics, barley, emmer wheat, onions etc., it will be study how they contain great medicinal properties as it shall be examined below in a table manner. The table below shows agricultural products from ancient Egypt and their health benefits.

Table 1: *Kemet's* agricultural products and health benefits.

Agricultural products	**Local name**	**Scientific name**	**Health benefits**
Garlics	*Htn*	Allium sativum	Garlic has been used as a healing agent since the ancient Egyptian period. The fresh cloves of garlic are peeled, mashed and macerated with vinegar and water. It is used to freshen the mouth by gargling the mixture and cures sore throats and toothache. It can also be used to treat and prevent problems by macerating several cloves of mashed garlic in olive oil. Asthma, bronchial and lung disorders including cold are also cured by applying as an external or internal liniment.
Onion	*Hdw*	Allium	Onion fight cancer. Red onions are the most effective in destroying breast and colon cancer cells Improve Heart Health. The flavonoids in red onions can contribute to heart health. Onions are also rich in organosulfur, which can help prevent heart disease.
Emmer wheat	*Bdt*	Triticum dicoccum	Contains high fiber foods, protein, vitamin B, vitamin E, folic acid, magnesium, copper, phosphorus, zinc, manganese, selenium, iron and essential fatty acids. Therefore, eating of emmer wheat can meet nutritional needs to maintain a healthy body.
Barley	*it-m-it*	Hordeum vulgare	This versatile grain has a somewhat chewy consistency and a slightly nutty flavor that can complement many dishes. It's also rich in many nutrients and packs some impressive health benefits, ranging from improved digestion and weight loss to lower cholesterol levels and a healthier heart. When consumed as a whole grain, barley is a particularly rich source of fiber, molybdenum, manganese and selenium. It also

			contains good amounts of copper, vitamin B1, chromium, phosphorus, magnesium and niacin. Barley contains soluble fiber, which reduces hunger and enhances feelings of fullness. It may even promote weight loss.
Corn	*$^{c}m^{cc}$*	Zea mays	Corn, especially the yellow variety, is a rich source of calories and is a staple in many places. The calorific content of sweet yellow and white corn is 96 calories per 100 grams. This is why it is often turned to for quick weight gain. It is rich in vitamins, essential minerals, fiber, and antioxidants. It is good for the heart, prevents constipation, helps to manage diabetes, and is good for your skin. Corn contains several essential minerals that can help in ensuring proper growth and fighting diseases.
Pomegranates	*Inhrm*	Punica granatum	Pomegranate juice contains higher levels of antioxidants than most other fruit juices. It also has three times more antioxidants than red wine and green tea. The antioxidants in pomegranate juice can help remove free radicals, protect cells from damage, and reduce inflammation. The juice of a single pomegranate has more than 40 percent of your daily requirement of vitamin C. Vitamin C can be broken down when pasteurized, so opt for homemade or fresh pomegranate juice to get the most of the nutrient.
Lettuce	*^{c}bw*	Lactuca sativa	Lettuce health benefits includes inducing sleep, fighting inflammation, fighting bacterial and fungal, keeping you hydrated, helps improve memory retention, helps preserve cognitive function, helps control anxiety, a rich source of omega 3 fatty acids, promotes muscle development, support weight loss, offers skin care benefits, and support pregnancy development.
Cabbage		Brassica oleracea	Cabbage health benefits includes reducing risk of cancer, improving brain and nervous system health, promoting bone health, maintaining blood pressure, detoxifying the body, promoting bowel regularity, regulating sugar level and promoting weight loss. Other benefits include improving health of hair, skin and nails, helping prevent or heal acne, healing stomach ulcers, helping care for the heart, promoting healthy pregnancy and boosting immunity.
Poultry and fish			Consuming poultry, and fish is beneficial for healthy skin. Fatty acids in meats, especially fish are able protecting the skin from UV rays. The protein intake from meats helps our skin to restore the natural moisture and glow of the skin. The mineral is very good in improving the immune system. One of the minerals which act as immune booster is zinc. Zinc from meat, poultry, and fish acts as antioxidants and actively fights free radicals

Source: https://stillunfold.com/history/ancient-egyptian-medicines, visited on 12, June 2021

Food crop cultivation is the base of good health in *Bafreng Fondom*. Its importance can also be notice in the population increase and living standard of the inhabitants within the *Bafreng* community. There are different types of agricultural products with great high nutritional values and importance, and here are some of them: plantain, cocoyam, tubers, beans, corn, groundnuts, pumpkin, and vegetables amongst others. Let's analyze them in a table manner taking into consideration their local names, scientific names and their health benefits, in other to illustrate how the agricultural products had a great importance.

Table 2: Agricultural products in *Bafreng* and their importance

Agricultural products	**Local name**	**Scientific name**	**Health benefits**
Plantains	Nengune	Musa	They contain fiber, potassium, and many other vital nutrients.
Banana	*Məmbo-tiko*	Musa acuminata	Bananas are a healthy source of fiber, potassium, vitamin B6, vitamin C, and various antioxidants and phytonutrients. Bananas are a rich source of carbs, which occur mainly as starch in unripe bananas and sugars in ripe bananas. The carb composition of bananas changes drastically during ripening. The main component of unripe bananas is starch. Green bananas contain up to 80% starch measured in dry weight. During ripening, the starch is

			converted into sugars and ends up being less than 1% when the banana is fully rich. Bananas have a relatively low glycemic index (GI) of 42–58, depending on their ripeness. The GI is a measure of how quickly carbs in food enter your bloodstream and raise blood sugar.
Cocoyams	*Makabe*	Taro colocasia	Cocoyam contains starch, which makes them an excellent source of carbohydrate. It contains dietary fiber and higher protein contents than the majority of the tropical root crops. It also contains thiamine, calcium, niacin, manganese, vitamin B, vitamin C, vitamin E, magnesium, copper and riboflavin.
Yams	*azu'u*	*Dioscorea*	Yams are rich in vitamins, minerals, and fiber. Yams are not only an excellent source of fiber but also high in potassium and manganese, which are important for supporting bone health, growth, metabolism, and heart function. These tubers also provide decent amounts of other micronutrients, such as copper and vitamin C. Copper is vital for red blood cell production and iron absorption, while vitamin C is a strong antioxidant that can boost your immune system.
Beans	*Meku*		Beans are a great way to get low-fat, low-calorie protein that already has the fiber and carbs mixed in. A single cup has around 15 grams. That's two to three times more than rice or wheat. It's especially good for a protein building block called lysine that you might not get enough of if you're a vegetarian. Eating a variety of beans not only seems to help prevent diabetes, it also appears to help control the high blood sugar that is both a cause and symptom of the disease.
Corn	*ŋgwasane'*		Corn has a high fiber content; it can aid with digestion. It also contains valuable B vitamins, which are important to your overall health. Corn also provides our bodies with essential minerals such as zinc, magnesium, copper, iron and manganese
Groundnuts	*Menjye^{v}*	Arachis hypogaea	Protein is an essential component of our diet, since there are over 10,000 types of protein in our bodies. Groundnuts have been shown to be an extremely high source of protein, and they are often incorporated into the diets of vegetarians and protein deficient people. Groundnuts contain monounsaturated and polyunsaturated fats that may keep the heart healthy, by helping to lower blood cholesterol levels. Groundnuts may improve inflammatory skin concerns like eczema, because peanuts boast a high-level fatty acid, which may help to make your skin feel better, and look healthier by decreasing inflammation.
Pumpkins	*Me'bo'o*	Cucurbitaceae	Pumpkin is a great source of potassium and beta-carotene, which is a carotenoid that converts to vitamin A. It also contains some minerals including calcium and magnesium, as well as vitamins E, C and some B vitamins.
Beef	*ǹnà*		Beef is an excellent source of essential nutrients. It contains a wide range of vitamins and minerals. It helps protect every cell in our body from cellular damage, which can lead to many chronic diseases. Protein is the building block our body uses to repair and make bone, skin, and cartilage. Sufficient protein helps us to build and maintain lean muscle mass. Out of all macronutrients, protein is the most satiating, and it discourages food cravings. Beef is packed with health-promoting amino acids, and it's one of the single biggest sources of protein in the human diet.

Source: https://www.medicalnewstoday.com, visited on 12, June 2021

From the above tables (**table 1 and 2**), we can see how important the agricultural products of the Ancient Egyptians an d that of the *Bafreng* people is of a great importance, due to the fact that, the agricultural products kept them healthier. The *Kemtyous* faced diseases such; heart problems, cancer tuberculosis, malaria amongst others, as a result they had to produce agricultural products that will enable them build up their immune systems and blood cells in order to defend their organs from the damages cause by the viruses. In *Bafreng Fondom* the people face problems of waterborne disease such as diarrhea, skin, ear, respiratory, or eye problems. There exist also problems of airborne diseases such as chickenpox, influenza, cough, measles, and others. Most of the diseases faced by the Ancient Egyptians and the *Bafreng* people are considered as autoimmune diseases, because it is a condition that arises from an abnormal immune response to a functioning body part. The inappropriate response, which is

referred to as an autoimmune reaction, can cause inflammation and tissue damage[219]. But it has been proven that food plays a great role in helping sufferers of autoimmune disease feel better and heal their bodies[220].

For the above reasons, the *Kemtyous* and the *Bafreng* people attributed a great importance to their agricultural products, due to the fact that they had to build up their immune systems and cells in order to prevent diseases common in their environment and subsequently, it favored the practice of agriculture. From this point, the next will be on how payment gave a great importance to agricultural products in *Kemet* and in *Bafreng Fondom.*

b) Payment

Payment being the transfer of money or goods and services in exchange for a product or service is typically made after terms have been agreed upon by all parties involved under an employment. In other words, employment is defined as persons of working age who are engage in any activity to produce goods or provide services for pay or profit, according to a working-time arrangement[221]. This relation between the employer and the employee through a relationship of work and payment in ancient african communities encouraged the practice of agriculture on larger scale as part of the agricultural products had to be use for payment, given the fact that employers in ancient time paid their employees with agricultural products, before the introduction of other currencies or methods of payment. In addition, ancient african communities through payment of bride wealth such as dowry, made use of either animal or crop products.

According to Rosalie, within Egypt the economic system revolved around the payment of wages in kind (usually in food such as corn, barley, fish, and so forth) to various groups of employees, such as scribes, priests, farmworkers, and artisans. The three major employers; the state, temples, and nobles, paid their employees from the rents and dues they received themselves. Revenue and payments depended on a fairly rapid redistribution system of the food that was grown and collected annually[222]. Indeed, much of *Kemet's* labor and production were centered on food. The economy was based on a barter system, and the taxation procedure rested on a regular census of the fields and herds. Each year for the agricultural census officials were sent out to measure the arable area and to compile a list of the institutions and private owners who held the land. This enabled them to estimate the year's crop and the probable tax that it

[219] https://www.verywellhealth.com/what-is-an-autoimmune-disease, visited on 2021/06-03 at 4:28 pm.
[220] https://foodrevolution.org/blog/autoimmune-disease-diet, visited on 2021/06-03 at 4:30 pm.
[221] https://www.merriam-webster.com/dictionary/payment/employment, visited on 06/03/2021, at 6:37 PM
[222] D. Rosalie, *Handbook to life…,* p. 137

would yield; once the crops had begun to grow other inspectors would return to make a final tax assessment. Wages were paid on the twenty-eighth day of each month for the following month. Basic payment was in grain (emmer wheat for flour and barley for beer) authorized by the vizier and drawn from the king's granary by the royal scribe. The government also supplied fish, vegetables, water, wood for fuel, and pottery; there were fewer regular payments of cakes, readymade beer, and dates and bonuses of salt, natron, sesame oil, and meat for special occasions such as festivals. Giving the fact that both foreign trade and *Kemet's* own economy were based on barter since coinage was not introduced until the Persian Period (c.525 B.C). The Egyptians lacked good quality timber, copper, silver, and spices, but in exchange for them they could offer cereals, papyrus, textiles, dried fish, and various luxury items. It was the responsibility of the state to acquire these products from neighboring countries, and this was achieved in a number of ways. Kings sent royal expeditions to sources of supply such as Nubia, Byblos, or Punt, and they also engaged in warfare, which brought great rewards including booty and prisoners, although the extent to which economic considerations prompted their conquests remains uncertain. In addition, through international diplomacy, they received gifts of foreign goods from other rulers. Tomb scenes show that the collection of taxes and the reception of tribute from various districts were organized in this way, and in scenes in Queen Hatshepsut's temple at Deir el-Bahri that depict the famous Punt expedition with the *Kemtyous* and Puntites carry out their exchange change of goods by means of barter[223].

Like in *Kemet*, the *Bafreng* people during the early stage of their community, carried out their payments with agricultural products, since at that time, there were no other form of payment existence. According to Pa. Victor Ngami, farm lands which were handed over to villagers by the *Fon,* were cultivated by the individuals who later on during harvest set apart some of the food crops which he or she will give to the *Fon* as a form of payment or acknowledgement for the land given to him or her[224]. In *Bafreng Fondom,* food crops such as beans, yams, plantain, banana, cocoyams and raffia wine were farm products which were mostly used as payments because of their high consideration within the *Fondom*. These farm products alongside animals such as goats, cows and fowls were used as payments of dowries and for other traditional reasons such as taxes and sanctions The *Bafreng* people, unlike the Ancient Egyptians also had an economic system based on a barter system, carried out their trading activities with neighbouring villages like *Bafut*, *Mendankwen*, *Nso, Ndzah Fondoms*

[223] D. Rosalie, *Handbook to life…,* pp. 319-320
[224] Interview with Mr. Victor Ngami, notable of Nkwen *Fondom*, retired teacher; on the 26th of December 2020

amongst others with food crops. According to the quarter head of upper Bayelle III, the *Bafreng* people exchanged their agricultural products with goods that they did not produce such as salt, palm oil, huckleberry and others. As a result, the *Bafreng* people learned how to valorise their own products in order to give it a great importance to the person who had to collect the products[225].

From the above analyses, we can come to a conclusion that the early method of payment in *Kemet* and in *Bafreng Fondom* with the use of agricultural products, gave the products a great consideration in the two societies. The fact that the *Kemtyous* and the *Bafreng* people had to make use of agricultural products as a form of payment in all aspects of life, was partly because their economy was centered on a barter system, apart from the points of health and payment, we realized that the trade system based on barter, enabled these two communities to give great values to their agricultural products. As a result, the trade by barter system encouraged the Ancient Egyptians and the *Bafreng* people to cultivate more food crops and to domesticate more animals for the exchange of other goods which they did not produce as we have seen previously. So, in a nut shell, this chapter was aimed at studying the factors which favored the practice of agriculture both in *Kemet* and in *Bafreng Fondom*. The first part studied how agricultural practices were favored by geographical and climatic factors, followed by the second part which is human and animal factors, and the third part ended with the cultural and social organisation. The analyses of this first chapter enabled this study to illustrate how the practice of agriculture was not created in vacuum but was favoured by natural factors. However, the second chapter will examine the types of agricultural practices applied by the *Kemtyous* and the *Bafreng* people, and how they organised their agricultural practices. Chapter two will also study the different crops cultivated by the *Kemtyous* and their mode of conservation.

[225] Interview with Azinwi Ngufor, quarter head of upper Bayelle III, on the 26th of December 2020

CHAPTER II

TYPES OF FARMING PRACTICES AND ORGANISATION IN ANCIENT EGYPT AND IN NKWEN FONDOM

Agricultural practices implicating the steps and procedures involve in food production as seen earlier done by farmers and gardeners, has been the main reason behind human settlement since time immemorial. Agricultural practices being the main reason for human settlement in Africa, enabled early Africans to master their geographical environments, in order to best exploit it. As such, the growth of different species of plants and animals which were favorized by diverse factors as seen in the previous chapter, created food surpluses community growth. The practice of agriculture required a systemized body of knowledge (science) and skills (art) that takes into consideration: detail knowledge of nature (weather, landscape), farm land soil and crop type, the population distribution including the type of tools to be use[226]. For instance, farmers must have a mastery of when, what and where to plant and harvest, in order to better organize themselves. More to these, farmers must also know how to conserve the agricultural products for a long duration, so that they don't get bad if they have to be kept for long. All these implies that, agricultural practices must be well organize. Thus, this chapter in the first part will consist of studying the types of agricultural practices and the tools used by the *Kemtyous* and the *Bafreng* people, while the second part will analyse how they organized their agricultural practices. Then, the third part will analyse the various agricultural products cultivated in *Kemet* and in *Bafreng Fondom*, and how they were conserved.

I. TYPES OF AGRICULTURAL PRATICES AND TOOLS USED IN ANCIENT EGYPT AND THE NKWEN FONDOM

The application of a good agricultural practice is very important in terms of both quality and efficient agricultural production and safe food consumption. However, the ancient african communities mostly took into consideration the availability of land and population density in order to determine the type of agricultural practices. With a good agricultural practice sustainable development was achieved. This is why the various production systems were grouped under a traditional and transitional system. This is so because the majority of farming system in African communities' ranges from an extensive form of farming (shifting cultivation

[226]https://www.cropsreview.com/what-is-agriculture.html, Visited on Saturday 10, April 2021, at 2:00am

and nomadic herding) to more permanent and specialized types of farming (compound farm and terrace farming). However, it should be noted that subsistence agriculture was the dominant mode of production in the world until recently. Nevertheless, there are several steps of agricultural practices that eased farming methods and improved their productivity. These steps will depend on the type of agricultural systems such as: pastoral farming, shifting cultivation, rudimentary sedentary cultivation, mixed farming, subsistence farming, irrigation cultivation and horticulture amongst others[227]. In *Kemet* and in *Bafreng Fondom*, subsistence agriculture, horticulture, mixed farming and irrigation cultivation were the dominant type of agricultural practices. There are several types of agricultural practices which were carried out by the *Kemtyous* and the *Bafreng* people. However, the existing agricultural or farming system differed according to the ecological zones. In *Kemet* and in *Bafreng Fondom*, the ecological zones where designed to produce subsistence food, cash sales and materials for local or industrial use.

1. Subsistence Agriculture.

Subsistence farming is the growing of crops and keeping of animals for the sole purpose of feeding the farmer and his family[228]. It aims at food production for local consumption of family or community and not for trade purpose. However, some small surpluses may be either exchanged by barter or sold for cash. The subsistence farming or traditional farms are characterized by low of inputs which are mostly provided by the farmer himself. For example, seeds, cow dung manure etc. are not purchased by the farmers[229]. There are two types of subsistence farming practiced by the *Kemtyou* and the *Bafreng* people, which are primitive or simple subsistence farming and intensive subsistence farming.

a) Primitive subsistence farming

Talking about primitive farming, it should be noted that it is the oldest form of agriculture and still prevalent in some areas of the world. From primitive gathering, the *Kemtyou* and the *Bafreng* people took a step upward on their economic ladder by learning the art of domesticating plants and animals. With such a system of farming, hill slopes are preferred because of better drainage. Many farm lands are located in the remote interiors, far from the

[227] https://www.fao.org, visited on 29/01/2022, at 4:30am
[228] https://geography-revision.co.uk/gcse/agriculture/types-of-agricultural-activity, visited on 29/01/2022, at 4:30am
[229] https://hmmcollege.ac.in/uploads/subsistence_farming.pdf, visited on 29/01/2022, at 4:30am

main population centers. This form of agriculture is also known as the slash and burn agriculture. In *Bafreng Fondom* farms lands are cleared and the grasses allowed to get dry then covered with soil before being burned so that the arches remain under the soil so that it becomes more fertile for planting. This agricultural practice in *Bafreng* is known as "*ancarah"*[230]. However, it should be noted that the cultivated patches are usually very small and the cultivation is done with very primitive tools such as sticks and hoes. In *Kemet* and in *Bafreng Fondom*, the main crops cultivated were starchy foods, and are sown at calculated intervals, often between the other plants, so that the harvest can be staggered to provide food all the year round.

b) Intensive subsistence farming

As for the term, 'intensive subsistence agriculture' it is characterized by high output per unit of land and relatively low output per worker. To maximize food production and to support the large populations on the small pieces of land, thee farmers practice double and continuous cropping with no fallowing thus ensuring that no land is wasted. Manure is also applied to increase crop productivity. In addition, livestock are usually allowed to gaze on land that is not suitable for crops[231]. In *Bafreng Fondom,* intensive agriculture made it possible for the populations to grow. So, unlike most other regions of pre-colonial Africa, the highlands of the Grassfields were quite densely populated. Labor was not a scarce resource. Men and women commonly worked together in the fields, sowing and harvesting. Men were usually responsible for the heavier work, such as plowing and construction of terraces. When extra labor was needed during the agricultural peak seasons, for jobs like clearing land and bringing in a big harvest, farmers would arrange a work party of men from the village[232]. After the work was done, they would be invited to a feast where *ǹnà* **(**meat) and *àkwo* (raphia palm wine) were served. Women played a central role in the work parties, as they were in charge of cooking food and serving the food. Let's see at other types of agricultural practices applied by the *Kemtyous* and the *Bafreng* people.

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[230] Bamenda III council Development Plan, main document, elaborated with the support of Grass Field Participatory and Decentralized Rural Development Project (GP-DERUDEP)

[231] J. Waceke and W. Kimenju, "Intensive subsistence agriculture, impacts, challenges and possible intervention", Kenyatta University, Kenya, Review, 2007, p. 44

[232] Erik Green, Production systems in pre-colonial Africa, article, in *The History of African Development*, at www.aehnetwork.org/textbook/

2. Horticulture

This is a segment of agricultural practices which literally means the culture of a garden. In ancient days, gardens had protected enclosures with high walls or similar structures surrounding the houses. The enclosed places were used to grow fruits, vegetables, flowers and ornamental plants. Therefore, in original sense "horticulture refers to cultivation of garden plants within protected enclosures for food, comfort, and beautification"[233]. Horticulture is a wide field and includes a great variety and diversity of crops. The science of horticulture can be divided into several branches depending upon the crops it deals with. The following are the branches of horticulture[234].

- Pomology: refers to cultivation of fruit crops.
- Olericulture: refers to cultivation of vegetables.
- Floriculture: refers to cultivation of flower crops.
- Plantation crops: refers to cultivation of crops like coconut, rubber, coffee, tea etc.
- Spices crops: refers to cultivation of crops like, cardamom, pepper, nutmeg etc.
- Medicinal and aromatic crops: deals with cultivation of medicinal and aromatic crops.
- Plant propagation: deals with propagation of plants.

Let's examine some of these types of horticulture in other to better illustrate the practices involved.

a) Pomology

This is a branch of agriculture that deals with the cultivation of fruits. This type of agricultural practices mainly focuses on the development, enhancement, cultivation and physiological studies of fruit trees. In Ancient Egypt and in the Nkwen *Fondom*, the goal of fruit tree cultivation was to enhance the fruit quality and regulation of production period[235].

In Ancient Egypt, farmers planted fruit trees and vines along paths, to give shade as well as fruit. Fruits in Ancient Egypt required more demanding and complex agricultural techniques, such as irrigation systems, cloning, propagation and training. The first fruits cultivated by the Egyptians were likely indigenous, such as the palm date and sorghum, more fruits were introduced as other cultural influences were found throughout predynastic Egyptian sites, as

[233] http://horticulture.sfasu.edu/whatishort.htm, visited on 31/01/2022, at 4:34am
[234] Dr. G. S. K. Swamy and Dr. J. Auxcilia, Fundamentals of Horticulture, on https://www.agrimoon.com/wp-content/uploads/Fundamentals-of-Horticulture.pdf, visited on 31/01/2022, at 4:34 am
[235] A. Jackson, the fruit and fruit trees of America, 1855, online article

were the sycamore fig, and dom palm.[236] More fruits were introduces during the New Kingdom such as carob, olive, apple and pomegranate. Later, during the Greco-Roman period peaches and pears were also introduced[237].

b) Olericulture

This branch of horticulture deals with the cultivation of vegetables[238]. The practice started in several parts of the world over 10,000 years ago, as families grow vegetables for their own consumption. Many technics were used by the Ancient Egyptians and the Nkwen people to cultivate vegetables of the raised bed gardening has been predominant.

The Ancient Egyptians cultivated large varieties of vegetables such as onions, garlic, leeks, beans, lentils, pea, radishes, cabbage, cucumbers and lettuce were consumed for their medical qualities. Throughout the different dynasties, Egyptians supplemented their vegetable intake with a variety of grains and meat. The Ancient Egyptians religion also influenced the type of vegetables which they consumed. For instance, onion was considered to possess aphrodisiac qualities, and was forbidden among celibate priests despite being a common staple. Lettuce leaves were also regarded as an aphrodisiac or fertility enhancer, and frequently used for religious pledges or offerings[239].

In the Nkwen *Fondom*, vegetable cultivation played a key role in food security. The Nkwen people have been able to exploit their environment, as a great portion of wetlands are increasingly seasonally reclaimed for vegetable cultivation. Vegetable remain one of the mainstays of diets in the area as they often accompany their carbohydrate staples such as the local food called "achu"[240]. In Nkwen *Fondom*, the various species of vegetables are: huckel berry (*Solanum scarbrum*), green (*Amaranthus*), bitter leave (*Vernonia amygdalina*), Cabage (*Brassica oleracea*), lettuce (*Lactuca sativa*), Eggplant (*Solanum melongen*), pumpkins (*Capsicum chinensis*), cow pea (*Talinum triangulare*)[241]. However, it should be noted that huckleberry, bitter leaf and green were the most common vegetable cultivation preferences. In order to cultivate these vegetables, the Nkwen people with the use of locally made tools such as cutlasses and axes, devastated the existing raffia (*Raffia farinifera*) found on the wetlands

[236] https://www.fao.org, Ancient Egypt agricultural system, online article, edited on 12/06/2020, visited on 18/05/2022, at 5:07am
[237] Ibid.
[238] https://www.gardeningknowhow.com, visited on 18/05/2022, at 5:22am
[239] https://www.classroom.synonym.com, visited on 18/05/2022, at 5:25am
[240] Produced from pound *colocasia.*
[241] G. A. Asongwe, B. P. Yerima, A. S. Tening, "Vegetable Production and the Livelihood of Farmers in Bamenda Municipality, Cameroon", Article for the *International Journal of Current Microbiology and Applied Science*, volume 3, pp. 682-700, 2014, downloaded at https://www.ijcmas.com

within the *Fondom*, then applied either broadcasting or hill cultivation. With broadcasting, small seeds such as huckleberry, green and cowpea that are capable of germination and sustained growth without soil cover were scattered over well-prepared soil, formed with hoes. Meanwhile, the hill method implicated the planting of seeds on an arranged uniform hill-hill or ridges distances within rows that consist of dropping seeds in small opened holes on the mounded bases. Farmers walk forward from end to end of a newly made furrow, dropping seeds towards the bottom of the depression. No measuring tools are used, with just an impressive accuracy borne of long experience, the Nkwen farmer is able to estimate the distance on the ground. To cover the seeds, he merely sweeps the ridge at either side of the furrow by the inner side with one hand or foot to push some soil over the seed[242]. Then the crops were allowed to grow while manuring with animal or fowl waste, nurturing through weeding and assuring sufficient water supply on the crops with irrigation.

From these analyses on vegetable cultivation it can be concluded that vegetable was actually a mainstay crop in Ancient Egypt and in Nkwen *Fondom*, as it was used to accompany other starchy foods such as maize, plantain and *achu*. Now let's examine the other element of horticulture which are spices crops.

c) Spices crops

Spices have been around in conjunction with human use for millennia, with many civilizations in antiquity that have used a variety of spices for their common qualities. The varieties of spices were used for common purposes across the ancient world, and they were also used to create a variety of products designed to enhance or suppress certain sensations. Spices were also associated with certain rituals to perpetuate a superstition or fulfil a religious obligation[243].

In Ancient Egypt, cumin, cinnamon, black cumin, black pepper, cloves, chili powder, and dried coriander are the most common spices in any Egyptian household. Cumin is a dried spice found within a fruit from the *apiaceae* tree, it is rich in its earthly and strong flavor. The Ancient Egyptians used it for spicing salads, fish and many other dishes.

Cinnamon was consumed in Ancient Egypt for culinary as well as medical purposes. It was used to form part of the aromatics used by queen Hateshepsut around 3500 B.C. As for black cumin, it is a multifunctional spice. It did not only add a warm and spicy note to the Egyptians

[242] Interview with Victor Ngante, on 17/12/2020
[243] T. G. James, *Le Peuple du pharaon*… p. 127

dishes, but it was also found to have healing properties. Applied externally, black cumin oil is used for skin car, including neurodermatitis, acne, and other skin problems. Ingested internally, its beneficial ingredients, vital vitamins, amino acids, and minerals help boost the Ancient Egyptians immune system[244]. In order for the Ancient Egyptians to grow these spices, they will sow the seeds in early spring in loose, fertile soil, where there is plenty of heat and sunlight. The seeds are later harvested when they turn brown[245].

Plate 3: Wall fragment from the tomb of Nebamun depicting a *Kemtyou's* garden, about 1350 B.C.

Source: https://www.liverpoolmuseums.org.uk/stories/gardens-ancient-egypt, visited on 10 June 2021, at 5:15am

3. Irrigation Agriculture

Over millions of years, hunters and gatherers depended on the wild plants and animals sustained by rainfall, which varied significantly from communities that settled along the banks of rivers and those that had access to abundant groundwater were faced with frequent food shortages to which they responded with novel social mechanisms. Moving from one place to another, but was not sufficient to provide food for large, dense, settled populations. Around 10,000 years ago, the structure and dynamics of human societies were radically transformed due to the development of food production in favorable habitats all around the Africa[246]. Since then, the reciprocal relationships between water supply, arable land, food production and social organization have led to significant transformations in the configurations and structural dynamics of human societies. In general, the management of water on both local and regional

[244] https://www.egyptianstrets.com, visited 19/05/2022, at 2:23pm
[245] http://www.allrecipes.com, visited 19/05/2022, at 2:28pm
[246] Fekri Hassan, *Water History for our Times*, published by UNESCO, France, 2011, p. 25-26

levels has undergone a series of historical transformations in association with significant developments in agricultural organization. These transformations included the invention and widespread use of irrigation and drainage methods, water-lifting devices, long-distance water transport technologies and storage facilities. The purpose of the irrigation systems was to extend the time during which the waters could be made available in farmlands[247]. African communities started building a retaining wall some miles long, a construction which provided them with acres of farmland. In part, these transformations were stimulated by the emergence of urban centers and the growing demand for water as cities expanded and the spectrum of water-demanding activities broadened. These early people invented a system of canals that they dug to irrigate their crops. They also built gates into these canals so that they could control the flow of water. They built reservoirs to hold water supplies in case of drought. Successful water management leading to greater food production was accompanied by a sustained increase in the size of the human population in communities. The rapid increase in human population prompted an intensification of cultivation. Heavy capital is invested in the form of canals, drains, dams, water pumps, and barrages; the investment of skilled labor[248].

Each year in *Kemet*, the Nile river would flood, spilling over with water flowing down from the mountains to the south. Flood waters could raise the Nile river 45 feet over normal heights. As the waters receded, the flood waters left behind rich soil. This soil allowed the *Kemtyous* to grow crops, but the crops needed water for further growth. As such, these early people invented a system of canals to irrigate their crops. They also built gates into these canals so that they could control the flow of water, which were the first necessities. They built reservoirs to hold water supplies in case of drought. Control of irrigation became a major concern, and provincial officials were held responsible for the regulation of water. In the Fayoum, where Predynastic period inhabitants had discovered the ease with which they could turn to agricultural pursuits, efforts were made to channel the water coming through the Bahr Yusef into the region. Dikes, canals, and ditches were dug in the Old Kingdom (2575–2134 B.C.E.), but the major renovations were accomplished by the pharaohs of the twelfth dynasty, especially by Amenemhet III (1844–1797 B.C.E.). The storage of crops occurred at the local level and at royal granaries in the capital, and assessors were sent from the capital to the provinces to collect taxes in the form of grain. The local temples of the gods also had vast fields, with their own

[247] United Nations University Institute for Integrated Management of Material Fluxes and of Resources, Safe Use of Wastewater in Agriculture: Good Practice Examples, Edited by Hiroshan Hettiarachchi Reza Ardakanian, Germany, 2016, p. 4
[248] Ibid.

irrigation needs. Farming in ancient Egypt was a flourishing activity and they used very good methods of the irrigation to increase the quality and also the output of the crops. They were primarily three types of fields irrigation which existed during that period; catch basins, dykes and the shaduf type of the irrigation[249].

a) Catch basin

Catch basin is, in other words, a storm drain. They are used to redirect water in an aim to prevent flooding and are common on public streets but may also be installed on private properties. Catch basins collect rainwater, transporting runoff to a sump, reservoir, or treatment facility. High and low floods posed a severe threat to the farming villages and adjacent fields. Protective embankments were constructed, and drains were used to get rid of excess water. In times of drought, canals were extended to bring water to outlying grounds. Eventually a system of cross-dykes transversal to the floodplain was constructed, allowing floodwater and soil moisture to be retained before the water was allowed to flow to farmers downstream. Communities collaborated in digging canals, dykes and embankments rendering the work easier[250].

In Nkwen *Fondom*, catch basins were set up around swampy zones. This was mostly done during the dry season when flood waters had receded in order to preserve water for dry season cultivation. As such, they could cultivate vegetables and cereals throughout the year on high ridges of about 40cm, in order to accumulate humidity within the soil, so that the roots of the crops shouldn't be impacted with cold.

b) The shaduf

It was introduced by the Hyksos in Egypt during the Second Intermediate Period (1640–1532 B.C.E.), the movement of water was greatly improved. Crops could be rotated and an additional growing season coaxed from the Fayoum because of the ability of crews to use water efficiently. Through observation and reading of hieroglyphics on *Kemtyous* tombs, Egyptologists, archaeologists and historians have learned more about the daily lives of the *Kemtyous*, including pictures of them using the shaduf. The *Kemtyous* built reservoirs from bricks and mud which held the water during the flood season every June, and then they used a connecting network of canal channels to slowly release the water into. Without the shaduf, farmers would break their back leaning down to bucket water onto their crops. That is why the

[249] D. Rosalie, *Handbook to life*…, p.117
[250] Ibid, p. 26

shaduf is a "one of a kind" invention[251]. Typically, it consists of a long, tapering, nearly horizontal pole mounted like a seesaw that can lift water from one place to another to irrigate crops. Since it uses a counter weight to pull the water from the rivers and feed it into farming fields. The typical shaduf was able to hold 20 liters of water. The container part of the device was usually made from animal skins or clay.

The Nkwen people mostly made use of clayed pots or calabash to carry water from shallow wells and where rivers passed or streams where found, they dug canals which could irrigate water.

c) Dikes

They are often used to protect against or prevent flooding. Dikes are different from dams because dikes only have water on one side of the barrier. Dams have water on both sides, and work to retain water. Dams also run through the water, whereas dikes run parallel to the water[252]. In Ancient Egypt, floods were larger and more unpredictable, so the people had to come up with a system or move. Being smart and hard workers, they built their own series of dikes, canals and even city walls to protect themselves and their crops from these floods. Egypt's pharaoh Senusret II (1842-1836 B.C.) had floodgates built along part of the Nile Valley in order to reclaim valuable farmland, and his son Senusret III (1836-1817 B.C.) ordered the First Cataract cleared[253].

In Nkwen *Fondom*, people who lived along water ways such as rivers and carried out cultivation, were obliged to build dikes in order avoid the destructive impacts of floods. Let's now examine how agricultural practices was organized in Ancient Egypt and in Nkwen *Fondom*.

[251] M. Bazza, *Overview of The History of Water Resources and Irrigation Management in the Near East Region*, Greece, 2006, published by National Agricultural research foundation, pp. 593–604
[252] https://www.nationalgeographic.org/encyclopedia/dike, visited on 19/05/2022, at 4:19pm
[253] https://www.encyclopedia.com/.../building-canals-ancient-world, visited on 19/05/2022, at 4:20pm

Plate 4: **A model of *Kemet's* shaduf.**

Source: https://www.britannica.com/technology/shaduf, visited on 19th May 2021

II. ORGANISATION OF AGRICULTURAL PRACTICES

It is very important to plan and organize all farm activities before the season onset. When talking about the practice of agriculture, it's important to mention that farmers are always striving to manage all farm activities timely in order to ensure the best possible outcome. For that reason, organization is an essential component of successful farming. Generally speaking, a well- prepared farmer is a successful farmer. In other words, the organization of all farm activities, as well as farm materials and other farm processes will enable a better flow of the entire crop production. In addition, a farmer knows exactly which tasks he is going to perform at any moment. He/she is expected to know exactly when to do soil tillage, how many types of soil tillage he is going to perform, how many days the soil will be empty prior the planting of crops and other necessary activities. Basically, all tasks are chronologically arranged to a farmer, making him more adjustable to any unexpected events. Furthermore, by organizing farm activities, a successful farmer can plan how much farm materials he/she needs to use. So, for the practice of agriculture to be well organize, ancient african communities had to follow up certain parameters such as the type of crop, properties of soil, climate etc. Thus, the first part of this chapter will study the various procedures required for a well plan or organize agricultural practices as done by the *Kemtyous* and the *Bafreng* people.

1. Pre-Planting

Before raising crops or keeping animals, the soil or place on which it is to be grown is prepared by plowing, levelling, and manuring. These steps ensure that the field is ready for planting, in other words it provides the basis for good seed germination and subsequent growth of crops. The civilization of *Kemet* was indebted to the Nile River and its dependable seasonal flooding which was the most important aspect of the *Kemtyous'* agriculture. Notwithstanding, the people obviously still needed to work the land.

a) Field preparation

Fields had to be plowed and seed sown and water to move into different areas. For this to be done the *Kemtyous* made use of wooden plows of which teams of two men each worked to form shallow furrows for the seeds. One man guided the plow, and the other led the oxen through the designated pattern. Some tomb reliefs depict the activity and show a second plow being dragged behind the first one. The second implement turned up the earth between the furrows. If the farmers wanted only the top layer of soil tilled in any season, they used lighter plows, normally pushed by the farm workers. In any case the furrows had to be broken up after the initial plowing[254]. Men and women entered the fields with simple wooden hoes to break up the clumps of earth (**see plate 5**). This was meant to loosen the soil in order to allow the roots to penetrate deep into the soil and allow them to breathe easily, facilitate water circulation, soil mixes more uniformly with manure and it also uproots and buries weeds standing in the field[255]. The plate below shows the sowing of seeds in Ancient Egypt.

Plate 5: **A tomb scene, 1400 B.C., showing stages in plowing (right) and preparing the ground, followed by the scattering of the seed**.

Source: http://www.egyptianagriculture.weebly.com, visited on 20 May 2021, at 7: 00 am

[254] M. Bunson, *Handbook to life…,* p. 118
[255] Hemant More, "Preparation of soil", on thefactfactore.com, July 13, 2019

In Nkwen *Fondom*, agricultural practices were organized accordingly to environmental conditions. For instance, giving the fact that the Nkwen people first settled on the hill of *Atellia*, they had to organize themselves in order to improving their land for cultivation. They found methods to prevent the cultivated land from deteriorating over time. Some of these methods were plowing, terracing, manuring, mulching, and in a few places' irrigation. Plowing was done with oxen and hoes while terracing was necessary to exploit the land on the hill slopes. The slope was cut into series of receding flat levels, like steps. Farmers kept the land productivity by covering the topsoil with a layer of bark chips, or mulch. They increased its fertility by digging in animal manure. And some farmers in the highlands took advantage of the various streams and rivers by constructing irrigation canals to lead the water to their land, ensuring that it was well watered throughout the year. More to these, agriculture was mostly organized within the family or community as both men and women commonly worked together in the fields, sowing and harvesting. Men were mostly in charged for the heavier works, such as ploughing and construction of terraces. When there was more work to be done during the agricultural peak seasons, for jobs like clearing land and bringing in a big harvest, a farmer would arrange a work party of men from the village[256].

b) Seed selection and Sowing

After preparing the soil, farmers of Ancient African communities will move on to the next stage which consisted of selecting the seed to sow. Seed sowing is a process of planting seeds into the soil. This practice of agriculture is very important because seed is an agricultural input on which the foundation of healthy and quality rich crop depends. It also plays an important role in farming as once after the soil is loosened and ploughed, the good, disease free and pure quality pf seeds are selected and sown into the soil. As such, the planting of seeds had to follow up a certain number of parameters which has to contribute to the proper growth of the seed. During this agricultural process, proper precautions should be taken including the appropriate depth, proper distance, healthy and free from disease and other pathogens including fungus[257]. All these precautions are essential for seeds developing into new plants as such, after selecting good quality seeds, they are sow on the prepared land.

In *Kemet*, the sowing of the fields was a two-part activity in most areas. In autumn, once the waters receded, the farmers with the use of their hands scattered the seed in the earth

[256] Interview with Pa. Dominic Ngante, at Futru, on the 28th, December 2020, at 11:30am
[257] Venantus.com/biology, visited on Monday, January 24, at 6:33am

and then drove sheep and pigs on the plowed area to trample the seeds deep into the furrows. This enabled the seeds to go deep into the soil.

The *Bafreng* people traditionally select their seeds by picking the healthiest seeds because only the good quality of seeds gives an expected result or yield as earlier mentioned. The seeds are usually obtained from healthy crops which are not contaminated with disease. The sowing of seeds is done with hands. This is a simple process, in which seed are scattered by hands or with the use of tools.

From the point of soil preparation to the point of seed selection, the pattern of a well organise agricultural practice can be seen being trace out. However, from these steps, further essential steps are requested to boost the previous steps which consist of feeding the sowed good selected seeds with more nutrients and caring for it to grow faster, healthier and bigger. This processes or steps which are known as manuring and weeding will be study detailly in the following sub part.

2. Post planting

This phase comes after when the seed have been sowed. During this phase, the crops are expected to nurture to maturity and productivity. During this period, activities carried out are; thinning, supplying, mulching, manure/fertilizer application, weeding, control of pests and diseases, harvesting, processing, storing and marketing.

a) Weeding

Weeding being the cutting down of unwanted plants or weed, is very necessary because it is the main important post-planting operation. If farms are not being weeded regularly, the crop growth will be affected. Weed are unwanted plants that develops alongside with cultivated crops. Weed are genetically more viable and aggressive than crops as they compete with the not only for space but also for water, air and nutrients. As weed also absorbs nutrients from the soil they damage the crop sowed because they are unable to get the proper amount of nutrition from the soil. Weed harbor pests that can reduce the quantity and quality of crops[258]. In addition, weeding through the process of plowing and handpicking enabled the off rooting of grass and loosening of the soil.[259] This step of agricultural practices in *Kemet* and in *Bafreng Fondom* enabled the crops to grow faster and produce massively. In Ancient Egypt, this process

[258] https://www.agrifarming.in/pre-planting-tasks-post-planting-tasks-in-agriculture, visited on 19/05/2022, at 5:06pm

[259] R. J. Hillocks, "The potential benefits of weeds with reference to small holder agriculture in Africa", Natural resource institute, university of Greenwich, integrated pest management review, 1998

was mostly carried out through plowing, and also with the use of hoes and hands. This was the same practices in Nkwen *Fondom*. However, it should be noted that weeding was done 2-3 times before harvesting. First *sh*ə̂ (weeding) took place 2-3 weeks after planting while the second weeing took place 6 weeks after the first weeding.

b) Manuring

Adding manure to soil is an excellent way to increase organic matter[260]. This soil's organic matter which is derived naturally from animal feces contributes to overall soil health- the soil's ability and sustainability to function as a living ecosystem. Animal manure is a key resource in increasing and improving soil fertility, by providing nutrients that will fosters and enable the soil organic matter to build up its physical properties like water holding and reduce soil erosion[261].

In Ancient Egypt, while the Nile brought silt which naturally fertilized the valley, gardens had to be fertilized by pigeon manure. In addition, after seeds were sowed on the ploughed field, farmers would set lose sheep, pigs and goats on the field to trample the seeds at the same time, the animals deposited their feces and urine which served as manure[262].

The Nkwen people kept goats and pigs for food at the same time collected their waste or excrement for manure. During the planting season, after plowing thee farm lands with hoes or oxen, they will apply the manure on the farm land which are found on the highlands twice (before and during the growth of the crops). The first application of manure was meant to prepare a better fertile ground that will receive the seed for germination and the second application of manure was done after weeding of grasses and meant to maintain a healthier growth of the crops.

So, in a nut shell, the domestication of animals and fowls were not only meant for consumption, but their waste (excrement) served as manure on farm lands during post planting. The *Kemtyous* and the *Bafreng* people who domesticated animals and fowls noticed that their waste was very nutritive for the growth of plants as such, they applied it on their farms. In addition, in order for the crops to grow healthier, they realized that it was necessary to hinder the growth of any unwanted plants such as grasses which were an obstacle to the growth of the main crop cultivated. Thus, plowing by oxen or hoes and weeding by hands was applied to off

[260] Organic matter refers to the large source of carbon- based compounds found within natural and engineered, terrestrial, and aquatic compounds that have come from plants and animals, source: natural organic matter, Green facts. Retrieved 28 July 2019

[261] B. Wondimu, "The role of animal manure in sustainable soil fertility management in Sub-Saharan Africa: A review", *Journal of Sustainable Agriculture*, January 2004, on researchgat.net/publication.

[262] FAO, "Ancient Egyptian Agriculture", 12/06/2020, on fao.org/country-showcase, visited on Friday, January 28, at 6:19am

root the grasses so that they would not consume the soil nutrients required by the main crops to grow.

c) Pest control and harvesting

Aside weeding, another important post-planting operation is pest and diseases protection. Pest and diseases have the capability to reduce crop yield. Pest reduces the quantity while diseases reduces the quality[263]. Pest such as the grain weevils (Sitophilus spp.) and the Angoumois grain moth *(Sitotroga cerealella*) on cereals and three genera of bruchids (*Acanthoscelides*), (*Zabrotes* and *Callosobruchus*) on legumes are the most important pests of stored grain[264].

In Ancient Egypt, the desert locust *Schistocerca gregaria* and many other species of locusts are sporadic pests that cause substantial crop losses across the country. In order to manage this pest, they applied organic pesticides such as compounds containing alkaloids, including, among others, hemlock, aconite, and opium, to control pests. In around 3000 BC, the Ancient Egyptians practiced a form of pest control involving the use of cats as pest control agents in grain stores. The cats protected the grain from rodents[265].

In Nkwen *Fondom*, farmers applied traditional pest management practices, which consisted mainly of cultural control methods such as crop associations, planting and harvesting time, closed season and multiple seed sowing aimed at confusing birds[266].

When the crops have been well nurtured and matured, the next step will consist of harvesting, which marks the end of cultivation. As soon as the crop reaches the max out of maturity, it can be harvested. Crop harvesting depends on the type of crop. In Ancient Egypt, most crops such as wheat, barley, and flax could be harvested with a sickle. This was because they were such tall grain plants. The plants would then be put into large bundles to be stored or sold[267]. In Nkwen *Fondom*, farmers made use of hoes to dig coloccacia, and also made use of cutlasses to harvest maize.

From the above analyses on post planting it can be concluded that agricultural practices in Ancient Egypt and in Nkwen *Fondom* was well organized in a manner that every step had

[263] M. L. Larramendy, S. Soloneski, "Pesticides - Use and Misuse and Their Impact in the Environment", article, London, July 2019, online https://www.researchgate.net
[264] A. Tsedeke, A. V. Huis, K. Ampofo, "Pest Management Strategies in Traditional Agriculture: An African Perspective", article, *Annual Review of Entomology*, 2000, online https://www.researchgate.net
[265] https://insectcop.net/history-of-pest-control, visited on 19/05/2022, at 5:30pm
[266] Interview with Pa Dominique Ngante, on 17/12/2022
[267] https://historicaleve.com/farming-in-ancient-egypt, visited on 19/05/2022, at 5:35pm

to be applied in order to obtain a good yielding. Let's examine the different crops cultivated and how they were conserved.

III. TYPES OF CROPS CULTIVATED AND CONSERVATION METHODS

Ancient Egyptians cultivated mostly cereals (barley, wheat), vegetables and legumes (leeks, onions, garlic, cucumbers, radishes, beans, chickpeas) and fruits (melons, grapes, dates, figs). Some plants were grown to make things other than food. Papyrus, for example, was used to make paper. Additionally, papyrus was made into sandals, rope, toys, boxes, baskets, mats, window shades and even small fishing boats. Another plant was the castor oil plant, which was crushed and made into lamp oil or consumed as a health tonic. One of the most important crops was called emmer. This grain was used in the production of bread, a daily part of the Egyptian diet. It was also used to make beer, the most popular drink. After papyrus, emmer was probably the most important crop grown in Egypt[268].

Some plants were grown to make things other than food, for instance, to make fabrics and ropes, the farmers in ancient Egypt also cultivated flax. Some invading brought new species such as apples, olives and pomegranates. In addition, pears, peaches, cherries and almonds appeared during the time of the Greek pharaohs[269].

1. The Cultivation of Cereals

Historic records of man's agricultural practices take us back some four or five thousand years, at which time village settlements and towns were already established in Egypt. Samples of the kind of grain forming, as now, the chief portion of the diet of the people, have been unearthed. The origin of civilization is intimately connected with man's discovery of the cultivation of the cereal crops, the grain of which has formed the most important part of the diet of civilized people from the earliest times down to the present day. From the earliest times in Egypt two kinds of cereal grains were cultivated, namely, wheat and barley[270].

Ancient hulled wheats, einkorn, emmer, and spelt are among the early cereals that were domesticated in their places of origin in the Fertile Crescent of the Middle East where their wild predecessors still grow. Grain crops were generally cultivated in land that was flooded naturally by the Nile or other major water source (such as the Bahr Yusuf in the Fayum, which channeled water from the Nile into Lake Moeris). The wheat which was grown was a kind or

[268] M. Bunson, *Encyclopedia of ancient…,* p. 140
[269] Ibid, p. 141
[270] D. Rosalie, *Handbook to life*…, p. 119

race of this cereal known as Emmer (*Triticum dicoccum*). It was a very primitive kind of wheat, with flat ears having long awns or beards, like those of present-day barley ears of Emmer when thrashed break up into short spikelet, each of which contains two grains closely invested by the glumes or chaff, so much so that the naked grains for consumption can only be obtained free from the chaff by pounding the spikelet with a long pole[271].

In Nkwen *Fondom*, cereals such as maize and sorghum. These two main cereals in Nkwen *Fondom* has been very important to the people, as they consumed it with vegetables.

2. The Cultivation of Vegetable and Fruits

Most Egyptians lived on a mostly vegetarian diet. Staple crops of Ancient Egypt included chickpeas, lentils and a grain known as emmer. Lettuce, onions, garlic, corn, barley, flax and the castor oil plant were also cultivated. Meat was expensive and had to be eaten quickly before it rotted. Vegetables grow readily and their cultivation is an important item of fellahin husbandry. The onion is grown in large quantities in Upper Egypt, chiefly for export. Tomatoes are also grown for export and other vegetables raised are leeks**,** marrows, cucumbers, cauliflowers, lettuce, turnips, and artichokes[272]. While the first fruits cultivated by the Egyptians were likely indigenous, such as the palm date and sorghum, more fruits were introduced as other cultural influences were introduced. Grapes and watermelon were found throughout predynastic Egyptian sites, as were the *nht* sycamore fig, dom palm and *nbs* Christ's thorn[273].

In Nkwen F*ondom*, people long ago cultivated, figs, bananas, breadfruits, plums, papayas, grapefruits, cucumbers, and jackfruits, as well as many others.

3. Storage Place and Tools for Conservation

According to the National Center for Home Food Preservation: “Food begins to spoil the moment it is harvested. To survive, our early ancestors had to find a way to make that food last through the cold months. In frozen climates, they froze meat on the ice; in tropical climates, they dried foods in the sun. These early methods of food preservation enabled ancient man to put down roots and form communities. They no longer had to consume the kill or harvest immediately but could preserve some for later.” Civilization has been depending on the way

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[271] M. Bunson, *Encyclopedia of Ancient*…, p. 14
[272] M. Mazoyer and L. Roudart, *A History of World Agriculture…,* p. 168
[273] Ancientegyptianfacts.Com/Ancient-Egyptian-Crops.Html

humans have been able to master food preservation. By prolonging the shelf life of food by preserving it our ancient ancestors were not completely reliant on what was available to hunt and gather. They knew that preserving food meant they could devote more time to other activities, improve technology and to migrate to new lands[274].

The Clemson Cooperative Extension states that the most popular and effective preserving techniques employ salt, sugar, vinegar or brine. According to the Clemson Cooperative Extension, food preservation works because the preserving agents prevent bacteria, mold and other potentially harmful organisms from growing on the food[275].

Over the years, archaeologists have found evidence for a variety of techniques. Some, like drying and fermenting, remain common today. This is also a very old and traditional method of controlling the population of pests to increase the farm's yield. The cultural pest control method is geared at interrupting the pest's life cycle. The constant plantation of a different crop on the soil will help get rid of the pest. Preserving food ensures that it can be kept for long periods of time without spoiling. It is particularly useful in climates where fresh food is not available during particular times of the year. As such, food preservation was essential not only to avoid food poisoning but also in order to import foods from the provinces[276].

Most food in ancient Egypt was not produced or consumed daily, and to be kept longer it had to be preserved. Methods of storage and preservation were designed to solve this problem and to accommodate the growing population of the region. Stored or preserved food could include grain, fruits, vegetables, meat, fish, poultry, and wine. The storage facilities in ancient Egypt showed a wide range of types and extended from single storage jars or basketwork containers for domestic use to large storeroom complexes[277]. Meat, fish, and poultry were stored in pottery vessels. Plates or bowls were used to hold offerings (it was necessary to offer food to the deceased daily), and tightly closed jars were used for long-term storage. Oil, fat, and suet were stored in stoneware jars. Grain was stored in small domestic pits or jars as well as large-scale granaries controlled by the state or a temple, such as the Ramesseum (a mortuary temple in Thebes dedicated to the Egyptian king Ramses II 2290–1224 B.C.E.) and Medinet Habu (dedicated to Ramses III 1194–1163 B.C.E.). Storerooms for grain and other agricultural products were named *shenut* ("barns") and had a specific administrative structure devoted to

[274] https://www. Britannica.com > food preservation, definition, importance, and methods, visited on 17/05/2022, at 08:31pm
[275] https://www.foodsaftyhelpline.com > what are the different methods of food preservation? visited on 17/05/2022, at 08:33pm
[276] https://www.sciencedirect.com, visited on 17/05/2022, at 08:35pm
[277] M. Bunson, *Encyclopedia of ancient*…, p. 229

their maintenance. Precious goods, such as herbs, spices, and salt, were kept in small leather or linen bags[278].

Ancient Egyptians grew and stored much of their grain and preserved meats in case of drought and famine. Beer and wine were also stored in special glazed pots made of clay and calabage by the Ancient Egyptians and the Nkwen people respectively.

In ancient African societies, rations had a special significance; food had to be stored within the food circle from harvest or slaughtering to ration distribution. Grain was stored in large quantities at the local, provincial, and state level in granary silos whose maximum capacity was calculated by scribes. Some silos are partly excavated, while others have been depicted in artwork or as model granaries in tombs. Depictions of stored grain or models placed in tombs were meant to guarantee a supply of food for the dead. Scenes portray people sacking up and carrying the grain from fields to the granaries, sometimes using donkeys. Grain was put directly into storage facilities after winnowing, sieving, recording, and measuring by scribes. At the granary porters carried the baskets up the stairs to the charging hole, where the grain was poured in. The process was supervised by a scribe or administrator who recorded intakes, storage, and removal. All harvested goods belonged not to the farmer but to the king or to the temples or nobles who had received the land as a gift from the king. The first small-scale granaries were pits with basketry linens and a total yield of about 7.5 pounds. In El Fayoum, a large oasis, Egyptologists have found well-preserved wheat and barley from the Neolithic Period (dating to about 5200 B.C.E.). This shows the long tradition of storage that preceded dynastic times. Other early examples are in El Badari in northern Upper Egypt about 4500 B.C.E., where postholes, pits, and storage jars were found. The oldest large granaries were cones with round bases and domed tops that were made of mud brick or seasoned wood and sometimes plastered[279].

The Egyptian temples were given estates and royal endowments as offerings to the gods. The priesthood, in turn, received food and other offerings through an elaborate allocation formula called the Reversion of offerings. Holding and redistributing the offerings required the use of large storage facilities, which belonged to the temples. The best-preserved set of large storage facilities is attached to the Ramesseum, which could support about 3,400 families (about 17,000 to 20,000 people) for a year with grain. The temple storehouses consisted of long mud-brick, barrel-vaulted halls of varying size with filling holes at the top, erected in groups

[278] M. Bunson, *Encyclopedia of ancient*..., p. 67
[279] Ibid., p. 117

with a shared vestibule. The temples built up substantial reserves for grain and other goods. From these or state granaries each farmer got his grain for sowing, again recorded by scribes. The granaries housed the food that was used as payment for the army, workers on building projects, and other citizens. Egyptian houses, including palaces, also contained storerooms and granaries. Some of the houses of the planned towns in El-Lahun, Tell El-'Amârna, and Medina had a row of storerooms. El-Lahun shows evidence of several locations within the town rather than a central granary. Large estates had large private storerooms, while those who lived in the country had smaller, mostly conical ones that stored nearly everything in the Egyptians' diet[280]. As a form of preservation, most food was dried in air and sunlight. As the food cooled inside the jars, a sort of vacuum was created that kept the food from spoiling. Some of these jars were made of marl clay, which kept their contents cool. The food was later cooked before it was eaten, which killed most bacteria in the process. Another perishable food was fish. Much of the catch was cleaned, gutted, and dried in the sun on wooden frames. It sometimes was salted or pickled in oil. Drying, salting, and pickling were methods of preservation for small birds, too. Dairy products such as cheese were salted and sometimes preserved in oil, dried, and hardened. Dates, figs, olives, or grapes could be dried, ground, pickled, or pressed. Storing grain in spikelet form, rather than threshed, helped to protect it from attacks by insects or other pests. Herbs such as coriander, black cumin, and fenugreek were added as insecticides, as evidenced in a model granary of the Egyptian king Tutankhamen (1333–1323 B.C.E.) containing emmer with other seeds[281].

In Nkwen *Fondom*, agricultural products were mostly dried by smoking or kept cold outside in water at night since the climate was too cold. For instance, harvested corn was conserved in kitchens where heat from the fire side will keep the maize. The plate below shows a traditional maize preservation method of in Nkwen.

[280] M. Bunson, *Encyclopedia of ancient*…, p. 35
[281] D. Rosalie, *Handbook to life*…, p. 365

CHAPTER III

IMPACT OF THE PRACTICE OF AGRICULTURE ON THE DEVELOPMENT OF ANCIENT EGYPT AND THE NKWEN FONDOM

Once humans had learned the basics of agriculture and animal husbandry, their lives changed dramatically. These changes in the lives of the Egyptians and the Nkwen people had major implications throughout several millennia. Farming had several advantages over hunting and gathering. Domesticating plants and animals allowed the Ancient Egyptians and Bafreng people to feed more people with the available agricultural resources which they produced. In addition, domestic animals could produce waste to be used as manure including labor forces in plowing and transporting. Crops and livestock also provided humans with nonfood items such as leather, feathers, and fabrics. Growing crops eradicated the migration of people over far distances. Population growth increased rapidly[282]. More people meant more labor force to work on farms and, hence, larger harvests. This in turn required long and short-term preservation for storage facility. Agricultural surplus brought in existence of exchange or trade by barter. As a result, a successful agricultural community on one hand could support people who did not produce foods within the immediate environment, such as craftsmen, scholars, soldiers, priests, bureaucrats, and rulers. On the other hand, it could support other communities facing problems of famine or those who are in need of products which they don't produce. Nevertheless, all these great advantages of agricultural practices had also some disadvantages especially on the environment in relation to climate change and global warming which we shall examine. This chapter in the first part will examine how agricultural practices impacted the environment of the Ancient Egyptians and the Nkwen people, follow by its impacts on the socio-political organization, so that we understand how the people established settlement, families, relationships, cultural organization, administrations and laws alongside other aspects. The third part will analyse the impacts of agricultural practices on the economy of the Ancient Egyptians and the Nkwen people.

I. ENVIRONMENTAL IMPACTS

The practice of agriculture in Ancient Egypt and in Nkwen *Fondom* had a lot of impact on the environment. This is so because, when ancient civilisations in Africa began the practice

[282] Encyclopedia of Society and Culture in the Ancient World, Volume I

of agriculture, they had to clear the vegetation of the natural environment in order to open farm lands, which subsequently impacted the bio-diversities. Moreover, the impacts of the practice of agriculture in Ancient Egypt and in Nkwen *Fondom* attained the level of air and water as intensive human activities polluted the environment. However, this will be examined in the following sub-parts.

1. The Impacts of the Practice of Agriculture on Land

With the establishment of the practices of agriculture, amongst hunter-gathers communities, there was a great impact on land. A huge amount of land was used for agricultural practices such as farming and animal husbandry which impacted the vegetation cover. Moreover, the primitive life style of farming such as slash and burn decrease the organic matter from the soil and within the short period of time the nutrient content of the soil taken up by the crops, this make the farmers to move to another place for farming. In addition, cattle and other large grazing animals cause damage to the soil by trampling on it, as a results bare compacted land might led to soil erosion and destruction of topsoil quality due to the runoff of nutrients and consequently it destabilizes a variety of fragile ecosystems and wildlife habitats.

a) Deforestation

The practice of agriculture had a considerable reduction of the natural vegetation cover in Ancient Egypt and Nkwen *Fondom*, mainly due to the increasing need for wood and the expansion of farming and pastoral activities which is the most visible effect of cultivation. Intense wood exploitation was carried out for house constructions and furniture, which rendered wood scarce. In addition, deforestation in turn promoted soil erosion especially when the climate became wetter around 500 B.C.E., leading to an increased in sediment deposition (alluviation) in valleys[283]. In Ancient Egypt and parts of Nkwen *Fondom* due to deforestation by early farmers, soil nutrients were washed away, making the soils more acidic. Heather[284] and rushes grew on the acid soils, and in areas of poor drainage the acidity inhibited the decomposition of dead vegetation, which formed peat[285]. Trees play an important role in filtering the planet's air. With the presence of trees carbon dioxide is absorb and transform it

[283] P. Bogucki, *Encyclopedia of Society and Culture in the Ancient World*, Volume I, Facts on File, New York, 2008, p. 256
[284] Low evergreen grown widely in the northern hemisphere
[285] Partially carbonized vegetable matter saturated with water; can be used as a fuel when dried

into oxygen. However, when there are fewer trees greenhouse gas[286] emissions increase and this drives global warming. Forests also help to reduce pollution, especially dust pollution. Some of the causes of deforestation are particularly bad for air quality.

The deforestation noted in antiquity was not the only significant factor changing the ecology and environment of the Ancient Egyptians and the Nkwen people

b) Erosion

Soil erosion is a natural process that implies the removal of mineral and organic particles from the ground surface by water and wind. Soil erosion and deforestation are perhaps the two most evident forms of land degradation in Ancient Egypt and in Nkwen *Fondom*. The removal of soil particles by soil erosion in upland locations results in rapid accumulation of sediments in valleys and lowlands. Thus, investigating past soil erosion histories starts with the study of sequences of sediments in valleys. This approach allows the reconstruction of events of intense soil erosion in Ancient Egypt and in Nkwen *Fondom*. In addition to evaluating rapid sediment deposition in valleys, geomorphologists often study soils in the uplands, where the thinning of some horizons and an internal structure testify to intense degradation[287].

One of the measures taken by ancient farmers to control soil erosion in the mountainous regions of the Near East and in the high lands of Nkwen *Fondom* has been the construction of hillside terraces, which is still widespread in the mountainous regions[288].

c) Soil salination

Soil salinization involves the accumulation of salts in the soil, which impedes the development of crops and most plants. Soil salinization is a problem particular, but not exclusive, to arid and semi-arid lands. Although a natural process, soil salinization occurs through human intervention as a result of poor planning in the management of irrigated lands. The problem starts when excess irrigation water produces waterlogging, which under conditions of high evaporation rates results in precipitation of salts near the surface of the soil[289]. For these reasons, the problem of salinization is viewed here in the context of the main irrigation systems in ancient Egypt and in Nkwen *Fondom*.

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[286] Greenhouse gases are gases such as carbon dioxide, methane, and nitrous oxide, that keep the earth warmer than it would be without them.
[287] https://www.thoughtco.com/soil-erosion, visited on 21/05/2022, at 10:30pm
[288] Ibid.
[289] https://www.fao.org, visited on 21/05/2022, at 9:45am

In the Nile basin the timing of the floods coincided with the growing of crops. In addition, the fields lay far above the main channel. The adaptation of agriculture to this scheme was much simpler. Floods occurred yearly before the planting season. The flood plain was divided into different basins, which were filled with flood waters, bringing to the fields the nutrients necessary for each agricultural cycle. Once the waters receded to the main channel, the excess water in the fields was drained and the water table lowered. The main problem in the ancient Nile Valley was when floods failed or when they occurred offseason[290]. The only areas of Egypt with major salinization problems were the Fayoum Depression and the Delta. In the former, the problem lay in the fact that the flow of water diverted from the Nile through the Fayoum Canal ended in a closed basin, where excess water had no way to escape[291]. In the lower part of the Delta the water table was often high, especially in areas where the underground was contaminated with salty water from the sea[292].

Several strategies to cope with the problem of soil salinization have been implemented by farmers on a local scale. One of the common practices was to cultivate deep-rooted plants which absorbed capillary water, thus creating deep-lying dry zones that hampered the rise of salinity[293]. Among other strategies, the selection of well drained soils for irrigation proved to be useful, but only worked in small-scale irrigation systems. One of these cases is the irrigation around the Dakhla Oasis in the Western Desert of Egypt, where water was lifted using the saqiya[294] into canals and then into raised plots built on sandy deposits[295]. The high porosity of these sandy deposits inhibited salinization by letting the excess water drain freely and minimizing waterlogging, the main factor leading to salinization[296].

2. Impacts of Agricultural Practices on Water

The level of pollution in waters was certainly much lower than today, however, little is known about pollution in the ancient environments of ancient Egypt and Nkwen *Fondom*. Water pollution has been an ancient issue with serious consequences in lakes, oceans, rivers and other bodies of water. Just like air, water is under assault from numerous types of pollution.

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[290] K. Butzer, *Early Hydraulic Civilization in Egypt*, Chicago, Chicago University Press, 1976, p. 26
[291] G. Hamdan, *Evolution of Irrigation Agriculture in Egypt*, Arid Zone Research, 1961, p. 119
[292] D. Stanley, and A. Warne, *Nile Delta: Recent Geological Evolution and Human Impact*, Science, 1993, p. 260
[293] T. Jacobsen, and R. Adams, *Salt and silt in Ancient Mesopotamian agriculture*, Science, 1958, p. 128
[294] An irrigation device powered by animal wheels.
[295] I. Brookes, *Anthropogenic irrigation sediments, Dakhla Oasis, Egypt*, in Bottema, Entjes-Nieborg, and Van Zeist, 1990, p. 113
[296] https://www.fao.org, visited on 21/05/2022, at 9:45am

For centuries, humans unknowingly contaminated sources of drinking water with raw sewage, which led to diseases such as cholera and typhoid. According to a CNN report, 1 gram of human excrement contains approximately 10 million viruses, 1 million bacteria, 1,000 parasite cysts and 100 parasite eggs[297]. However, there exist many types of water pollution in Ancient Egypt and in Nkwen *Fondom* as it shall bee examine below, given the fact that water comes from diverse sources.

a) Surface water pollution

Surface water includes natural water found on the earth's surface, like rivers, lakes, lagoons, and oceans. Hazardous substances coming into contact with this surface water, dissolving, or mixing physically with the water can be called surface water pollution[298]. The most common source of agricultural water pollution in Ancient Egypt and in Nkwen Fondom, was soil that was washed from farmed lands as they were situated nearby surface water sources. In Ancient Egypt, during the periods of inundation, water will rise then cover the banks of the Nile Valley, and when it receded soil particles or sediments released from humans and animal activities were washed into the Nile[299].

In Nkwen *Fondom*, rain water carried away soil particles into nearby rivers, lakes or streams. These sediments in a massive amount in water sources, created cloud that reduced the amount of sunlight reaching aquatic plats. It also clogged the gills of fish or smother fish larvae. Moreover, when farmers applied nutrients such as phosphorus, nitrogen, and potassium in the form of manure and sludge immediately before rain fall, it was washed into the aquatic ecosystem, then caused algae blooms which rendered tasteful and odorful. This removed oxygen from water and kills fishes[300].

b) Nutrient pollution

Nutrient pollution is the process where too many nutrients, mainly nitrogen and phosphorus, are added to bodies of water and can act like fertilizer, causing excessive growth of algae. Some wastewater, and sewage from humans and animals contain high levels of

[297] https://www.water.org, visited on 21/05/2022, at 4:15am
[298] U. S. Environmental Protection Agency, protecting water quality from agricultural runoff, article published in 2005, downloaded online at https://www.epa.gov/nps
[299] S. l. El-kowrany and A. A. El-Ebiary, "Water pollution in the Middle Nile Delta, Egypt: An Environmental study", volume 7, article, Journal of Advanced Research, September 2016,
[300] U. S. Environmental Protection Agency…

nutrients. If they end up in water bodies, they encourage algae and weed growth in the water. That will make the water undrinkable, and even clog filters. Too many algae will also use up all the oxygen in a water body, and other water organisms in the water will die out of oxygen starvation[301].

c) Groundwater pollution

Naturally occurring substances found in the soils and rocks can be dissolved in water and gets to underground water, causing pollution underground. This means that when the Ancient Egyptians and the Nkwen people who lived close to groundwater sources and dug wells alongside with boreholes to get water, they could contaminate the groundwater sources thereby rendering the area incapable of sustaining plant, human, and animal life. The population in the area reduces and the land value depreciates[302].

Egypt faces a rapid increasing deterioration of its surface and groundwater due to increasing discharges of heavily polluted domestic and farm effluents into its waterways such as the Nile.

3. Impacts of Agricultural Practices in Air

The burning of wood and grasses must have caused contamination of carbondioxidein the atmosphere, but no figures exist on the extent of such pollution. Moreover, it contributes to human health problems through exposure to ammonia, hydrogen sulfide, toxic organic compounds, pesticides and particulate matter. Agricultural air pollution contributes to climate changes through livestock such as greenhouse gas emission and methane[303]. In this study we shall examine the various types of air pollution caused by agricultural practices.

a) Ammonia

Agricultural air pollution comes mainly in then form of Ammonia, which enters the air as a gas from heavily manured fields and livestock waste. It then combines with pollutants from combustion mainly nitrogen oxides. The particles can penetrate deep into the lungs, causing heart and pulmonary disease[304]. As the ancient Egyptians and the Nkwen people raised animals such as pigs, goats, fowls, cows and other animals, it resulted to the production of ammonia acid within their environment.

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[301] https://www.oceanservice.noaa.gov, visited on 21/05/2022, at 4:17am
[302] https://www.groundwater.org, visited on 21/05/2022, at 4:17am
[303] V. P. Aneja, W. H. Schlesinger and J. W. Erisman, "Effects of agriculture upon the air quality and climate: research, policy, and regulations", https://www.pub.acs.org, visited on 21/05/2022, at 4:26am
[304] https://www.earth.columbia.edu, visited on 21/05/2022, at 4:26am

b) Particle matter

Particle pollution refers to a mix of tiny solid and liquid particles that are in the air we breathe. Many of the particles are so small as to be invisible, but when levels are high, the air becomes opaque[305]. In Ancient Egypt and in Nkwen *Fondom*, particle matter was produced by burning of bushes and any other solid materials such as wood, which could release smoke.

From the above analyses of agricultural practices on the environment, it can be determine how serious the impacts were on the environment. Because of agricultural practices, deforestation took place and environmental pollution in water and air became a trait to human lives. However, it should be noted that as people impacted the environment negatively, they were compelled to seek ways which will enable them overcome the negative consequences of agricultural practices. For instance, farmers had to migrate from nearby waters sources to areas where they could practice agriculture without polluting the water sources. Furthermore, farmers who burnt down bushes and then burnt them stopped such practices in favor of shifting cultivation where they moved from one area to another. Let's now examine other impacts as follows.

I. SOCIO-POLITICAL IMPACT

In Ancient Egypt unlike in Nkwen *Fondom*, majority of the population were farmers. As a result, farming shaped the people's life style, as there was division of labor. Specialization in labor gave rise to a system of record-keeping and symbolic expression which became more complex, with the introduction of writing. Throughout the practice of agriculture, the Ancient Egyptians and the Nkwen farmers saw farming as a religious act, given the fact that their farmlands were not just a mere material for food but as a blessing accruing from the gods. By performing the traditional religious ceremonies, the ritual priests made a spiritual investment into farming. For further details, the following parts will explain more.

1. Settlement and Family Formation

With agricultural practices, surpluses and settlement enabled families to be formed. The family in Africa is as old as the history of human existence on the continent. The agricultural revolution that took place on the continent some 5,000 years ago led to the development of a sedentary lifestyle, domestication of animals and crops, and the formation of organized societies, which took the form of villages and larger human settlements. The typical african

[305] www.lung.org/clean-air, visited on 21/05/2022, at 4:26am

family in ancient times was both a social/cultural and production unit. It was a social unit because all individuals belonged to a family, which served as a vehicle for socialization and cultural assimilation. The family therefore integrated people into the culture of the entire community. As a production unit, all members of a family were collectively involved in tilling the land and producing agricultural products. Farm products were consumed collectively, while excesses were sold in exchange for other goods which the family lacked[306].

a) Family formation and leadership

The most prevalent type of family in ancient Africa was the extended family. An extended family consists of numerous families that descend from a single ancestor. Most extended families, often made up of several generations, lived in compounds, with different huts belonging to individual families. New family compounds were established when members of an extended family migrated to another part of the town or an entirely new settlement. The history of several communities in Africa is therefore replete with references to migration. Also, new communities, which later developed into large human settlements, were sometimes founded by migratory families[307]. Among the Ancient Egyptians and the Nkwen people, some families were exclusively responsible for producing the king because the oral history of the community indicates that their forefathers were responsible for establishing the community and laying the foundation of its culture and tradition. The family played a significant role in determining the social, economic, and political status or standing of an individual within the larger community. In both theory and practice, an individual's behavior represented the attitude and general character of the family. The reason for this is simple: The family was a vehicle for socialization. All members conformed to certain modes or patterns of behavior that had been laid down by the family's founders or ancestors. Human socialization began with the family, which molded its members in important ways. The family was also a unit of production and distribution. One of the major purposes of family formation was the need for helping hands on farms. Polygamy, or the practice of taking more than one wife, guaranteed large households when manpower was needed for agricultural production. The size of families was significant in determining an individual's status. Chieftaincies were sometimes conferred on people who could prove that they had a large household[308].

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306 P. Bogucki, *Encyclopedia of Society …*, p. 201

307 https://www.ancientegypt8.weebly.com/family-life-and-housing, visited 22/05/2022 at 4:34pm

308 M. S. Tembo, "The Traditional African Family", article published in 2016, online https://wp.bridgewater.edu/mtembo/articles/the-traditional-african-family

The Ancient Egyptians' society was structured around the family unit. The purpose of marriage was procreation and maintaining the family. Egyptian wisdom literature, or texts that contain instructions or philosophical dialogue, regularly speaks of a man prospering, establishing a house, finding a wife, and having children as ideal. In the Pharaonic Period marriage is sparsely documented, with no mention of any formal ceremony that recognized marriage[309]. It is clear, though, that the idea of a household permeated society and that the woman entered into the household of the man. From this point on, the man and woman lived together. Very few texts testify to the idea of "giving a wife" in marriage, so a man may have found a wife in a variety of ways. Among royalty diplomatic marriages took place. This arrangement either created an alliance between two separate kingdoms or indicated submission on the part of the ruler who provided the daughter. Likewise, father-daughter and brother-sister marriages were common within the royal family as a way of preserving the bloodline and maintaining political power[310].

In Nkwen *Fondom*, families were traditionally headed by the oldest male, because they were mostly patrilineal. Also, the Nkwen society was predominantly gerontocratic, meaning that the oldest men and women were expected to guide and lead the community because of their wealth of wisdom, which comes with age[311].

However, with expansion of African communities, there became the need for a more reinforced system of leadership base on a group of people with authority to enforce laws and order which will control the growing community rather than a sole individual, who could not manage alone the expansion in numbers. With this being the setting up of a system of government or administration, the question which we may ask ourselves should be what is a government and how did the government or administration impact the practice of agriculture in Ancient and in the Nkwen *Fondom*? Let's see how the communities were organized.

b) Communities organization

Due to the practice of agriculture, the Ancient Egyptians and the Nkwen people settled down in one place and were able to shorten their birth intervals from four years to about two. This meant that each woman could have more children than her hunter-gatherer counterpart, which in turn resulted in rapid population growth among these communities. An increased

[309] https://www.ancientegypt8.weebly.com/family-life-and-housing, visited 22/05/2022 at 4:34pm
[310] https://www.egyptcivilizations.com/2021/01/the-family-in-ancient-egypt.html, visited 22/05/2022 at 4:34pm
[311] https://www.ancientfaces.com/surname/bamenda-family-history, visited on 21/05/2022, at 4:20pm

population was actually an advantage to the Ancient Egyptians and the Nkwen people, because farming required large amounts of human labor. As a result, every major advance in agriculture has allowed global population to increase**.** Farmers, on the other hand, could live in the same place year after year and did not have to worry about transporting young children long distances. They could settle down to a steady food supply.

Furthermore, the Ancient Egyptians and the Nkwen people evoked images of stone walls during irrigation managements and storage infrastructures, monuments, and roads, which were more than robust physical infrastructure. As a result, to facilitate the organization and administration of these large, dense communities, people began to create social infrastructures: economic, political, and religious institutions that created new social hierarchies. These hierarchies were populated with people playing specialized roles, such as professional administrators, farmers, artisans, traders, merchants and spiritual leaders[312]. Moreover, due to increase in trade and conflicts with other communities, brought about a need for diplomats, armies, and a centralized ruler. As from simple to complex, most cities grew out of villages, and some ultimately became city-states and chiefdoms, which are self-governing urban centers and the agricultural territories under their control. The surplus food production generated by the villages in the vicinity allowed for some residents not to participate in food production, which led to the development of specialized roles and associated classes. In order to facilitate cooperation between these many different classes and to organize large numbers of people to work together for the large-scale construction of the irrigation system, monuments, and other infrastructural projects, leaders were required, comprising a new social class[313]. Political leadership would take many different forms in the first civilizations, though powerful states and *Fondoms*, centralized systems of government and command, were the norm

c) Government formation

The practice of agriculture and food surpluses in communities brought opportunities for individuals and households to acquire more population growth, social status, political power, and wealth. As a result, there was a need for a government that will exercise authority. The practice of agriculture in Kemet and in Bafreng enabled the natives to have adequate knowledge of their environments in terms of difficulties and solutions. They were able to study the landscape, climate, vegetation, and soil type, in order to best exploit these elements. The Ancient Egyptians had adequate knowledge of the Nile river to the extend where they could

[312] https://www.ancientfaces.com/surname/bamenda-family-history, visited on 21/05/2022, at 4:20pm
[313] M. Mazoyer and L. Roudart, *A History of …*, p. 116

control its floods with an instrument known as a nilometer that was installed at different points of the river so as monitor the level of the water during the flood. Again, the Ancient Egyptians were able to determine which crops could best grow at a particular place and time[314]. For instance, wheat was more cultivated at the banks of the Nile as compared with vegetables. All the same with the Nkwen people who mastered their environment and cultivated some crops seasonally and others throughout the year. For instance, according to Pa James a notable, he says that groundnuts and beans are mostly seasonal crops and are cultivated in quarters such as Atieba, Atielah-Mbelewa, Teken amongst others where there are no swamps, meanwhile corn is cultivated throughout the year in places where there are swamps such as Ntamuche, Nchang, Futru and others.

From all these, due to the good mastery of their environment, it is possible to determine that the Ancient Egyptians and the Nkwen people were able to establish a governance which adapted to their environment through their various encounters. As a result, to facilitate the organization and administration of these large, dense growing communities, people began to create social infrastructures aimed to serve as: economic, political, and religious institutions that created new social hierarchies[315]. These hierarchies were populated with people playing specialized roles, such as professional administrators, farmers, artisans, traders, merchants and spiritual leaders[316]. Moreover, due to increase in trade and conflicts with other communities, there was a need for diplomats, armies, and a centralized ruler. As from simple to complex, most cities grew out of villages, and some ultimately became city-states and chiefdoms, which are self-governing urban centers and the agricultural territories under their control. The surplus food production generated by the villages or rural zones, allowed for some residents not to participate in food production, which led to the development of specialized roles and associated classes. In order to facilitate cooperation between these many different classes and to organize large numbers of people to work together for the large-scale construction of the irrigation system, monuments, and other infrastructural projects, more leaders were required, comprising a new social class. Political leadership took many different forms within early civilizations, as powerful states and *Fondoms*, instituted diverse centralized systems of administration which were the policies[317].

[314] https://www.oxfordbibliographies.com/view/document, visited on 22/05/2022, at 5:15 pm
[315] https://sites.google.com/.../ancient-africa-government-and-economy, visited on 22/05/2022, at 5:15pm
[316] https://www.worldhistory.org, visited on 22/05/2022, at 4:30pm
[317] https://cameroonpostline.com/grass-field-project-gov, visited on 22/05/2022, at 4:30pm

According to John Ndefru[318], after examining a series of definitions of administration put forth by different authors, regarded administration as cooperative actions by a people aimed at delivering a common purpose. Then, he concludes by emphasizing that administration is the living heart of all organizations. This definition being just a guide because it does not explain the true meaning of administration since according to authors such as Simon, administration is not restricted to cooperative actions aimed at achieving objectives but is also concerned with what is popular referred as the six hows relating to:

- How the method was chosen?
- How the men were selected and induced to cooperate in carrying out a task?
- How task was divided between them?
- How each person learned his particular job in the total pattern?
- How he or she learned to perform it?
- How his or her efforts were coordinated with those of others?

Stuart Macrae and Douglas Pitt, states that administration is, in origin a Latin word and the Roman used it in two ways: First, suggest that administration occurs after a decision on policy has been taken. Thus, policy decisions are separate from administrative decisions. It also implies that administration is subordinate to policy. Secondly, it should be noted that a subordinate activity as there is no distinction between policy and administration. As a result, an administrator is seen as someone who not only executes decisions taken by others, but is himself the source of much decision-making.

Farmers in Ancient Egypt and in the Nkwen *Fondom*, demonstrated administration in their practices as they developed centralized political organizations. This was a process by which the activities of an agrarian community or organization, particularly those regarding planning and decision-making, framing strategy and policies became concentrated within a particular geographical location group or person such as the Pharaoh, *Fon*, elder or still a family head or ethnic leader. Consequently, this developed administrative functions. According to J.M. Pfiffner, administration implies the structuralizing and direction of human and material resources to achieve desired ends. Therefore, the two essentials aspects of administration are: cooperative efforts and pursuit of common objectives[319]. The practice of agriculture in ancient communities, brought about communalism in the domestication and management of plants and

[318] J. Ndefru, *The Anatomy of Public Administration*, Abuja, Academic publishing company, 2020, pp. 5-6
[319] M. J. Pfiffner and R. Vance, *Public Administration*, 3rd edition, New York, Roland press, 2016, p. vii

animals. Consequently, agricultural management became an occupation that involves the science of food production. It deals with farming techniques, the domestication of animals, and the general processing of food. As a result, the classification and organization of monitoring and evaluation activities in agricultural development projects in ancient communities brought about leadership skills for a proper production of goods and services. Meanwhile, according to Juan Carlos, Ancient Egyptian administration provides the first comprehensive overview of the structure, organization and evolution of the Pharaonic administration from its origins to the end of the Late Period (712–332 B.C.E.)[320]. In *Kemet*, as the need to control the Nile forced the people in Egypt to cooperate and coordinate, they set up a state. It was ruled by the pharaoh, a single man who possessed absolute power. At first, Egypt was divided into two separate kingdoms, Upper Egypt which was located along the upper (or southern) stretch of the river Nile and Lower Egypt which was situated mainly in the Nile Delta. About 3100 B.C. the pharaoh Menes united Egypt into one kingdom and so began the story of the most powerful state of its time[321].

Centralized societies developed a larger instrument of law enforcement compared with their noncentralized counterparts. Enforcement of laws seemed to be diffused in societies that were governed by more than one administrative body. It was typical, for instance, for secret societies to have their own courts where members were tried. Secret societies were groups that drew their members from the class of priests, elders, and people whose age, position, or status was important in the day-to-day running of the community[322]. Laws of secret societies tended to have direct impact on the larger society in part because most of their members were political elites. There seems to have been no sharp dichotomy between people who made laws and those who enforced them. Rulers had the power to enforce laws through their agents, including lesser chiefs as well as heads of lineage, clans, compounds, and servants[323].

2. On Culture of the Communities

Culture implicating all the knowledge and values share by a community in tilling, or cultivating and worship as identified in the Ancient Egyptians and Nkwen people's agricultural

[320] J. Carlos, *Ancient Egyptian Administration*, edited by W. Grajetzki, Boston, 2013, p. 1
[321] Article on Ancient Egypt published by European Union.
[322]https://www.kawa.ac.ug/Africanhistory/precolonial_african_societies, visited on 22/05/2022, at 6:30 pm
[323] F. W. Butt-Thomspson, "West African Secret Societies: their Organisations", Officials and Teachings, London, 1929, p. 320, online https://www.nature.com/articles,

practices[324]. Nevertheless, the single most powerful and influential cultural change in Ancient Egypt and early Nkwen *Fondom* was the conversion from gathering and hunting to agriculture (herding and tilling). As such, food surplus allowed some members of the society to produce the food and other members could concentrate on other cultural aspects. Perhaps more importantly, it required changes in our ways of thinking about the world around us, and those changes affected how we arranged ourselves, in reference to our believes, dressing, eating habit, writing, language, etc. In fact, culture is all about a way of life[325].

a) Social organization

The practice of agriculture also brought about class distinction in ancient African communities. This was so because food surpluses enabled other individuals within the community to exercise other functions as a result, not all families derived means of survival and livelihood from agriculture. Some were artisans such as wood carvers and blacksmiths aristocracy, scribes, civil servants, accountants, military, police, traders, legal professions, medical practitioners, engineers, planners, infrastructure builders, trainers, food producers and the disenfranchised. Some were entertainers, while others were diviners and healers. The skills required in these professions were transmitted from one generation to another. The endogamous nature of African families, where marriage took place within the tribe or clan, ensured that skills were passed from one generation to another within the family and was a significant factor in the survival and resilience of most ancient crafts[326].

Ancient Egypt was made of three social classes plus slaves. The three classes were: the upper class, the middle class and the lower class. The pharaoh was the supreme overlord. In his name the administration controlled the lives of the populace and the court and ordered the economy[327]. There was a strictly organized hierarchy directed from the offices of the royal residence; under this, local governors supervised the bureaucracy of each administrative district. At the central level there were departments of granaries, agriculture and farming, and building works, as well as the army, ships, frontiers, trading expeditions, foreign relations, justice, prisons, and health. Temples and wealthy landowners also had their own administrations, which were sometimes independent but at other times came under direct

[324] National Institute of Open Schooling, "Culture: An introduction", module-1 understanding culture, p. 1, pdf downloaded online on https://www.nios.ac.in/media/documents/SecICHCour/English/CH.01.pdf
[325] National Institute of Open Schooling…, p. 1,
[326] https://www.hec.edu/en/faculty-research/centers/society-organizations-institute, visited on 22/05/2022, at 6:30 pm
[327] J. Mark, "Social Structure in Ancient Egypt", published online in 2017 in https://www.worldhistory.org

government control. However, it should be noted that the administration was headed by the vizier (*tjaty*), who was usually appointed from the ranks of the scribes. His duty was to advise the king from whom he directly received his orders. As head of the judiciary and with responsibility for the whole administration, his powers were extensive[328].

There were many minor officials below the top ranks including scribes, priests, and artisans. These were the retainers of the upper class. Below them were the peasants. They were liable to corvée duty; they worked in the fields. The government was upheld by a police force basically employed to protect the weak against the strong. The police had local responsibilities to guard the farmers against theft and attack and to expel troublemakers from the community; they were also expected to use persuasion and even physical force to ensure that the peasants paid their taxes[329]. Social divisions emerged, while a centralized government gave rise to an aristocracy surrounding the kings and the priesthood. High status was shown by wearing more elaborate, ceremonial clothing decorated with embroidery and fringe and tassels at the neck and bottom hem and dyed with bright colors mixed from minerals and oil. Precious stones sometimes were woven into the clothing; in ceremony men of high status also carried swords, seals, and staffs, symbols of their authority. Aristocratic families had slaves as members. In most cases, these slaves were bought and integrated into the family for the purpose of agricultural production. Theoretically, slave owners had the power to kill or sacrifice them to the gods. A female slave could be made a wife. Men belonging to the elite class, including royalty, could take more than one wife if they could afford to do so and if the wives could contribute to the household. Because most women could, by working either in the fields or with textiles, it may have been more profitable to have more than one wife[330].

In Nkwen *Fondom*, the social stratification consists of the upper house (*beche, fon, ngoumba, kwifon*), middle house (*bwanitoh, tinkinbung, tabinoh, mintoh*) and Lower house (*Chebindiah*). The *fon* is the village head followed by the king makers and administration (*beche, ngoumba*) who are often the wise and the elderly men within the villages. The village traditional council (*nkwifon*) has the responsibility of transmitting information to and from the public through the help of quarter heads (*ngoumba*)[331]. The administration deliberates on village matters and report back to the *fon*. The upper class is followed by the middle class

[328] J. Mark, "Social Structure …,
[329] https://www.ancient-egypt-online.com/ancient-egypt-social-structure, visited on 22/05/2022
[330] Ibid.
[331] M. Tikere, "Traditional Arts and Socio-Cultural Changes: The Case of Bags in the Bamenda Grassfields of Cameroon", volume 8, article published in 2020 downloaded online https://www.ijirmps.org.

which is made up of the princes (*bwanitoh*), princesses (*tikinbung*), notables (*tabintoh-ngifoh negoh*) and the queen mother (*minoth-gebigo*) who all assist the *Fon* in food production and governing the community[332].

From the above analyses of the social stratification of the ancient Egyptians and the Nkwen people, it should be noted that it was as a result of agricultural practices that class distinction was established in order to ensure a proper administration of the growing community. This community development in social stratification progressively let to an impact of cultural aspects due to agricultural practices which will be examine below.

The domestication of plants and animals in Ancient African communities impacted their way of behaviours. For instance, the Ancient Egyptians and the Nkwen people developed their dressing materials from plants and animal skin which later on became distinctive signs for class distinction. In addition, the domestication of plants and animals equally let to a new way of thinking about the universe[333], as it shall be examined below.

b) Believes and Religion

When ancient African communities began agricultural practices, they observed, developed divers perceptions, thoughts and believes which subsequently impacted their cultures and social organizations. This was so with the mode of food production that is very important in shaping the social organization of African communities[334]. For instance, the Ancient Egyptians who mostly cultivated cereals, could think and organize themselves according to the seasons in which the crop could grow and they could draft culinary and ceremonial programmes based on the types of food which they produced. This was also the case of the Nkwen people who cultivated beans and developed a thoughts and cultural organizations which were derived from seasonal cultivation of beans[335].

Agriculture have been closely associated with believes and religion since Neolithic times and the development of early religions were based upon fertility and the seasons. To the Ancient Egyptians, religion was inseparable from everyday existence especially agricultural practices. They were a nation of farmers, who depended on the fertility of the land and its creatures for their livelihood. In trying to understand how the powers of nature could bring life

[332] Ibid.
[333] https://www.encyclopedia.com/science/encyclopedias-almanacs-transcripts-and-maps/early-agriculture-and-rise-civilization, visited on 23/05/2022 at 5:30am
[334] http://cec.vcn.bc.ca/cmp/modules/cha-agr.htm
[335] Interview with Pa Victor Ngami, on 22/12/2020

through plants and animals then later destroy it, the Egyptians personified these forces, worshipped them as gods and created myths about them. To retain the favor of the gods, they believed they should farm in accordance with the gods given rules, offer sacrifice and continually give thanks[336]. To fulfill the plan of the gods, sowing seed, tending fields, harvesting crops and storing had to proceed at fixed times. The best of the farm products was offered back to the gods as tribute or sacrifice. About 20 percent of the yield was taken as tax to maintain the system of divine rule[337].

Barley and emmer wheat were the main crops sown in the fields regularly inundated by the Nile. Both of these two cereals types played an important part in the daily diet of the Egyptian society, as it could be noticed from an administrative record of offering lists from tombs and temples during the New Kingdom (1550-1070 B.C.). Osiris was the god of the Nile and of fertility, a wise ruler who taught men to farm, build temples and worship the gods[338]. As the agricultural cycle depended on the Nile's annual flooding, farmers could irrigate their fields through a network of canals and to use the rich silt left after it receded. They could then raise their crops, feed their animals and achieve prosperity for the whole economy. Around 2100 B.C. they summed up writings in hymns to the Nile where worships such as; "*you bring forth the barley, assuring perpetuity to the temples*"[339]. The Egyptians explained Osiris' association with the Nile, the underworld and fertility through the story of how he was murdered, cast into the river, and restored to life by his wife Isis long enough to impregnate her before returning to the underworld to rule over the souls of the dead. The agricultural cycle of irrigation, sowing and reaping replayed this story every year[340].

The Egyptians held many animals sacred. Of farm animals, they considered cattle the most special[341]. Cowhide, dung and horn were highly prized, but the meat was so expensive that it was usually reserved for the use of the nobility or priests. In most cases, Egyptians honored animals for their links with particular gods, rather than worshipping them in their own right[342]. However, they treated bulls like pharaohs on account of their strength and virility. They

[336]https://www.classroom.synonym.com/ancient-egyptian-religion-affected-farming-10487.html
[337] https://www.ancientegyptianfacts.com/ancient-egypt-agriculture, visited on 20/05/2022, at 4:30am
[338] M. Bunson, *Encyclopedia of ancient Egypt*, New York, Facts on File, 1991, pp. 289-290
[339] P. Bogucki, *Encyclopedia of Society and Culture in the Ancient World*, fact on file, New York, 2007, p. 49
[340]A. Dollinger, *Hymn to Hathor: The Egyptian Agricultural Cycle.* Available online. URL: http://nefertiti.iwebland.com/ texts/hathorhymn.htm, downloaded on 21st December, 2020, at 8:43pm
[341] M. Bunson, *Encyclopedia of Ancient Egypt*, pp. 151-152
[342] G. Massey, *Ancient Egypt: The Light of the World*, London, Published by Adelphi Terrace, 1907, p. 10

pampered prize bulls in life and entombed their mummified bodies with lavish ceremony after death[343].

Ancient Egyptians believed in divine kingship[344]. They called their pharaohs descendants of the sun god Re (or Ra), and trusted them to protect the kingdom and ensure its prosperity. This belief system gave the pharaoh responsibility for directing agricultural production and storing enough grain in his warehouses to feed the people in times of famine. In working for the pharaoh, laborers were working for the gods[345]. Therefore, they had to obey the pharaoh's commands on how to work the land and how much to pay in tax and tribute. Work was strictly organized through a hierarchy of command, with the nobility, royal officials, temple priests and local administrators in charge of individual farmers, gangs of laborers and servants.

From the above analyses we can determine that agricultural products were at the center of every believes. As seen above, the ancient Egyptians and the Nkwen people developed a system of believes and religious practices which took into consideration agricultural products as sacredness and communion with divinities.

c) Inter-tribal relations and Marriages

Pre-colonial African societies lived communally and were organized along clan, tribal ethnic lines. There existed strong bond and social interdependence among community members cemented by deep-rooted cultural values. Communal interactions produced certain tangible commonalities among various African societies regarding belief systems and cultural norms[346]. Kinship and family lineage were highly regarded as it created a foundation upon which the character of ethnic groups was manifested in terms of language, beliefs, customary rites and practices. The institution of kinship enabled communities in both centralized and decentralized societies to facilitate social, political, and economic activities. Centralized states such as pharaonic Egypt and the Nkwen Fondom, have a strong political structure usually headed by a king. Major communal undertaking like protection of the kingdom, economic activities and political engagements were directed b y a royal decree[347].

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[343] M. Bunson, *Encyclopedia of Ancient Egypt*, pp. 151-152
[344] Pinch, Geraldine, *Handbook of Egyptian mythology*, California, Abc-Clio, 2002, p. 7
[345] Ibid, p. 9
[346] https://prezi.com/uofd8n3wkkvp/africas-pre-colonial-international-relationsl, visited on 23/05/2022, at 8:40am
[347] I. Fowler, *Kingdoms of the Cameroon Grassfields*, London, published by Routledge, 2011, online download at https://www.academia.edu/4216199/Kingdoms_of_the_Cameroon_Grassfields, on 23/05/2022

Marriage in the ancient world was primarily a social, political, and economic institution. Rarely did modern concepts of romantic love play any role in the formation of a marriage and family, and marriage was usually regarded as a contractual arrangement rather than an expression of love[348]. In the ancient world, for example, it was common for grooms to pay a bride-price to compensate a family for the loss of a daughter; alternatively, it was common for the bride's family to pay a dowry to the husband as a way of compensating him for, in effect, taking the girl off the family's hands and promising to support her. Marriages were often arranged as a way of linking the resources of two families, and it was not uncommon for husbands to be considerably older than their brides; the older husband had resources that enabled him to support his wife and family, and the younger bride had years of fertility to help ensure the birth of children and the survival of the family name[349]. Further, marriages were arranged according to social class, with the bride's parents, in particular, doing everything possible to ensure that the husband-to-be was of the right class. Before the advent of Christianity in some parts of the world, though, polygyny, or the practice of a man's having two or more wives, was common. Divorce too, was relatively common in the ancient world. Some cultures considered women inferior to their husbands. This was so because their main role was the production of children, especially a healthy male who will be the heir. If the woman and child survived childbirth, the woman's role was to raise the children and maintain the home, performing such domestic chores as cooking and cleaning. Most ancient cultures were "patrilocal," meaning that at marriage the woman left her family and moved in with her husband and his family[350].

3. On Education of the Communities

Being the act or process of imparting or acquiring general knowledge, developing the powers of reasoning and judgment, and generally of preparing oneself or others intellectually for mature life[351]. This has been one of the most important impact on the life of the Ancient Egyptian farmers and Nkwen farmers, as they were compelled to acquire general knowledge on agricultural practices. They learned art, science, astronomy, medicine, writing, languages amongst other acquired knowledge. So, let's examine the various knowledge acquired by the

[348] K. K. Hersch, "A cultural History of Marriage in Antiquity", downloaded online on https://www.bloomsbury.com/uk/cultural-history-of-marriage-in-antiquity, at 23/05/2022
[349] Ibid.
[350] R. Atef, Love, "Marriage and divorce in Ancient Egypt", published on 17/10/2011, online on https://www.egypttoday.com/Article/4/25686/Love-marriage-and-divorce-in-Ancient-Egypt
[351] https://www.dictionary.com/browse/education, visited on 24/05/2022, at 3:55am

Ancient Egyptians and the Nkwen people, so we could better determine how agricultural practices impacted their education.

a) Art and sciences

Between approximately 5000 B.C. and 300 A.D., "advanced" civilizations (generally, those with written language) thrived in Egypt and Nkwen *Fondom*[352]. Agricultural practices played an important role in the development of art and science in these growing communities which provided a means to enforce religious and political order. However, before we embark on the analyses of this part lets highlight on the terms art and science through definitions, so that we best situate the analyses.

According to an article on art published online on britanica.com, art is the expression or application of human creative skill and imagination, typically in a visual form such as painting or sculpture, producing works to be appreciated primarily for their beauty or emotional power. It is also defined as the various branches of creative activity, such as painting, music, literature, and dance[353].

Amy Lowell quotes that "art is the desire of a man to express himself, to record the reactions of his personality to the world he lives in[354].

The Ancient Egyptians had no word for art and science. Artists were mindful of the aesthetic properties of their creations, but they had no abstract word that was understood as art, and no one thought of their creations as art in the modern sense of the word. When they created items, they did so almost always with either a practical or religious purpose in mind. Practical items, like bowls and other vessels, were used in the home for everyday purposes. Religious art commonly depicted gods and goddesses as well as the pharaohs, who were seen as divine. It was created to serve a spiritual purpose, most often to honor the gods, to ensure a continuous connection between the physical and spiritual worlds, or to help a deceased person on his or her way into the afterlife. Egyptian artists worked within a limited range of subject matter.

However, it should be noted that the Ancient Egyptians art is a conceptual art created to express Egyptians beliefs about: life after death the gods, who controlled the workings of the universe the king's divine powers, granted by the gods to maintain universal order[355].

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[352] https://www.artsy.net/gene/ancient-art, visited on 15th September 2021, at 6:57pm
[353] www.britannica.com/art/visual-arts, visited on 15th September 2021, at 7:02pm
[354] https://www.brainyquote.com/topics/art, visited on 15th September 2021, at 7:22pm
[355] The Metropolitan Museum of Art, *The Art of Egypt Ancient a Resource for Educators*, New York, 1998, p. 5

As for the term "science" it refers to knowledge attained through study (observation) or practice (application)[356]. Moreover, according to Merriam webster dictionary it is defined as knowledge about or study of the natural world based on facts learned through experiments and observation[357].

From these definitions, it can be deduced that through the practice of agriculture the Ancient Egyptians and the Nkwen people were able to observe their various farming activities, which compelled them to express themselves through language, writing, sculpture, technology, painting, amongst others. As such, this part will study the impact of agriculture on art and science. Let's begin by understanding the word science by asking questions such as; what is science in order to easily incorporate the term into art.

The natural world and all that occurred within it was seen by the Ancient Egyptians and the Nkwen people as an expression of the unseen realm of spirits. Events on earth were predetermined, as a result, humans could control the fertility of the soil, the coming of the rains, the occurrence of drought or illness, or the seasonal flood of rivers and lakes. They could only propitiate the spirits of the natural world, look for guidance in signs appearing on the earth and in the heavens, and seek out the environments that were best suited to their own survival. They did not pursue science for its own sake or by the modern method of testing theories in controlled experiments. Ancient chemistry, botany, metallurgy, physics, medicine, astronomy, and so on came in the form of practical knowledge applied to everyday needs: growing food, fighting wars, curing the sick, or relieving the pain of giving birth. Further, there was no sharp line between religious and scientific practices, since a spiritual outlook governed virtually all aspects of life. Generally speaking, any activities that Ancient Africans carried out for the purpose of enhancing their livelihood and manipulating their environment should be considered science[358].

Ancient people did not have time to pursue purely theoretical knowledge, or scientific knowledge for its own sake. They were too busy with the practical concerns of day-to-day survival. Consequently, science tended to be more in the nature of technology, of finding solutions to practical problems. In attacking those problems, they looked around and saw four fundamental elements that affected their lives: earth, fire, air, and water. Science represented

[356] https://www.sciencemadesimple.com/science-definition, visited on 15th September 2021, at 7:28pm
[357] https://www.merriam-webster.com/dictionary/science, visited on 15th September 2021, at 7:35pm
[358] Ancient African Art online on arthistory.net, visited on 23/05/2022, at 4:30am

an effort to control these four elements. Thus, perhaps the best way to categorize and summarize ancient science is to focus on how they learned to tame these four elements.

The earth was the most stable, tangible reality, so ancient peoples of Egypt and Nkwen *Fondom,* made efforts to achieve some understanding of it and of ways to use it. Stone Age peoples, for example, learned to make weapons, cutting tools, and the like out of the stones on the ground that surrounded them. Their Bronze Age and Iron Age descendants learned to make these weapons and tools out of metal. To do that, they needed to develop ways to find metal ore, mine it, smelt it, purify it, and cast it into the objects they needed. As ancient chemists, they learned ways to harden metals. Copper workers discovered that by combining copper with tin, they could create bronze, a much harder and more useful metal that defined a historical period, the Bronze Age. Later, by adding carbon scientists discovered that they could convert iron, an abundant but somewhat soft metal, into hard and durable steel. The earth also provided abundant building materials. The earliest structures were built with logs, reeds, and mud bricks, but in time people learned to quarry stone such as marble, limestone, and sandstone to make buildings. Along the way they discovered principles for engineering these buildings and in some cases developed sophisticated mathematics to help them[359].

In addition, **e**arly farmers of Egypt and Nkwen *Fondom* became chemists and botanists by learning how to domesticate crops, cultivate them, store them, and convert them into food. Chemistry, for example, enabled them to convert milk from livestock into cheese. Perhaps one of the most successful plant-breeding programs in history was carried out by the ancient Mesoamericans, who domesticated maize (corn) from a wild plant[360]. Other farmers became chemists when they learned that the dung from their domesticated animals or from animals such as cows, sheep, goats, pigs and fowls promoted crop growth or that burning the stubble from last year's crop provided the soil with nutrients that encouraged plentiful yielding each year[361]. This leads to fire, as the second element. Ancient civilizations learned to use fire not only for warmth and light but for other purposes as well. Ancient miners, for example, learned to crack stone during the quarrying process by building a fire next to the rock to heat it and then dousing the rock with cold water. The rapid temperature changes cracked the rock, making

[359] L. Depuydt and T. Streissguth, *Encyclopedia of society and culture*…, p. 921
[360] R. Penaflorida, "Development of science in Africa", online on https://www.slideshare.net/PenafloridaRoel/development-of-science-in-africa, visited on 23/05/2022
[361] S. Blatch, "Great achievements in science and technology in ancient Africa", published online in 2013, on https://www.asbmb.org/.../great-achievements-in-stem-in-ancient-africa, visited at 5:55 am,

it easier to mine[362]. They also learned to create blast furnaces that achieved the high temperatures they needed to refine and melt metal ores. Meanwhile, ancient pottery makers were making detailed scientific observations about materials that would work best for clay pots, substances that could be used as dyes for coloring the pots, and ways to fire and glaze the pots to make them more durable. They also learned to make such materials as glass, using silica (sand) and to use minerals mined from the earth to make decorative objects[363].

With regard to air, ancient civilizations observed the power in a gust of wind and decided that they could put the air to work. This led to at least two primary developments. One was to attach sails to boats, giving these boats far greater range for purposes of exploring, trading, and conquest[364]. The other was the development of the windmill, allowing ancient farmers to pump water, irrigate land, and thresh grain in far greater amounts and with much greater efficiency. Meanwhile, ancient astronomers were looking into the heavens and observing regularities in the movements of the sun, moon, and stars[365].

The Egyptian methods of mapping and measuring the heavens gave the world one important basis for its advanced time measurement systems. Egyptian astronomers divided the heavens into 36 decans, with each group of stars covering 10 degrees of the sky. Each of these groups rose at dawn for a period of 10 days, which formed a basis for the Egyptian calendar of 12 months of 30 days, each composed of three 10-day weeks. Egyptian astronomers further divided the year into three seasons which were the season of the flood, the season of planting, and the season of harvest, with each season having four months in length. The system of months left an extra five days each year that were set aside for feasting and a rest from labor. These intercalary days (inserted between others) were associated with a legend of the god Thoth, who allowed the goddess Nut an extra five days to give birth to her children[366].

The actual solar year, being slightly longer than 365 days, caused the months and seasons to gradually go out of phase. The result was a long period known as the Sothic cycle, in which the seasons returned to their original positions in the calendar every 1,460 years. Later

[362] Fire on the rocks, newspaper on fire setting in Ancient Egypt, published online hhttps:///per-stormyr.net, visited at 23/05/2022, at 6:05am
[363] How we found the earliest glass production south of the Sahara, online at https://www.downloadtoearth.org, visited on 23/05/2023, at 6:10am
[364] J. Illge, "Sailing in Ancient Egypt", article online at https://prezi.com/up1v27z7sfdf/sailing-in-ancient-egypt, visited on the 23/05/2022, at 6:30am
[365] Why and how the Ancient Egyptians used Astronomy? online at astronomyguide.com, visited on 23/05/2022, at 6:36am
[366] Ibid.

astronomers of Alexandria created a new calendar in which an extra day was added every fourth year, a system adopted by the Romans and which gave rise to the modern leap year. The system of decans and constellations also led to the division of night and day into 12 equal parts, which in turn led to the 24-hour day now used throughout the world[367].

People of ancient times based their calendars on the most obvious regular events they knew, such as the changing positions of the sun, moon, and stars. These calendars helped them figure out when to plant and harvest their crops. Over time different groups of people developed other calendars based on their own needs and beliefs. The early Egyptians also used a calendar based on the moon. Later, though, the Egyptians worked out a calendar that corresponded almost exactly to the seasons. The calendar that developed in the Early Dynastic Period (2920–2575 B.C.E.) had 12 months of 30 days[368]. The inaccuracy of this calendar was self-evident almost immediately. The lunar calculations made by the priests and the actual rotation of the earth around the sun did not coincide, and very rapidly Egyptians found themselves celebrating festivals out of season. The calendar was then revised by adding five days at the end of each year, called epagomenal days (connected to the goddess Nut), which provided some stability to the calendar calculations. The calendar contained three seasons of four months each. The first was *Akhet* the season of the inundation, starting at the end of modern August and followed by the second *peret* or *proyet*. *Proyet* was the time in which the land emerged from the floodwaters, and the third was *shomu*, the time of harvest. As the calendar veered from the true year, the Egyptians invented a corrected calendar and used it side by side with the one dating to Predynastic times. They would not set aside something so venerable, preferring to adjust their enterprises to the new calendar, while maintaining the old. In the reign of Djer (2900 B.C.E.) a formative calendar was inscribed on an ivory tablet, that included the image of Sirius. The goddess *sopdu*, depicted as a sacred cow bearing the symbol of the year (a young plant) between her horns, is also portrayed. Egyptian astronomers had established the link between the helical rising and the beginning of a year: the solar calendar. Several units of time are common to almost all calendars. The day is the most basic unit. The day measures the cycle of daytime and nighttime. It is now known to be the length of time that the earth takes to spin once on its axis. A group of seven days is called a week. The month is about 29 1⁄2 days long,

[367] Ancient Egyptian Astronomy: discover about Egyptian, online on https://cosmonova.org/ancient-egyptian-astronomy, visited on 24/05/2022, at 3:30am
[368] R. Margaret Bunson, *Encyclopedia of Ancient Egypt*…, p. 79

the time taken by the moon to orbit earth. The year is about 365 1⁄4 days long. That is the time taken by earth to orbit the sun. The year measures the seasons[369].

Talking about the African traditional medicine, it was a form of holistic health care system organized into three levels of specialty, namely divination, spiritualism, and herbalism. The traditional healer provides health care services based on culture, religious background, knowledge, attitudes, and beliefs that are prevalent in his community. Illness is regarded as having both natural and supernatural causes and thus must be treated by both physical and spiritual means, using divination, incantations, animal sacrifice, exorcism, herbs and foodstuffs as drugs. Herbal medicine is the cornerstone of traditional medicine but may include minerals and animal parts[370].

The medicine of the Ancient Egyptians is some of the oldest documented. From the beginnings of the civilization in the late fourth millennium B.C. until the Persian invasion of 525 BC, Egyptian medical practice went largely unchanged and included simple non-invasive surgery, setting of bones, dentistry, and an extensive set of pharmacopoeias. Egyptian medical thought influenced later traditions[371].

Egypt and Nkwen *Fondom* were home to endemic malaria, tuberculosis, measles, smallpox, cholera, and bubonic plague; waterborne illnesses included schistosomiasis (an infection of the blood caused by a parasite). Eye diseases, including trachoma, were common, as were malnutrition; neural diseases like epilepsy; hazards of the natural world such as snakebite, insect stings, and poisonous fish and vegetation; and digestive ailments caused by poor food preservation. The process of mummifying a body took as long as 70 days, with each step a ritual presided over by priests trained and expert in the art. The brain, lungs, pancreas, liver, spleen, heart, and intestines were removed with various instruments, and the body was placed on a bed of natron, a mineral salt that dried the skin and tissue. Once the body was dried, the priests anointed it with oil and spices and then wrapped it in linen bandages[372].

Nkwen traditional herbalists developed skills in surgery, setting broken bones, treating burns and wounds, dentistry, and preparing medications from vegetable plants, herbs, and minerals. Treatments included honey to dress wounds and soothe pain; aloe vera for burns and

[369] Ibid, p. 80
[370] E. A. Ngassa, "Traditional Doctors and Psychiatry in the North West Province of Cameroon", Yaounde, 2015
[371] Egyptian Medicine- World History Encyclopedia, online https://www.worldhistory.org/Egyptian_Medicine, visited on 24/05/2022, at 3:33am
[372] Ibid.

headache; and frankincense, dill, camphor, mustard seed, onions, garlic, sandalwood, sesame, thyme, and poppy seeds for various ailments and symptoms[373]. An ancient Egyptian prescription could comprise several of these ingredients as well as much more repulsive substances meant to drive away evil spirits: the blood or fat of lizards and snakes, ground pig's teeth, rotten meat or other food, and boiled beetles or rhinoceros' horn[374].

b) Language and writing

Agricultural practices brought about language and writing as an aspect of art and science. The Ancient Egyptians and the Nkwen people worked in communality, as such, they were obliged to develop various methods of communication in order to better understand themselves and work in harmony. This is the reason why they mostly began using signs and sounds around their environment as a means of communication through writing. This allowed their communities to retain information by recording and to pass it on to other people over many generations. The beginning of written language heavily corresponded with the transition of early human from hunter-gatherers to settled civilizations utilizing agriculture (Neolithic Revolution). As technology improved the food surplus grew even more and required stores. These huge amounts of food required an inventory. This would suggest that early African communities only really have one trajectory, which is to advance their societies. When they settled in one way or another, they immediately search for the next way to advance[375].

The language of Ancient Egypt was Egyptian. It was both written and spoken for over 4,000 years, from about 3000 B.C.E. to about 1500 C.E. making it the oldest known written language[376]. They wrote their language in the pictorial hieroglyphic script  *mdw nṯr Medou-Netjer*. Hieroglyphic is a Greek word meaning "pertaining to holy carving." They are stylized but realistic pictures of beings and objects. The earliest hieroglyphic writing dates to about 3000 B.C.E. Early attempts are imperfect and difficult to decipher. Because writing represents language, any description of a writing system must be preceded by a description of the language system[377]. Language is composed entirely of signs. Signs have two sides, the signified and the signifier. An example of the signified is a person's image of a dog. The signifier attached to

[373] Traditional Medicine: Past, Present and Future Research and Development Prospects and Integration in the National Health System of Cameroon, online on https://www.ncbi.nlm.nih.gov/pmc/articles, visited on 24/05/2022, at 3:40am
[374] Encyclopedia of society and culture…, p. 927
[375] https://www.bl.uk/history-of-writing/articles/where-did-writing-begin, visited on 24/05/2022, at 4:44am
[376] Origin of language Cambridge University Press, online on https://assets.cambridge.org, visited on 24/05/2022, at 3:40am
[377] Origin of language Cambridge University Press, online on https://assets.cambridge.org, visited on 24/05/2022, at 3:40am

this signified is the sound pattern consisting of the three sounds written d + o + g. In other words, the signifier is the code in the brain that prompts the speech organs to produce the sounds. Signified and signifier are independent. The hieroglyphic script is one of the few scripts that does both. A hieroglyph denoting a signified is an ideogram that is, an "idea character."

A stroke included in a hieroglyph indicates that the hieroglyphs meet two conditions: They are ideograms, and they denote a whole word by themselves. A hieroglyph denoting a signifier (one or more sounds linked to a signified) is a phonogram that is, a "sound character." Phonograms represent one, two, or three consonants. They are therefore unilateral, bilateral, or trilateral. Vowels are not written. Phonograms also function as phonetic complements. Pictures come to denote sounds through the rebus principle. Rebus is Latin for "representing sounds by depicting objects." In English the sound made by the letter I might be represented by a picture of an eye. It is in this way that phonograms are derived from pictures. In rebus derivation a hieroglyph that denotes a signified as an ideogram and that secondarily denotes the signifier attached to that signified is cut loose from the signified and left to express only the signifier as a phonogram. Like any language, Egyptian consists of a limited set of distinctive sounds, about 25. Each sound can be represented by its own phonogram. The group of phonograms in the language is called the alphabet. But hieroglyphic writing is not purely alphabetic. It uses other signs besides the alphabet. Still, about half of the signs in any hieroglyphic text are those of the alphabet[378].

Ideograms always denote both sound and meaning. Phonograms always denote sound but only sometimes denote meaning. The result is asymmetry. An ideogram denotes the signifier of a word. The signifier is linked to the signified in the sign. That is why an ideogram indirectly denotes a sound[379]. In referring to both sides of a word, that is, a whole word an ideogram is always a logogram, or a "word character." Only a full sound pattern as signifier is linked to a signified. Therefore, only a phonogram denoting a full sound pattern is also a logogram. A third type of hieroglyph is the determinative. It appears at the ends of words and determines the meaning class to which a word belongs. Hieroglyphs often function in more than one capacity[380]. Ideogram, phonogram, and determinative are therefore functioning rather than types of hieroglyphs. A word can be written in many combinations of one or more of the

[378] Ancient Egyptian Language, Egyptian Language History, online on www.egypttoursportal.com/en-us/ancient-egyptian-language, visited on 24/05/2022, at 3:43am
[379] Egyptian language, Writing, & Hieroglyphics, online on https://www.britannica.com/topic/Egyptian-language, visited on 24/05/2022, at 3:45am
[380] Ibid.

three type's ideogram, phonogram, and determinative and contains from one to five or six hieroglyphs, sometimes more. Hieroglyphs normally exhibit their full pictorial quality only when chiseled or painted. When writing with a pen on papyrus, scribes used cursive variants. Pen-written hieroglyphs are called hieratic, which is derived from the Greek word for "priestly"[381].

From about 650 B.C.E. onward an extremely cursive variant of hieroglyphic writing called demotic was used for more than a millennium. It denotes the fourth stage of the language, also called demotic. Demotic means "of the people." The name first appears in the writing of Herodotus. In demotic the hieroglyphs of a word often merge into a single composite sign taking on a life of its own. Therefore, a demotic word was often written with its own signs. Demotic therefore makes great demands on a reader's paleographic memory. Hieroglyphic writing as a rule runs from right to left, with people and animals facing right. Texts were mostly written in lines. Columns of hieroglyphs were commonly used in monuments and were the norm in hieratic in the third millennium B.C.E. The sign list in A. H. Gardiner's Egyptian Grammar contains fewer than 800 signs. The number of signs used frequently is less than that[382].

In Nkwen *Fondom*, the language Nkwen is a mother tongue spoken by the Nkwen people of Cameroon in Africa. It is one of the many Cameroonian Languages on the verge of development. With many aspects already developed, further research is still recommended for the full development and preservation of this language and the culture of the Nkwen people embedded in it. From the first edition of the Nkwen Language Alphabet which was established by PROPELCA[383] together with the then Nkwen Language Translation Committee of the Catholic Mission Futru Nkwen in their Summer Linguistic Courses in Aghiati Bafut in the mid-1990s to the second edition reviewed by S.I.L.[384] and some members of the Nkwen Language Committee in a Summer Linguistics Seminar organized by S.I.L. in July 1999 at CBC Nkwen Bamenda. During this seminar the Nkwen Alphabet was made up to 31 letters, of which 24 were Consonants (*Ǹmi Mə Abɔŋnə̀*), 6 Vowels (*Nji-àbɔŋnə̀*) and 1 glottal stop. However, it should be noted that the language is a tone language, that is, a language in which variations in pitch distinguish different words. Placing tone on words, it can change their pronunciation and

[381] Hieroglyphs tutorial; Phonograms, Logograms, Determinatives, https://ancientegyptonline.co.uk/hieroglyphs, visited on 24/05/2022, at 3:55am
[382]L. Depuydt, *Encyclopedia of society and culture*…, volume 3, p. 1184
[383] Operation Research Project for the Teaching of Cameroonian Languages
[384] Société International de Linguistic

meaning especially when it is used in isolation and in sentences. The variation tone also makes differences in tenses[385]. This indicates that tone marks in the Nkwen language should be highly consider.

From this highlight on language and writing in Ancient Egypt and in the Nkwen *Fondom*, we will move on the next aspect of education or still art and science which is painting and sculpture as follows.

c) Painting and sculpture

Painting is an important form in the visual arts, bringing in elements such as drawing, composition, gesture (as in gestural painting), narration (as in narrative art), and abstraction (as in abstract art). A painting is an image (artwork) created using pigments (color) on a surface (ground) such as paper or canvas. The pigment may be in a wet form, such as paint, or a dry form, such as pastels. Sculpture, an artistic form in which hard or plastic materials are worked into three-dimensional art objects. The designs may be embodied in freestanding objects, in reliefs on surfaces, or in environments ranging from tableaux to contexts that envelop the spectator. An enormous variety of media may be used, including clay, wax, stone, metal, fabric, glass, wood, plaster, rubber, and random "found" objects. Materials may be carved, modeled, molded, cast, wrought, welded, sewn, assembled, or otherwise shaped and combined[386].

Most of the painting that survives from Ancient Egypt is found on pottery and stonework. Paintings have been found on relief stonework, but many paintings have also been found on flat stone. Unfinished paintings have given art historians clues about how painters worked. Evidence suggests that skilled draftsmen marked out the areas to be painted by making sketches with red paint and then making corrections with black paint. In the Middle Kingdom (2140–1640 B.C.E.) painters began to use a system of grid lines to plan out the composition in representing humans, the canon of human proportion referred to earlier. These grids would then aid the painter in maintaining proportions as the painting was sketched in. Sometimes the lines were etched in using a straight edge, but often they appear to have been done with red chalk lines made with a string that was stretched tightly and then snapped against the surface (in the same way that modern builders "snap lines" on the floor when marking out the interior walls of a house under construction). Once the plan of the composition was in place, artists made a sketch using fine brushes, similar to the brushes used for writing. Brushes were made with

[385] T. Mwufor, "Tone Mark in Nkwen Language", https://nwufortherese.education/2019/09/21/tone-marks-in-nkwen-language, visited on 24/05/2022, at 4:05am
[386] https://www.britannica.com/art/sculpture, visited on 16th September, 2021 at 12:23pm

reeds cut at an angle and split to produce bristles. To apply the paint, more substantial brushes were made with fibrous wood. A typical brush was made of twigs that were tied together; the ends were then pounded to break the fibers into bristles[387].

More to this, pigments were made from local minerals that could be found in the deserts surrounding the Nile River valley. White paint was made with gypsum (calcium sulfate), "whiting" (calcium carbonate), or huntite, a chalky white compound of calcium and magnesium. Soot and charcoal were used to produce black, and iron oxide (rust) produced a range of yellows and browns. Various other minerals, including realgar (arsenic sulfide), orpiment (arsenic trisulfide), jarosite (potassium sulfate and iron sulfate), azurite (copper carbonate), and malachite (also copper carbonate), were mixed to produce other colors, including blues, greens, reds, and yellows. Many of these compounds are unstable in light, and the colors have faded over the centuries. Most surviving painting can be found on the walls of tombs and temples built at the behest of royalty, though similar work was increasingly part of private tombs and houses beginning in the 18th Dynasty (1550–1307 B.C.E.)[388]. The Egyptians believed that painted scenes in tombs would help ensure the continuity of life. In temples they believed paintings preserved the memory of the accomplishments of the pharaohs and, by depicting rituals, would serve as a visual record that would ensure that important rituals were later performed. While many examples of fine relief painting could be cited, art historians often point to the painting found in the tomb of Mentuhotep II (2061–1991 B.C.E.) at Dayr al-Bahriand to the carvings found in the shrine to Sesostris I (1971–1926 B.C.E.) in Karnak as particularly superior examples[389]. One feature of Ancient Egyptian painting that strikes modern viewers is the lack of three dimensions. Most later painting, beginning in renaissance Europe, creates the illusion of a third dimension, depth, by arranging the elements of the composition and altering their size so that some are in the viewer's foreground and others in the background and objects themselves have a sense of depth. Egyptian painters, in contrast, remained happy with flat, two-dimensional paintings and drawings.

Furthermore, modern painting creates the sense that the objects are viewed from a single perspective. An Egyptian painting, in contrast, employs multiple perspectives. Modern

[387]What the difference between painting sculpture?, online at https://www.modernsculptureartists.com/2018/09/13/difference-between-painting-and-sculpture, visited on 24/05/2022, at 5:30am

[388] S. Loredana and F. Tiradritti, "Artists and Painting in Ancient Egypt", article published by Studi Poliziani, 2016, p. 21, online at https://www.academia.edu, visited on 24/05/2022, at 5:35am

[389] D. Rosalie, *Handbook to life in ancient Egypt…,* p. 64

viewers, too, are often struck by a kind of oddity in the way human figures are represented in Egyptian painting. Rather than giving the figures naturalistic poses, the paintings seem almost to be made of a collection of parts. Thus, for example, the head might be in profile, but with a full "frontal" view of an eye. The shoulders may then be rendered frontally, but the legs and buttocks may again be in full profile. No discussion of painting would be complete without mentioning the illumination of papyrus manuscripts. Papyrus is a form of paper made from the reeds of papyrus plants. Beginning in about the 18th dynasty, artists started to include small drawings and paintings on official and religious documents. Among the best examples of this type of work are the illuminations of the Book of the Dead by a scribe named Ani in the 19th dynasty (about 1250 B.C.E.)[390].

Because sculptures are made of stone or other durable materials such as ivory, many from ancient Egypt survive intact. Most sculptures were created for one of two purposes. One was to be placed in tombs, and the other was to serve as a votive offering in temples. Overall, the purpose was not realistic representation; particularly in the case of tomb art, it was expected that no one would ever see it. Rather, the purpose was to preserve an idealized image of the individual in death when he or she stood before the gods. Accordingly, the emphasis was on idealized types rather than individual portraiture. Egyptian sculptors worked with a variety of materials. Generally, sculptures were made with soft stone[391]. The most easily obtained was limestone, which could be found in the cliff s on both sides of the Nile river. Other soft stones included alabaster (calcite), sandstone, graywacke (a dark gray sandstone sometimes mixed with bits of quartz or feldspar), and schist (a crystalline rock that can easily be split along parallel planes). Egyptian sculptors also worked with harder stone, including basalt, granite, granodiorite (a granular rock with characteristics of both quartz and granite), diorite (a crystalline rock containing a number of minerals), and quartzite (a type of sandstone). Sculptors shaped softer stone using stone tools and copper chisels. Harder stone was shaped by hammering it and using abrasives made from still-harder stone. Whichever type of stone the artist used, it was often covered in plaster and painted; in some cases, it was painted without plastering. Frequently, though, the stone was left unpainted because of its color symbolism: black stone symbolized the life-giving silt left behind by the flooding of the Nile; reds, golds, and browns represented the sun; and green represented vegetation and the emergence of new

[390] https://www.britishmuseum.org, visited on 24/05/2022, at 5:55am
[391] W. Smith, *A History of Egyptian Sculpture and Painting in the Old Kingdom*, London, Oxford University Press, 1946, p. 65

life. Sculpture included not only statuary but also relief carved into the surface of stone. Wood was also used for sculptures, though most of the wood had to be imported. Some common woods included tamarisk, acacia, and the wood from fig trees as well as a variety of pine from Syria. Wood was shaped with knives and adzes and polished with rubbing stones. Some pieces were made with single chunks of wood, but many were made with pieces or strips that were joined. Sometimes the wood was painted, but often it was left in its natural state, especially if the quality of the wood was high. Metal, too, was a common medium, especially arsenic bronze (an alloy of arsenic and copper) in the Old Kingdom (2575–2134 B.C.E.) and bronze (an alloy of tin and copper) beginning in the Middle Kingdom. Gold and silver were highly valued. Although today gold is regarded as the more precious metal, in Ancient Egypt silver's rarity made it the more precious metal compared with gold, which was used extensively[392]. While fragments of wooden statues of the first type survive from the city of Saqqara and date to the first dynasty (2920–2770 B.C.E.), more impressive examples include a statue of king Djoser of the third dynasty (2649–2575 B.C.E.) in the temple complex at Saqqara and the statue of king Menkaure II and Queen Khamerernebty of the Fourth Dynasty (2575–2465 B.C.E.) from the pyramid complex at Giza. Many sculptures were housed in enclosed niches and alcoves, so it made sense to have the figure face to the front so that viewers could see the face and interact with the figure more readily. During the Middle Kingdom sculpture became more realistic, and many statues from this period appear to be portraits rather than idealized types. Many portray royalty, including such figures as Sesostris III and Amenemhet III. Sculptors during this period began to use the sphinx with the body of a lion and the head of a king to create an image of the pharaoh as the protector of Egypt. The most dramatic example is the huge Sphinx on the Giza Plateau, the site of the Great Pyramid. Another good example is the statue of Amenemhet II. In addition to royal figures, some statuary appears to have been commissioned by private individuals. Many of these pieces show the figure seated, standing, or in many cases squatting and often wearing a cloak. Some of the statues are entirely cubical, with the figure portrayed with his or her knees drawn up. These types of statues are called block statues. During the New Kingdom (1570–1070 B.C.E.) the art of sculpture rose to new heights. Art historians regard many of the statues that survive from this period as among the most accomplished works of art the ancient world produced. Again, many of the statues were created to honor a pharaoh. Particularly well known are the statues of Hatshepsut and Thutmose III. Hatshepsut, an 18th

[392] K. Lange and M. Hirmer, *Egypt*: *Architecture, Sculpture and Painting in 3,000 Years*, London, Phaidon, 1956, p. 80

Dynasty pharaoh, remains famous in part because she was a woman. In order to legitimize her rule, she dressed as a man and was even known to wear a false beard. Her statue, housed at the Metropolitan Museum of Art in New York City, is clearly that of a powerful ruler, with all the trappings of authority rather than the subordinate, domesticated woman most often portrayed in Egyptian art[393].

In Nkwen *Fondom*, the depictions of animals, humans, hunts, cooking and war were intended to make hopes into reality and to pass on cultural characteristics to the future generations. It was common in Nkwen cultures to believe that painting and sculptures were more than mere representation of something concrete, that an artistic depiction of something made it actual fact. That is, the act of creating art was simultaneously the creating of reality. For instance, the depiction of a bird actually created a real bird in the world. Thus, the depictions of hunts were attempts to make successful hunts reality[394].

From this social impact of agriculture in the community of the Ancient Egyptians and the Nkwen people, it can be concluded that agricultural practices were the bases of every human social activities as people were capable of producing diverse activities such as art, education, painting and sculpture. Now let's examine the various economic impact of agricultural practices on the Ancient Egyptians and the Nkwen people.

II. ECONOMIC IMPACT

The Ancient Egyptians and the Nkwen people developed their economy from agricultural products. Plants and animals provided the livelihoods for the communities. Farm products were an essential part of barter systems. Bartering refers to the trading of goods for other goods and services[395]. This system existed throughout the villages of Egypt and Nkwen *Fondom*, but was also the practice with tribal trades. Egypt traded its agricultural products to other ancient civilizations such as Mesopotamia, the Levant, India, Nubia, the Land of Punt (modern-day Somalia) and others in exchange for goods from these lands[396]. In the same manner, the Nkwen people also traded with the Bafut, Nso, Mendankwen, Bali, Mankon, amongst others. However, crops were also harvested and stored at the local level. A portion

[393] K. Lange and M. Hirmer, *Egypt*: *Architecture, Sculpture and Painting* …, p. 87
[394] D. F. Tangem, "Beyond Art, History and Social Discourse: A study of Folk Art as Indigenous Knowledge System in the Grass Field of Cameroon", Yaounde, p. 21
[395] https://www.investopedia.com/terms/b/barter, visited on 25/05/2022, at 5:23am
[396] https://sidmartin-bio.com/what-did-egyptians-barter, visited on 25/05/2022, at 5:30am

was then collected by rulers[397]. For a better understanding of the trade by barter system it's necessary to carry out a systematic study on the subject matter.

1. Trade by Barter

As earlier defined, it is the trading of goods for other goods and services. That is the exchange of agricultural products with other agricultural product, for instance in the Nkwen *Fondom*, a man could give beans or palm oil to someone who is in need and in return the person will give him something else such as corn or yams that he may be in need of. Moreover, most of the agricultural products that were cultivated alongside the natural resources obtain such as raphail, copper, and gold produced in surplus, were traded over long distances, allowing societies that mastered metallurgy to enrich themselves and, as a result, developed a merchant class and a wealthy aristocracy.

a) Inter-community trade

As a result of agricultural practices, the Ancient Egyptians traded with many neighboring and far civilizations that such as Nubia, Libya, and the Levant. Additionally, trade in ancient Egypt was also conducted with peoples from faraway lands, including Greece, Mesopotamia, and the mysterious land of Punt. This enabled the Ancient Egyptians to obtain a variety of exotic goods from these foreign lands. More importantly, trade was one of the ways that allowed them to make contact with the wider world. Such contacts did not only facilitate the flow of goods into Egypt, but also people and ideas. Trade was attested in many forms, such as archaeological remains, literary sources, and artistic representations. Contact between Egypt and neighboring lands is seen as early as the prehistoric period. Graves from the Neolitic Badarian culture (which flourished between the 6th and 5th millennium BC), for instance, contain shells from the Red Sea[398].

During the Old Kingdom, (known also as the 'Age of the Pyramid Builders'), trade with foreign lands was boosted as a result of the monumental projects initiated by the pharaohs. In order to secure raw materials that were unavailable in Egypt itself, the pharaohs organized expeditions to foreign lands, not entirely unlike their predecessors during the Early Dynastic Period. For example, the names of the pharaohs Djoser, Sekhemkhet, Sneferu, and Khufu are found as rock inscriptions in the turquoise and copper mines of Wadi Mathura, in the Sinai.

[397] Interview with Victor Ngami, on the 23/12/2020
[398] Encyclopedia of society and culture in the Ancient World, volume I, fact on file, New York, 2008, p. 426

Egyptian goods from this period have also been found in Lebanon and Syria, which suggested that trade in Ancient Egypt was being conducted with these regions[399].

In the Nkwen *Fondom*, trade was mostly conducted by women. Their knowledge of trading made them experts in the value of goods and therefore, probably in the value of labor. The Nkwen people traded in batter their agricultural products with neighboring communities who produced what they did not produced. For instance, they practiced trade by batter with the Bafut people who were producing palm oil which they did not produce. Furthermore, the Nkwen people traded their coffee with other far communities[400].

To conclude, trade in Ancient Egypt and in Nkwen *Fondom* was an important feature in their society, and was conducted throughout the civilization's history. Although dynasties and monarchs rose and fell, trade continued, though its nature may have changed, so as to reflect new political realities. These political realities led to a monetary system organization which was necessary to balance the values of goods and services within these two communities.

b) Organization of a monetary system (finance)

With the evolution of the economic system in both Ancient Egypt and in the Nkwen *Fondom,* there was a need for the most common medium of exchange that had to function as a legal tender. This was therefore money. In Ancient Egypt it was common for people to work and sustain their families or to increase their personal wealth. A monetary system was introduced by Alexander the Great in 332 B.C.E.; before this time wages were paid in products or services[401]. Goods, however, were given a relative value according to weight or volume. For example, grain was measured by the unit kher, which was roughly equivalent to 20 gallons, and the unit deben, a little over 3 ounces of copper, was used as a general value for many items. Most of the available information regarding wages and income are records from Deir el-Medina, the village of the royal workmen at Thebes. These records show the middleclass residents were paid three times that of an ordinary field hand. The workmen at Deir el-Medina would have worked eight-hour days and had one day off in 10[402]. Despite this long workweek, these people were able to take as many days off as they needed for a variety of reasons,

[399] https://www.ancient-origins.net/history-ancient-traditions/trade-ancient-egypt-0013815, visited on 17th April 2021, at 5:30am
[400] History of Nkwen, online on https://bamenda3council.org/history, visited on 24/05/2022, at 5:25am
[401] Encyclopedia of society and culture in the Ancient World, volume I, fact on file, New York, 2008, p. 425
[402] Ibid, p. 426

including making libations (offerings) at tombs of relatives, illness, and arguments with spouses. These absentee records have been discovered at the site and are very enlightening regarding the lives of the villagers. In addition to their wages, the workmen were provided with housing, firewood, fish, vegetables, water, and oil all the essentials of daily life. There was also a resident doctor at the village to deal with ailments; the doctor's services were paid for by the state. Within the community itself the income levels varied depending on responsibility and status. Foremen were paid the highest rate at 7½ kher of grain per month; ordinary workmen were paid 5½ kher; scribes earned less than half the foremen's wages at about 3¾ kher; porters were paid the lowest wage at 1¼ kher[403].

c) Accountancy

Accountancy, being an act of recording, classifying, and reporting on business transactions for a business. It provides feedback to management regarding the financial results and status of an organization. The history of accounting or accountancy is thousands of years old and can be traced from ancient African civilizations. The development of accounting dates back to Ancient Mesopotamia, and is closely related to developments in writing, counting, money and early auditing systems of the Ancient Egyptians and Babylonians[404]. However, the earliest acknowledged forms of accounting which started amongst African communities, began in Ancient Egypt when bookkeepers kept meticulous records of the inventory of goods conserved in royal storehouses. An Egyptian sarcophagus describes the decedent as, among other things, a "comptroller of the scribes." The rise of commerce and expansion of business activity has expanded the role of the accountant[405]. Furthermore, the Ancient Egyptians inscribed on the Rosetta stone, a key to their language and civilization, which includes the account of a tax revolt and the reaction to it by the Egyptian ruler Ptolemy V. Taxation has become a fuel of Mediterranean civilization, creating the need for scribes to record payments[406].

Like the Ancient Egyptians were able to account for the quantity of goods available within their warehouses, the Nkwen people were equally able to account for the number of goods kept in their kitchen and stores.

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[403] C. Booth, *Encyclopedia of society and culture in the Ancient World*, volume I, fact on file, New York, 2008, p. 429

[404] E. Mendlowitz, "A History of Accounting", online on https://sites.google.com/a/tges.org/accountancy/home/history-of-accountancy, visited on 25/05/2022, at 5:45 am

[405] M. Shawki Farag, "the accounting profession in Egypt: Its origin and development", pdf, downloaded on https://www.researchgate.net

[406] https://www.sciencedirect.com/science/article, visited on 25/05/2022, at 5:47am

2. Establishment of Exchange Places within the Communities

From the above analyses, it could be determined that the Ancient Egyptians and the Nkwen people after mastering the art of accountancy, decided to reduces some of their excessive agricultural products which they had been conserving after harvest. This required a place of exchange, where the growing population within the community could meet and exchange their goods with others which they needed. The construction of a place of exchange known as a market enabled the Ancient Egyptians and the Nkwen people to carry out exchange of good and services regularly during market days.

a) Construction of markets

Some historians have argued that a type of market has existed since humans first began to engage in trade. Open air, public markets were known in Ancient Egypt and in the Nkwen *Fondom*. These market places stood at the heart of culture and served as exchange points for long-distance trade. They also served as important locales for social interaction[407]. Markets were ubiquitous in precolonial Africa. Two types were distinguishable: the periodic (weekly) rural markets and the large regional markets. Men dominated the long-distance trade while women held sway over the rural markets, which largely involved trade in agricultural produce[408]. Prices on Africa's markets were not controlled or fixed by chiefs or tribal governments. They have always been determined by bargaining in accordance with the laws of demand and supply. For example, in Nkwen *Fondom*, when corn is scarce, its price rises, and the price of fish generally tends to be higher in the morning than in the evening, when fishmongers are anxious to return home[409].

The Ancient Egyptians city had an outdoor marketplace where people went every day to shop for food and supplies. In this market place, the Egyptian farmers and craftsmen set up stalls for selling their goods. A stall could be as simple as a mat on the ground or a more elaborate three-sided structure with a table. These merchants were called vendors. Farmers often sold barley, emmer wheat, fruit, vegetables and flax for making linen. Women brought things they made at home to trade. They might bring a loaf of bread or a woven mat, and trade what they brought for something else. Most woman shopped in the marketplace every day to purchase fresh food for her family, along with the goods they needed or wanted[410]. The following plate depicts trading activities in Ancient Egypt.

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[407] http://www.britannica.com, visited on 23rd June 2021, at 2:20am
[408] https://fee.org/articles/indigenous-african-free-market, visited on June 2021, at 2:30am
[409] Interview with pa Victor, former secondary school teacher, visited on 15th December 2020, at 4:30pm
[410] https://egypt.mrdonn.org/marketplace, visited on 23 June 2021, at 3:40am

Plate 6: Trade in Ancient Egypt and taxation

Source : https://www.liverpoolmuseums.org.uk/stories/trade-ancient-egypt, visited on 23 June 2021

b) Market administration (tax)

In Nkwen *Fondom*, the expansion of trade activities brought about the establishment of market-places within the *Fondom*, which required administration aimed at organizing the meeting of two or more people to have exchange of good and services. As the population increased, market places in Ancient Egypt during 2700 B.C. to 1065 B.C. and in the Nkwen *Fondom* during XVIII to XX century evolved from just a place of exchange to a place of management and administration. This evolutionary impact of agricultural practices instituted a frame within which goods and services could be exchange under some common laws aimed at governing a peaceful agreement between the exchangers. However, it should be noted that the organization of market places in precolonial Africa differed from places to places though they shared many things in common such as being well laid out, some had trees to provide shade while some had tent or stalls built of thatched roofs. More to this, there were trade associations of traders who sold the same product on the same area, making easy for buyers to easily locate them[411]. This organization within the markets in Ancient African communities installed administration as the local governing authority ensured security and collected tolls to finance bureaucracies. This could be seen from the image above as the Ancient Egyptians tax collectors go around collecting taxes from traders in market places. Another aspect of market

[411] https://fee.org/articles/indigenous-african-free-market, visited on June 2021, at 3:43am

administration in precolonial African communities such as Ancient Egypt and Nkwen *Fondom* was the fact that the market was held either daily or periodically[412].

c) Middle man monopoly

As market places were well established under well-defined rules in Ancient African communities between traders and law makers, people began introducing another economic activity as middle men. These were people who served as intermediaries between those having the good and services with those in need of the goods and services. As an impact of agricultural practices in Ancient African communities, the middle man played a great role in boosting the economic sector by rendering available goods and services to people in need[413].

3. Guild and Banking

The development of Ancient African communities through the practice of agriculture, after instituting market administration, traders were composed to develop ways that will enable them to prepare themselves for unexpected expenditures while keeping their trading activities moving. As a result, traders of the same items in Ancient African communities organized guild amongst themselves to defend their economic interest and developed a saving system known as banking of their revenue. Banks became places where people could deposit their economic profit in order to use them later and take care of their expenditures.

In Ancient Egypt's banking system deposits were not of money but of cattle, grain or other crops and eventually precious metals. Some scholars suggest grain banking system became so well develop that it was compared to major modern banks, both in terms of numbers and employees, and in terms of total value of transaction. Grainers became transformed into a network of bank centers. However, it should be noted that there were two types of banks in Ancient Egypt known as royal and private banks[414].

a) Economic association

Guild being an association of farmers, craftsman or merchants formed for mutual aid and protection and for the furtherance of their professional interest. Guild flourished in Ancient Egypt and in Nkwen Fondom and formed an important part of the economic. Farmers could

[412] T. Adeyinka Ajayi, "Dynamics of Trade and Market Management in Pre-Colonial West Africa: A Survey Research in Indigenous Economy", in *American Journal for Humanity and Social Science Research*, downloaded at https://www.slideshare.net, visited on June 20th 2022, at 2:27am
[413] https://www.bing.com, visited on June 20th 2022, at 2:30am
[414] https://ancientegyptianfacts.com, visited on June 20th 2022, at 2:30am

regroup themselves and defend their common interest. Guilds were also organized so that newly initiated workers would learn from others connected with the guild practices. Members traditionally advanced through the stages of apprentice, journeyman, and finally master[415]. An apprentice, in and Ancient Egypt and in Nkwen Fondom was a young person, most often male, who learned a trade by working for a guild master. Moreover, guild served a wide variety of economic, social, and religious functions: they helped to advance and expand the economies of the era by providing education and training for apprentice and by helping journeymen improve their skills[416]. The specialization within a trade provided by the guild structure, along with the training and skills, led to increased productivity, increase wages, and higher standard of living. Guild became major source of employment for workers in cities, and guild membership was widespread[417]. In addition, guild functioned as local monopolies, as they sought to raise wages through increased profits by limiting the quantity of goods and services produced in Kemet and in Bafreng *Fondom* and by controlling prices. Guild membership was limited so as not to flood markets with products and cause prices to fall. In hard economic times when demand was low, fewer journeymen would become masters and fewer apprentices would become journeymen. Furthermore, guild also controlled the quality of goods produce, realizing that it was in their self-interest as well as that of consumers to produce high quality products. In Ancient Egypt and in the Nkwen *Fondom*, guilds relied on cooperation among their members to achieve their common goals[418].

b) Saving account

The impact of the practice of agriculture on the economy of Ancient African communities has greatly evolved from the practice of food conservation to revenue saving. Saving in Ancient African communities like in Ancient Egypt from 2700 B.C. to 1065 B.C. and in the Nkwen Fondom during the XVIII to XX gave communities the ability to finance their development. The greater a community could save, the greater is the much-needed

[415] R. Grafe, O. Gelderblom, "The rise and fall of the merchant guilds: Re-thinking the comparative study of commercial institutions in premodern Europe", journal of interdisciplinary History, London, 2010, pp. 286-333
[416] T. Weyrauch, *Craftmen and their Associations in Asia, Africa and Europe*, London, 1999, pp. 477-577
[417] G. Richardson, "Business in the middle ages: what was the role of guilds"? in *the economics of world history*, article, published by social education, in 2010, pp. 64-67, downloaded on http: eh.net/encyclopedia/article/Richardson.guilds
[418] H. Lutz Frederick, "The Alleged Robbers' guild in Ancient Egypt" Semitic Philology, V10, Literary Licensing, 2013, p. 14

flexibility to formulate and implement homegrown policies to confront growth and development challenges[419].

c) Invest

The practices of agriculture in Ancient African communities was flourishing and people saw the need to invest more in the sector. Traders were able to determine the goods or agricultural products which were highly demanded in the market and invest more on the products. Investment meant more market, large scale production and more profits earned.

[419] https://www.sciencedirect .com, visited on 24th, July 2022, at 5:30am

CHAPTER IV

PROBLEMS ENCOUNTERED AND PROPOSED SOLUTIONS TO AGRICULTURAL PRACTICES IN ANCIENT EGYPT AND THE NKWEN FONDOM

Agricultural practices let to the occupation of land scape which were inhabited by different types of wild plants and animals. As a result, African communities had to face difficulties with their environments, which was hostile and difficult to establish agricultural practices. For instance, in ancient Egypt, the biggest problems according to Egyptologists, had to do with the weather and the Nile river around which all life existed. In addition, farmers in Ancient Egypt faced the deterioration of natural conditions, which certainly affected their lives. These were the highlands to the east and west of the Nile. This factor may indicate that Egyptian farmers were forced to settle along the banks of the river and fight against valley thickets and swamps. However, the rise and fall of the Nile, with the inundation of the flood plains and irrigation affected agriculture, animal husbandry, trade, disease, cause plague, famine and starvation. Moreover, farmers in Ancient Egypt also had to face animals that devastated the fields, such as birds, hippos, locusts, mice, wandering cattle[420].

In a similar manner, the Nkwen farmers faced problems with weather, devastating animals, pest, inundations in valleys and soil erosions as they expanded north-west of the *Fondom*. So, from the above introduction, it can be noted that the main problem of both the Ancient Egyptians and the Nkwen people was a problem of geography. As a result, this chapter will examine the problem posed by geographical elements such as weather, land scape, alongside water availability and soil in the first part; taking into account solutions to the problems. The second part will study the problems caused by the environment with floods and how it was solved. Lastly, the problem of pests and their control will be examine under the third part of this chapter.

I. NATURAL FACTORS

The advent of agriculture which took place around 7000 to 6000 B.C.E., brought a change in humans lives as hunters and gatherers for a more settled life of agriculturalists[421]. The diverse nature of Africa's geography presented a major obstacle to the spread of agriculture. Africa's geography prevented a smooth transmission of crops and livestock

[420] https://www.historicaleve.com/farming-in-ancient-egypt, visited on 20/05/2022, at 8:20am
[421] P. Bogucki, *Encyclopedia of Societies…,* pp. 15-17

domestication from place to place. As a result, people on the continent never had the chance to develop large agricultural civilizations such as those in Mesopotamia. Between 2000 B.C.E. and 1 C.E. people living south of the Sahara developed several different kinds of crops, depending on climatic conditions; people in west Africa grew rice and yams, while people in the Sahel grew drought-resistant grains such as cowpea[422]. The southward progress of agriculture continued to be very slow; domesticated crops did not arrive in the south part of Africa until the 17th century, and the domestication of plants and animals did not reach the northern parts of south Africa until the late fifth century C.E. Farmers and herders could not settle farther south, across south of Africa's fish river, because their crops could not grow in the south of Africa's Mediterranean-like climate[423]. Agriculture did not reach South Africa until Europeans arrived in ships in 1652, carrying with them European crops that could thrive in the local climate. Agriculture's progress southward through the continent was quite slow, mainly because Africa itself presented so many geographical difficulties. Humans had to adapt their trading economies as well; because travel was so difficult, different tribes rarely met and had to learn how to communicate with one another[424].

At first, communities as hunters and gatherers lived in small nomadic bands, which enabled them to move from place to place in search of food, especially as the seasons and weather conditions changed. But when they began settling on one spot as farmers, they had to face permanent geographic problems such as drought, monsoon rains, and extreme temperature that made the availability of food supplies inconsistent over time. Africa is a large continent with a wide range of climatic conditions, which makes the practice of agriculture vary from one place to another. This is so because the climate type of North Africa tolerated some species of crops which could not be domesticated in the southern part of Africa. As a result, agriculture throughout the continent could not develop at the same pace[425].

Nevertheless, it should be noted that farming in Ancient Egypt and in Nkwen *Fondom* faced a lot of difficulties which were mostly related to geographical or natural factors. These natural factors will be analyze as follows.

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[422] P. Bogucki, *Encyclopedia of Society*…, 2008, pp. 15-17
[423] Ibid.
[424] Ibid, pp. 15-17
[425] M. Mazoyer and L. Roudart, *A History of World…*, p. 75

1. Pest and Methods of Preventions

Different animals, birds and insects devastated farm lands in Ancient Egypt and in Nkwen. Farmers in Ancient Egypt had to face wild animals which devastated the fields, such as birds, hippos, locusts, wandering cattle, amongst others. Meanwhile, in Nkwen *Fondom*, cutting grass, mice, antelopes, monkeys, mice, hare, birds such as palm birds, woodpecker, and grasshoppers were mostly common. So, let's examine detailly the various pest and how they were tackled.

a) Birds

Many avian species damage crops during sowing, seedling and ripening stages, leading to economic losses to farmers. Birds, known to play an important role in pollination, putting a check on pesky insects and rodents, could also be causing drastic decrease in crop yields by destroying them. The extend of bird damage to any crop depends on several factors like concentration of local bird population, total area under the crop, cropping pattern habitat of the area, season and physiological status of the birds. For instance, seedeaters are small birds with conical beaks. Their beaks are strong adapted to open the most difficult seeds. While these birds eat almost exclusively seeds and grain, many other types of birds will also nibble on seeds, especially from backyard feeders[426].

The Ancient Egyptians lived close to water, where they carried out their farming activities. In so doing, they became acquainted with the behaviors of the many birds sharing their environment. Along the Nile, some of the multitude of bird-life included the falcon, kite, goose, crane, heron, plover, pigeon, ibis, ostrich, vulture and owl. Many of these birds were at least partially granivorous. As the birds migrated, their seemingly erratic behavior and destructive nature of crops made the Egyptians to associate them with chaos, a state of affairs abhorrent to their culture. Conversely, the many depictions of birds being hunted or captured in containers allude to the Egyptian control of their environment and their need for order in their life[427].

To scare away birds, the Ancient Egyptians invented scarecrows and to protect crops from catastrophes and favor the harvest, they invoked to the gods[428]. More to these, the birds

[426] Birds impacting agricultural crops a major concern, online on https://www.downtoearth.org.in, visited on 14/04/2021, at 2:30am

[427] Birds impacting agricultural crops a major concern, online on https://www.downtoearth.org.in, visited on 14/04/2021, at 2:33am

[428] https://historicaleve.com/farming-in-ancient-egypt/, visited on 21/06/2021 at 3:30pm

were caught in nets by fowlers for many usages. For instance, the birds were used as food and ceremonial rituals.

In Nkwen *Fondom*, there are birds such as bar-tailed trigon, blue-headed coucal (*centropus monachus*), scaly francolin bush fowl (*francolinus squamatus*), black-crowned waxbill (*estrilda nonnula*), are mostly granivorous birds that destroys grain crops. Meanwhile other birds such as speckled mousebird (*colius striatus*) are birds that mostly feed on fruits (pawpaw, mangoes, and banana) and even wild seeds. Other birds such as the red-necked or red-tailed buzzard (*buteo auguralis*), crowned eagle (*stephanoaetus coronatus*), martial eagle (*polemaetus bellicosus*) and also African goshawk (*accipiter tachiro*) mostly feeds on animals and birds including domestic poultry poses a problem to the Nkwen farmers' poultry[429]. To control these various species of birds which were a great problem to the agricultural practices in Nkwen *Fondom*, they do hunt them for food through the setting of traps and shooting them with small stone catapults[430].

From the above analyses on the different birds found in the environment of the Ancient Egyptians and the Nkwen people, it can be concluded that birds were a problem to the practice of agriculture in the two communities given the fact that they destroyed crops especially grains, fruits, and poultry. As a result, the Ancient Egyptians and Nkwen people had to put in place diverse ways of hunting them as food and other usage in order to curb their destructive impacts. Next, let's examine how locust grasshoppers posed difficulties to farmers in Ancient Egypt and in the Nkwen *Fondom*.

b) Locusts or grasshoppers and other insects

Locusts have been feared and revered throughout history. Related to grasshoppers, these insects form enormous swarms that spread across regions, devouring crops and leaving serious agricultural damage in their wake**[431]**. Upsurges in locust populations are hard to control as they depend largely on the weather. Africa has been battered by an unusually high number of cyclones; abnormal rainfall like this allows vegetation to thrive, providing a food source for the locusts. These conditions are also ideal for reproduction as locust eggs are more likely to survive when the sandy soil is damp. Plagues of locusts have devastated societies since the Pharaohs led Ancient Egypt, and in Nkwen *Fondom* with grasshoppers. The insects arrived unexpectedly, often after a change of wind direction or weather, and the consequences were

[429] Plants and animals of the Cameroon highlands 7. Birds, researchgate.net, pdf
[430] Interview with Victor Ngami, on 18/12/2020
[431]https://www.nationalgeographic.com/animals/invertebrates/facts/locusts, visited on 21/06/2021 at 3:40pm

devastating. Locust swarms devastate crops and cause major agricultural damage, which can lead to famine and starvation. Locusts are most destructive in subsistence farming regions of Africa. The Ancient Egyptians carved locusts on tombs in the period 2470 to 2220 B.C. The plague of locusts flattens important Ancient Egyptian crop plants like flax and barley. The following plate shows locust in Ancient Egypt.

Plate 7: Locust detail from a hunt mural in the grave-chamber of Horemhab, Ancient Egypt, circa 1422–1411 B.C.

Source: https://www.en.wikipedia.org/wiki/locust**,** visited on 12th, June 2021, at 4:45am

In Nkwen, farmers mostly experience grasshoppers rather than locust like in ancient Egypt. Nevertheless, they both have the same devastating effects on crops. Like locust, grasshoppers are also herbivorous, chewing insects that can wreak considerable damage to plants, especially to cereal grains and vegetables. In large numbers, grasshoppers are a serious problem for farmers in Nkwen *Fondom* as well as a serious annoyance to their home gardens. Although grasshoppers will feed on many different plants, they often prefer (they cause more damage) small grains, corn, alfalfa, soybeans, cotton, rice, clover, grasses, and tobacco. They may also eat lettuce, carrots, beans, sweet corn, and onions. Grasshoppers are less likely to feed on plants such as squash, peas, and tomato leaves. The more grasshoppers that are present, the more likely they are to feed on plant species outside the preferred group[432].

[432] R. Seino, M. T. Njoya, "Species Diversity of Pyrgomorphid (Orthoptera: Caelifera) Grasshoppers in the North West Region of Cameroon", article, published on 20th February 2018, Downloaded on https://www.ijzab.com

Historically, the Ancient Egyptians and the Nkwen people could do little to protect their crops from being devastated by locusts, so, all they could do was to eat them as some sort of consolation.

c) Hippopotamus, crocodile and antelopes

On one hand, hippopotamus was a much feared as well as a revered beast in ancient Egypt and thus is mentioned in this list of animals of Ancient Egypt. The hippopotamus was often personified the malign forces of the underworld. They frequently damaged boats on the Nile River and also attacked people near the banks of the river. They are herbivorous animals and usually graze during the night, when thy can decimate a farmer's field with their enormous appetite[433].

Thus, to save themselves from the wrath of the hippopotamus, the Egyptians hunted them for their meat, skin, and fat. They also used the teeth of hippopotami as an agricultural tool, especially their impressive tusk-line canines, which could measure up to one-and-a-half feet long. In addition, hippo was captured and kept alive in order to be employed at a later time in rituals as the animal was worshipped in the form of an Egyptian goddess, known as *Tauret*, meaning "she who is great". She was represented in the form of a female pregnant hippopotamus with female human breasts and the back of a Nile crocodile. *Tauret* was also regarded as the goddess of fertility[434].

On the other hand, crocodiles were highly revered by the Ancient Egyptians. The Nile crocodiles were giant and aggressive animals and would claim the lives of many people in Ancient Egypt. To solve this problem, the Ancient Egyptians gave a divine status to the crocodile. By these, people hope that, by worshipping the crocodile as a god, it would enable them master it better in order to be safe and secure from its attacks. The Egyptians associated the crocodile with the Nile deity known as *Sobek*, represented either in the form of a crocodile or as a human with a crocodile head[435].

2. Climate Change

One major problem ancient people faced, was climatic change, which disrupted societies and sometimes forced the migration of people. An area that was wet and fertile during

[433] https://www.slam.org, visited on 20/05/2022, at 10:30am
[434] http://www.metmuseum.org, visited on 20/05/2022, at 10:35am
[435] https://www.news.berkeley.edu, visited on 21/05/2022 at 9:14am

one era could become dry and desert like in a later era[436]. Temperature was also a critical environmental factor. Meteorological events in one part of the world could cause climatic change in another part of the world, raising or lowering temperatures, increasing or decreasing rainfall, or touching off violent storms. Africa, in particular, has been subject to climatic swings. During parts of its ancient history, Africa was cool and dry, primarily as a result of the last ice age, when ice pushed southward and covered much of what is now Europe. Later, Africa became much warmer and moister, leading to monsoon rains. Later still, temperatures dropped again, and weather patterns dried out. These changes, which were not unique to Africa, led to changes in vegetation, sometimes turning forests into deserts. This situation obliged people to be in constant migration, as it was the case of the Tikar people who migrated from north to south of Africa. However, after the advent of agriculture, such climatic shifts required Africans to adapt the crops and farming practices to the new conditions. When the continent dried out, the Nile river became essentially the cradle of civilizations.

In addition, all forms of agriculture are controlled largely by temperature. Areas deficient in heat are deficient in agriculture. For that is one element of climate that man has not been able to create at economic costs on a large scale. Temperature determines the growth of vegetation through the length of the vegetative period. Successful agriculture, therefore, requires a fairly long summer. In higher latitudes, however, the shortness of summer is compensated by the longer duration of the day. In lower latitudes where the winters are never too cold to arrest the growth of vegetation, practically the whole year is the growing period, and the agricultural operations are timed according to the supply of rainfall.

The moisture requirements of the plant vary according to the heat received. In the higher latitudes, where the summers are not very hot or where the winds are not dry, the amount of moisture given out by plant transpiration is less than in the lower latitudes where the heat received is great and the capacity of the winds to suck up moisture considerable[437]. The plants, therefore, require less moisture in the temperate regions than in the tropical regions. Thus, a certain amount of precipitation may be sufficient for flourishing agriculture in the temperate regions, while the same may not suffice for meager agriculture in the tropical regions.

The Egypt is a land which is mainly desertic, has a climate characterize by a warm and cold nature. This climatic nature of Egypt was not consistent, as the climate fluctuated over

[436] M. Mazoyer and L. Roudart, *A History of World*, p. 106
[437] Ibid., p. 234

time. The climate change, let to the process of desiccation which led to an ultimate condition of extreme aridity which characterized the region over the past four thousand years[438]. Excessive hunting, perhaps through the destruction of trees by the domesticated goat or by human agency or a combination of these, the climate began to deteriorate and to move in towards the areas which previously had been able to support a population of men and animals[439].

Bafreng Fondom's climate has two steady seasons (dry & rainy seasons) which influences a good and bad plan for agricultural activities. During the rainy season, there are heavy rains during the months of July and August make farm-to-market roads inaccessible, thereby, rendering the transportation of goods difficult. In addition, the heavy rain falls causes soil erosions which washes away fertile top soil layer and even destroys crops. Meanwhile during the dry season, the harsh nature of the season dries off pasture especially for cattle leading to poor nutrition. Furthermore, the dry season reduces the water level and this leads to some streams drying off, leading to water scarcity.

Nevertheless, ancient peoples discovered that they were highly adaptable to temperature extremes, unlike some other species. As a result, both the Ancient Egyptians and the *Bafreng* people, learned how to adapt in their environments and make use of their dressing habits to regulate their environmental temperature. Furthermore, the Ancient Egyptians mostly cultivated crops that could withstand their various climatic conditions. The Ancient Egyptians for instance cultivated crops like cowpeas, sorghum amongst others that supported the dry warm climate of the desert. Meanwhile, the Nkwen people cultivated mostly beans, yams amongst others which resisted the extremes of their dry and rainy seasons.

However, it should be noted that North Africa's climate and geography are very different from those of sub-Saharan Africa. Nevertheless, they both carried out agricultural practices. For a better understanding of the difficulties encountered by the Ancient Egyptians and Nkwen people's practice of agriculture, it is necessary to analyze other difficulties posed by nature such as water scarcity, floods and pest as follows.

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[438] M. Rice, *Egypt's Making The origins of Ancient Egypt 5000–2000BC*, New York, second edition, Routledge publisher, 2003, p. 12
[439] Ibid., p. 239

a) Water scarcity and floods

As a result of climate change, water began to become scarce in most wet lands of the African continent. Ancient African communities were driven by their need to find ways which will enable them adapt in their environments. One of their primary needs, was how to get drinkable water for humans and cattle then be able to manage the waste produced[440]. However, this great quest for water brought about disaster which was caused by floods, as communities that lived around water sources such as rivers had to experience inundation due to over flow during the raining seasons[441].

In Ancient Egypt there was almost no rain. In order to prevent the plants from drying, farmers were depending entirely on the annual flooding of the Nile river, given the fact that the entire land was desertic and most of the streams and lakes or oasis had dried off as a result of climate changes partly caused by human activities[442]. Seasonal rains which activated the wadis, dried-up watercourses in the deserts of southern Upper Egypt and lower Nubia, were more considerable than they were in the later third millennium. It has been demonstrated that the process of desertification in Ancient Egypt, can be traced from the north, around the area in which there were large bodies of standing water, the result of increased precipitation let to a rise in water scarcity[443]. This situation made people to migrate into the Nile Valley and delta region where they had to still face difficulties in managing the flood of the Nile. Accordingly, early peoples tended to form settlements along the banks of rivers or adjacent to lakes, but living in these types of regions posed special problems. High and low floods posed a severe threat to the farming villages and adjacent fields. The flooding inundated the entire regions of the valley and displaced countless numbers of Egyptians from their homes[444].

For the Ancient Egyptians to solve the problem of managing water to controlling the flood in the Nile valley and delta region, which was crucial to their survival, it required a community-wide organization. The task that villages faced was to channel as much of the water as possible into their fields and to retain it for a long period of time, and then to drain it so that farmers could plough and plant their fields. This was a whole system of irrigation. Maintaining an irrigation system was a constant concern of the central state, which tended to impose the task of organizing the required labor and resources on village authorities. All farmers in Egypt

[440] UNESCO, *Water History for our* …, p. 74
[441] Ibid, p. 101
[442] Ibid, p. 26
[443] M. Rice, *Egypt's Making the origins of*…, p. 15
[444] S. L. D. Katary, "Agriculture, Pharaonic Egypt", p. 1

were expected to contribute to this effort. As a result, work was organized in such a manner that majority of the social class will part take in it. Adult men, with the exception of a relatively few exempts because of their privileged status, were required to perform five days of labor each year on the dykes and canals. It has been estimated that Lake Moeris doubled in size during inundations, and most of its water was directed into other depressions or into channels that led to a vast irrigation-ditch complex. These channels led to a vast irrigation-ditch complex. Sluices and narrow ravines were devised for regulating irrigation, and gullies were cut into the natural banks or placed in the retaining walls at various points so that water could be stored or used as the seasons and the crops demanded. These sluices were covered with the same reed mats and kept under constant supervision by a unit of trained irrigation experts. The mats were lowered or raised according to the requirements of distant fields that were connected to the water reserve by channels[445]. In addition, taxes were collected from agricultural land to support the maintenance of communal facilities[446]. Furthermore, they also invented the shadoof, an instrument still used today, formed by a crowbar with a container on one side and a counterweight on the other. This instrument enabled the Ancient Egyptians to manage water in watering their crops without wasting. They also developed a system of "nilometers" which were pillars inscribed with a scale cut into cubit measurements: 1 cubit equals 18–20.6 inches spaced at various points along the valley such as south of the first cataract, and also installed at Kom Ombo, to mark the height of the Nile over the years, and acted as an early warning system, alerting the people that waters were not as high as usual, so they could prepare for a drought or for unusually high flood waters. The nilometers did not only provided information on the level of the floods but also enabled the priests and governors to determine the crops that would thrive as a result of the amount of silt being deposited. Prospective harvests were thus assessed and the tax bases of the crops determined in advance[447]. However, all of the hydraulic systems components put in place by the Ancient Egyptians required constant vigilance and repairs, and these were carried out throughout the year which was still another problem.

In Nkwen, water was a necessity for the early founder of the *Fondom*. After haven settled on the top of mount Atellia, *Fon* Suhfuh later on migrated his palace down north in to the valley, in search of a permanent source of water supply from rivers and streams mostly for home usage and for their subsistence farming. As a result, water scarcity in Nkwen *Fondom*

[445] M. R. Bunson, *Encyclopedia of Ancient Egypt,* p. 192
[446] D. Rosalie, *Handbook to life in…*, pp. 143-145
[447] M. R. Bunson, *Encyclopedia of Ancient Egypt*, p. 278

posed a problem of long-distance movement to far remote areas in search of water sources, especially during the dry season. When they could fine water in swampy zones or rivers, they settled close to the area for agricultural practices, but the raining season came with heavy rains and inundated the place, the Nkwen people were forced to withdraw themselves on highlands for security. In addition, the floods did not only displace them from their homes, but also destroyed their crops[448].

So, for the Nkwen people to overcome the problem of water scarcity, they began by organizing themselves in to group work, were families supported each other in walking together in the digging of wells which could provide a constant supply of water for home usages. But for agricultural needs during the dry season, they still grouped themselves to cultivate their crops in swampy zones which were previously inundated and the waters had receded. As time went on, they developed other strategies of retaining water for a long period of time by raising dykes along water ways in order to canalize the water to pass through farm lands where ridges of about 30-45 cm have been made to produce moisture. This was a difficult task to carry out every farming season as the canals and ridges had to be renewed[449].

Upon all these problems and difficulties encountered by the Ancient Egyptians and Nkwen people in their search of water supply which further let them to face other difficulties and problems as seen in the previous analyses, it can be concluded that water scarcity which is a result of climate change, forces people to migrate from one place to another. When they find sources of water supply, they still face other difficulties in managing the water and to control it in times of floods.

b) Topography and soil fertility

Topography affects agriculture as it relates to soil erosion and infertility, difficulty of tillage and poor transportation facilities. Agricultural practices depend entirely on the topography of land. On rough, hilly lands, the use of agricultural tools is impossible. In areas where the pressure on soil is great, even the slopes of mountains are terraced into small farms to provide agricultural land. In Nkwen, farms were located on hillsides to a height of several hundred feet. It is known that in extreme cases agriculture may succeed in conquering slopes.

[448] Interview with Victor Ngami, on 17/12/2020
[449] Interview with Dominique Ngante, on 17/12/2020

A rich soil in plant food is the chief requirement of successful agriculture. It is essential as a support for plants, and as the main medium whereby water and all plant foods, except carbon dioxide, are brought to the roots of the plants where they are absorbed. Soils that are poor, either chemically or in texture, have low productivity, both in amount and variety.

In Ancient Egypt, the soil was hard because the heavy, clayey soil laid down by the nile floods is hard to make furrows in. So, by around 3000 B.C. people in Egypt had invented the animal-drawn plow, which made planting a lot easier. As soon as the flood began to recede the ancient Egyptians ploughed the soil ready for sowing[450].

Catastrophic events could wreak havoc with a people. A volcanic eruption, for example, could not only wipe out a population but also change the physical environment for survivors and for those living in neighboring regions. Similarly, earthquakes could destroy settlements and change the face of the earth for nearby settlers.

Most of these factors can be modified to some extent by man's effort. For example, the Nkwen people dug shallow wells where they could carry water to areas where there is no water, or supplies animal or fowl waste to soil that are deficient in plant food.

3. Lack of Access to Land and Farming Tools to all

Land as a factor of production and primary source of wealth, social status, and power forms the bases for shelter, food, and economic activities. Thus, any concept of sustainable development relies heavily on both access to property rights in land and the security of those right. The practice of Agriculture in ancient African communities faced also the problems with the type of tools which was an important factor to boost crop cultivation. The Ancient Egyptians and the Nkwen people mostly made use of rudimentary tools as we have earlier seen in this study which were not very sophisticated to enable them work smartly and effectively. However, early African communities faced problems of accessing arable lands due to many reasons as we shall study below.

a) Locating and accessing arable lands

The Ancient Egyptians and the Nkwen people had to locate fertile lands which could enable them cultivate crops and breed animals successfully. Locating arable lands was not only for the cultivation of plants and animals but there was also the need for human habitation and security. So, the Ancient Egyptians and the Nkwen people had the problem to find a convenient

[450] http://www.ancientegyptianfacts.com/ancient-egyptian-crops.html, visited on 01/01/2021, at 8:30am

environment that could enable them practice agriculture successfully. Within their environment there existed steep hills. For instance, In Ancient Egypt there existed the easterly chain of rugged mountains, the red sea hills which extend from the Nile valley eastward to the Gulf of Suez and read sea. While in Nkwen Fondom hill such as the Ntumazah hill amongst other hindered access into the interior of the Nkwen territory. Consequently, there were no good roads into farm lands and still no good roads to market places.

Moreover, there was the problem of wild plants and animals which hindered land accessibility. This was a great challenge because the Ancient Egyptians and the Nkwen people had to overcome the hostile nature of these environments. In Ancient Egypt, the Nile valley was invaded by wild animals such as hippopotamus, crocodiles and other reptiles, which were very dangerous to human habitation. In Nkwen *Fondom*, wild animals such as Elephants, cheetah, crocodile, hippopotamus, python and other wild reptiles, created a sense of fear and inaccessibility to these territories which were more fertile in terms of water availability.

b) Land tenure

Implying how right to land should be obtained and distributed in a particular community, it limited some individuals to lack access to land. In ancient African communities where centralized system of government existed, most land was owned by the leaders. For instance, in Ancient Egypt, land ownership was between private, monarch, and feudal[451]. Most Egyptians worked the land, local chiefs-controlled water resources and overall administration. When the kingdoms of Upper and Lower Egypt united 3100 B.C.E., Memphis secured the centralized control of agricultural production that ensured large surpluses. Large royal estates were soon established and became the foci of institutional agriculture, employing vast numbers of peasants[452]. Meanwhile in Nkwen *Fondom* before a well-established *Fondom* law, land was obtained by the ability to clear virgin bush for farm purposes. As time went on, land ownership was between private owners and monarchs. So, majority of the peasant citizens who could work farms lacked access to farm land given the fact that their services was mostly hired by monarchs[453].

[451] L. D. Sally Katary, "Land and landholding, Pharaonic Egypt", 1999, in A. K. Bowman and E. Rogan, eds., *Agriculture in Egypt from Pharaonic to modern times*, Oxford, pp. 61–82.
[452] L. D. Sally Katary, "Land tenure (to the end of the Ptolemaic period)", 2012, p. 1, in J. Carlos Moreno, *Encyclopedia of Egyptology*, Los Angeles, http://digital2.library.ucla.edu/viewItem.do?ark=21198/zz002bfks5
[453] P. Skalnik, "Chiefdoms and Kingdoms in Africa: While they are Neither States nor Empires", Ghana Newsletter, 1981, p.6

c) Lack of sophisticated farm tools and poor conservation methods

In ancient African communities, from the earliest humans through the Pre-Pottery Neolithic, preserved material culture was dominated by stone and wood tools. The primary disadvantage of this low-quality farm tools was that it took much time to complete a single task. In Nkwen Fondom, when farmers have burned cleared and burn the grass, they could not prepare the soil properly, because they use only a hoe. They could only scratch the earth and mix the ashes into the soil. This technic could not enable them get a good harvest, since most of the soil organic properties were burned. It is true that the ashes enrich the soil, but the burned vegetation produces no humus and does not improve the soil structure. Fire leaves the soil bare, and erosion becomes more severe.

Moreover, due to the use of hoes, the soil does not get well loosened and consequently water and air do not penetrate into the soil. More to this, the roots of the crops can penetrate deep into the soil to take up water and minerals salts, as a result, the plants are not well nourished and they do not produce many large grains[454].

In addition, when a piece of land bears crops for the first time, the plants take up all the mineral salts for nourishment, rendering the soil very poor or infertile and needs to be left for at least two or three years to regain it fertility[455].

After haven succeeded to harvest some crops especially cereals, at post-harvest, the Ancient Egyptians and the Nkwen people had to conserve the crops. At this stage, difficulties had to be encountered on how, where and why the crops had to be conserved. As such, they faced problems with pests such as rodents and decaying bacterial which obliged them to conserve food by drying, salting, smoking, cold air freezing amongst others as earlier analysed in this study. These methods however, could not still keep the food totally conserved as once food is dried or frozen, they loss their taste and consequently becomes a problem in it consumption. Let's now examine the different types of solution put forth by the Ancient Egyptians and the Nkwen People in the North West region of Cameroon in regards to these problems which they encountered.

[454] FAO, Better Farming Series 20. Upland Rice, "Disadvantages of traditional cultivation", 1977, p.30
[455] Ibid.

II. PROPOSED SOLUTIONS

From the above problems encountered by the Ancient Egyptians and the Nkwen people due to the lack to access land, low quality tools and conservation methods, we proposed certain solutions like the provision of adequate farming education to farmers, equal distribution of farming lands to all classes of people and the provision of modern farming tools alongside with finances to farmers. These proposed solutions will be examined below.

1. Provision of Adequate Farming Education to Farmers

Since the Ancient Egyptians and the Nkwen people carried out the practice of agriculture and faced difficulties, they had to upgrade their farming skills in order to minimize labour input and obtain more harvests. Formal education opens the mind of the farmers to knowledge while non – formal education gives the farmer hands-on training and better methods of farming. Informal education keeps the farmer abreast with changing innovations and ideas. However, these are some skills which each farmer needed in Ancient Egypt and in Nkwen *Fondom*; problem solving, time management, organization, health and farm operation amongst others. Let's study some of these aspects.

a) Problem solving

The practice of agriculture being a trial and error profession, requires strong problem-solving skills. For instance, in Ancient Egypt and Nkwen *Fondom*, farmers always searched for the best ways to ameliorate their productivity. When weather un-expectations occurred, the harvesting periods were delayed. So, as farmers, it was important for the farmers to know how to react and to take effective decisions in such a scenario. Problem solving skills helped the Ancient Egyptians and the Nkwen people to determine the source of problems and find effective solution. Although problem-solving is often identified as its own separate skill, there are other related skills that contribute to this ability like active listening, analysis, research, creativity, communication, decision making and team building[456].

For the Ancient Egyptians and the Nkwen people to solve a problem, they first need to analyze the situation. Their analytical skills enable them to understand problems better and

[456] Indeed Editorial Team, "What are problem solving skills? Definitions and Examples", published on 2nd September 2018, updated on May 27th, 2022, online https://www.indeed.com, visited on 22nd August 2022, at 6:45am.

enabled them to develop effective solutions. Analysis was also needed during research to help distinguish between effective and ineffective solutions.

In addition, decision making was another essential aspect of problem-solving skill. Ultimately, the Ancient Egyptians and the Nkwen people had to make decision about how to solve problems that arose. This explains why they utilized a numerical system for counting and solving multiplication and fractions. Trade also required multiplication and division to be possible so they devised remarkable methods to overcome the deficiencies in the number system with which they had to work.

Another important aspect in solving problems by the Ancient Egyptians and Nkwen people was communication. When identifying possible solutions, they needed to know how to communicate the problem to others. They needed to know what communication channels were the most appropriate when seeking assistance. Once they found a solution, they communicated it clearly in order to reduce confusion.

b) Time management

Depending on the season, farmers in Ancient Egypt and Nkwen *Fondom* worked from sunrise to sunset. If they took much time off, they could miss out on a good harvesting opportunity. Good farmers needed time management skills to operate efficiently and consistently in order to meet market demand. Managing time well helped the Ancient Egyptians and the Nkwen people to improve their cultivation skills. Organizing each day helped them to complete work on time. As they managed their time well according to the seasons, they built up strong management skills which ultimately let them to accomplish key goals. However, time management skills included a variety of skills that helped the Ancient Egyptians and the Nkwen people to manage their time well. These included; organization, prioritization, goal-setting, planning and delegation amongst others.

Staying organised helped the Ancient Egyptians and the Nkwen people to maintain a clear picture of what they needed to complete and when. Being well organized meant for them to maintain an up-to-date calendar, having a tidy environment and taking detailed, diligent notes.

Setting goals was the first step to becoming a good time and farm manager. Goal setting allowed the Ancient Egyptians and the Nkwen people to clearly understand their end goal and what they needed to prioritize to accomplish it. This explains why they set goals both on a short and long term in order to succeed in their practice of agriculture.

Moreover, a fundamental part of time management as implemented by the Ancient Egyptians and the Nkwen people was the art of planning. Being efficient in planning out their day, meetings and how they will accomplish things helped them stick to their schedule.

c) Health and farm operation.

Farmers spent much of their day on-the-go, standing, lifting, hauling and pulling a variety of objects. Therefore, it was imperative for the Ancient Egyptians and the Nkwen people to have good physical stamina in order to endure extremely strenuous activities. They also had to perform these duties under a variety of weather conditions including temperatures which made the tasks even harder to execute. So, feeding on a healthy diet in order to have a strong physical stamina made it easier for them to complete farming tasks efficiently.

From these study on the provision of adequate farming education to farmers, it can be analysed that, having good knowledge on farming skills, enhanced the productivity of agricultural practices in Ancient Egypt and in Nkwen *Fondom*. So, educating people on farm problem solving, management, organization, analyses, research, communication and health stamina will enhance agricultural practices productivities.

2. Equitably Distribution of Farming Land to All.

According to Sam Mayo[457], equitable land distribution relates to the distribution of land, donating the deconcentrating of prime land, the increased absolute number of land holders Thus, it largely denotes a demography broadly based participation, in various commercial uses of rural land[458]. Furthermore, it also donates equal access to urban land for home ownership and that rural infrastructure; agricultural markets and capital markets will be more accessible to a wider range of uses[459].

a) Land reform

This called upon land reform as an instrument of policy which follows both from the inefficiency theory of peasant decision making under sharecropping, and from concern over its impact on income distribution. It could also be seen as promoting both efficiency and equity goals at the same time. Moreover, it seeks to alter the economic environment within which

[457] S. Mayo, *Land and Democracy in Zimbabwe*, Harare, SAPPO, 1999, p. 175-176
[458] P. Chigora, "the Nexus between Equitable Land Distribution and Poverty Reduction: an overview of the Zimbabwean Situation", at https://ssm.com/abstract=1695850, visited on 22nd August 2022, 10:34am.
[459] Ibid.

peasant production takes place. Thus, land reform builds the prosperity of the community at from bottom rather than for the top as those at the grassroot owns the means of production[460]. Land reform is necessary within African communities so as to help address inherited historical injustices, especially those resulting from land dispossession of peasant majority. This will also involve the restitution of land to individuals and communities who lost their homes and land due to forced removals. It will also create secure rights to land held by the peasants. In addition, the process will aim at creating a more equitable pattern of land ownership in African communities[461].

In Ancient Egypt and in the Nkwen *Fondom*, where land ownership cycled between private, monarch, and feudal, powerful Pharaohs and *Fons* could take advantage of harsh situations such as famine, buy lands from private owners and make them a property of the crown. Weaker king would have to buy services from strong lords by giving them gifts of land[462].

b) Policy and decision-making towards land distribution programs and economic development

Land distribution programs that have clear distributional implications and involve separate interventions or political changes are an attractive candidate for the theories of economic development. These implications contribute to the economic theories' framework before and after development programs. Moreover, given that land reform is often politically controversial and should generally be sustained beyond the terms of individual governments, economic theory information can be used to build consensus, identify, and monitor clear performance indicators to limit the extent of corruption in the reform[463].

An intergrated land change program is required so as to serves as an effective planning tool both at national and local level. For example, land-use systems, the environment, and other environmental biophysical characteristics could help understand poverty and food safety. Integrated land distribution must also consider all lands as financially important and should try boosting its potential without undermining the social rights and articulation of characters of

[460] S. Mayo, *Land and Democracy...*, p. 178
[461] H. Azadi and E. Vanhaute, "Mutual Effects of Land Distribution and EconomicDevelopment: Evidence from Asia, Africa, and Latin America", articl, Gent University, Published: 15th June 2019, p. 9
[462] J. Powelson, *The Story of Land (A World History of Land Tenure and Agrarian Reform)*, Cambridge, Lincoln Institute of Land Policy, 1987, pp. 15-19
[463] Pontifical Council for Justice and Peace, "Towards A Better distribution of Land the Challenge of Agrarian Reform", Vatican, 23rd November 1997

individuals. Such a program ought to perceive, to the point that unused land can be used to address neediness and invigorate development on the off chance that is joined into provincial esteem chains. Therefore, integrated land distribution programs will be useful for informing policy decision-making/formulation and for monitoring and evaluating policy impacts on environmental or societal interests in African communities[464]. These programs will help in sustainable rural communities, improve food safety, reduce rural and urban poverty, promote equal and sustainable development, and ensure social stability, continuity of cultural life, and rural heritage. Generally speaking, the key objective of land policy distribution in Africa is to secure the rights of all land users and to achieve multiple and intertwined objectives, including equity, poverty reduction, income growth, economic efficiency, and sustainable management of the environment. In addition, to make cultivation less demanding and increasingly beneficial, new instruments must be intended to discharge gainful land towards secure and standard practices. Although independent free holding is a deficient and frequently fiercely improper choice to display residency practices, boss and networks ought to be considered responsible on the off chance that they seem unfit to enhance their property[465].

In sum, it may not be necessary to create laws uniformly throughout all parts of African communities for impartial land distribution. Land has unique qualities in comparison with other monetary products. Each land distribution program should have an established feature (i.e., it could be considered to be immovable goods), and it should be confined to a specific location.

3. Provision of Modern Farming Tools and Finances to Farmers

Farming tools are critical to the success of a farmer and there is an ever increasing need to invest in agriculture due to a drastic rise in global population. The practice of agriculture as implemented by the Ancient Egyptians and the Nkwen people were mostly traditional and less effective to ensure enough food security as the population increased. As ancient Africa communities grow, they needed more farm imputs in terms of equipments and fianance.

a) Modern farming tools

Modern tools help make farming easier and more efficient. From traditional to modern farming, even the instruments are improved. Many farming products are created for a single task, while some are used for a number of purposes across the farm. Since the olden times,

[464] F. Mtero, "Equitable Access to Land for Social Justice in South Africa", Research Report 56, Cape Town, 2021
[465] W. Azadi and E. Vanhaute, "Mutual Effects of Land…", p. 12

traditional farming improved the quality of food and soil as animals were the primary source of energy when they carried out tough jobs in farming like ploughing and trampling. Later on, steam power started replacing the same activities. And then gas-powered tractors took over, followed by diesel engines. In the developed nations, it caused lowering the number of farmworkers, however, farm production continuously increased with the use of agriculture machinery[466]. The modern method has its advantage when pesticides and fertilizers are used in the required amount. The survival of plants is important for agriculture, so improved irrigation technologies are the main reason for agricultural development. Combine, automatic inrow weeder, drag, player, tillage planter, drones are modern agricultural implements[467]. The modern farm machinery has upgraded the agricultural industry for the best. Some of the essential and most used machinery are combine or combine harvester, rotavator or rotary tiller, plough or plow, tractor trailer, power harrow, leveler, water bowser, ripper machine, and disc harrow[468].

b) Finances to farmers

The development and commercialization of agriculture requires financial services that can support: larger agriculture investments and agriculture-related infrastructure that require long-term funding (given that currently transportation and logistics costs are too high, especially for landlocked communities who donthave acces to water). Agriculture finance is an important strategy to eradicate extreme poverty, unemployment and boosting shared prosperity within African communities[469]. Globally, there are an estimated 500 million smallholder farming households representing 2.5 billion people relying, to varying degrees, on agricultural production for their livelihoods. Agriculture finance is and strategic instrument to crowd-in private sector, enhancing access to suitable financial services to farmers particularly smallholders and agricultural small and medium enterprises as a way to increase agricultural productivity and income, and facilitate consolidation/ integration of production and marketing entities in agriculture to achieve economies of scale and stronger presence in markets[470].

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[466] A Rehman, L. Jingdong, R. Khatoon, I. Hussain, M. S. Iqbal, "Modern Agricultural Technology Adoption its Importance, Role and Usage for the Improvement of Agriculture", Life Science Journal 2017, online at http://www.lifesciencesite.com, visited on 22nd August 2022, 10:44am.

[467] https://www.fieldking.com/blogs/agriculture-machinery-and-their-uses/agriculture, visited at 25th August 2022

[468] K. R. Shamitha, "Importance of Traditional and Modern Agricultural Method", 14th May 2021, at https://www.linkedin.com, visited on 21st August 2022, at 10:30am

[469] P. Varangis, "Agriculture Finance & Agriculture Insurance**",** 8th October 2020, online https://www.worldbank.org, visited at 25th August 2022

[470] Agriculture Finance, online at https://www.ifc.org, visited at 25th August 2022

In a nut shell, chapter four of our study examined the difficulties encountered by the practice of agriculture in Ancient Egypt and the Nkwen *Fondom*. However, some proposed solutions have been suggested in order to overcome such difficulties. From the results arrived at, it was realized that the practice of agriculture in ancient African communities came with a lot of profits, gains and ramifications.

GENERAL CONCLUSION

From the above analyses, it should be reminded that the interest of this study was to examine and analyse agricultural practices in Ancient Egypt from and in the Nkwen *Fondom*. In this case, we were concerned with analyzing how African traditional communities, specifically with the case of Ancient Egypt and Nkwen *Fondom*, practiced agriculture aimed at ameliorating their wellbeing and community development. In addition, our task was to analyse the essence of the various agricultural products cultivated in Egypt and in the Nkwen *Fondom*.

During the analyses of this study, the methods and technics of traditional agricultural practices were brought to light. They domesticated different species of plants and animals, which they used for food. Amongst the different species of plants and animals, the main crops were cereals such as emmer, wheat, maize and sorghum meanwhile the main animals domesticated were ruminant animals such as goats, cows and pigs. From the study of this research project, it could be seen how every agricultural product cultivated by the Ancient Egyptians and the Nkwen people had nutritional values. More to this study, it was analysed how the Ancient Egyptians and the Nkwen people applied farming methods such as ploughing, irrigation, slash and burn farming in order to cultivate their crops.

As for agricultural organization in Ancient Egypt and in the Nkwen *Fondom*, it was seen how they both organized themselves in groups to carry out heavy farm land project. In *Kemet*, it was seen how they organized themselves under their leader the  *nsw-bity/Nesu-bity* while in Nkwen *Fondom* they were united under the *Fon*. From this, it could be deduced that agricultural practices were organized under every leader of the community or family head. Moreover, agricultural organization followed seasonal pattern. As earlier seen in this study, it could be notice that diverse factors favoured the practice of agriculture, such as geographical factors and human factors. In *Kemet*, the Nile river as a geographical factor favoured and organized the practice of agriculture as the three main seasons; *akhet*, *peret* and *shemu* influenced the flow of the Nile river and crop growth. In the Nkwen *Fondom* the raining and the dry season impacted crop cultivation.

With such practices, the African people understood and respected the various principles of nature that guided the cultivation of crops. These were the twin principles of coexistence and reciprocity. When agriculture was finally born in the ancient Nile Valley and in the

Grassfields of Nkwen *Fondom* people could produce more food out and in season, as a result, the population growth expanded and the communities were developed.

In this study, it can be claim at least that some contribution into the world of science research has been made. Firstly, identifying a domain of study which, to a large extent, has rarely been studied as compared to other domains in Ancient Egypt and in Nkwen *Fondom* history. Secondly, the domain of traditional agricultural practices in our actual modern time has been highly neglected. Nevertheless, the African civilization at this time was advanced in agriculture with the existence of well-organized traditional farming system which could provide food security and community development.

Moreover, no matter the differneces and similarities of the agricultural practices in ancient Egypt and in Nkwen *Fondom*, this study has been able to show that African communities such Ancient Egypt and Nkwen *Fondom* agricultural practices encountered difficulties posed by nature and man. The Ancient Egyptians mostly faced the problem of floods meanwhile the Nkwen people face difficulties with pests. All these difficulties encountered by these cultural entities obliged them to develop methods and technics to overcome them.

Within the course of this study, it has been argued that every aspect of African communities was derived from agricultural practices. As seen under the impacts of the practice of agriculture, it could be noticed that African communities developed their social, economic and political ideologies around farming. From this study, Africans and humanity as a whole would not have been able to discover ways to which could enable them develop their communities if they were not practicing agriculture.

So, with the numerous problems which the agricultural sector is facing today within the African continent today, it will be of great importance that modern African governments reconsider the use of some aspects of traditional African agricultural practices to handle some of their pertinent issues concerning food security. Thus, in order to enhance a successful atmosphere of food security and development, borrowing from the past African agricultural practices that which can facilitate the successful practice of present agriculture and development is highly recommendable.

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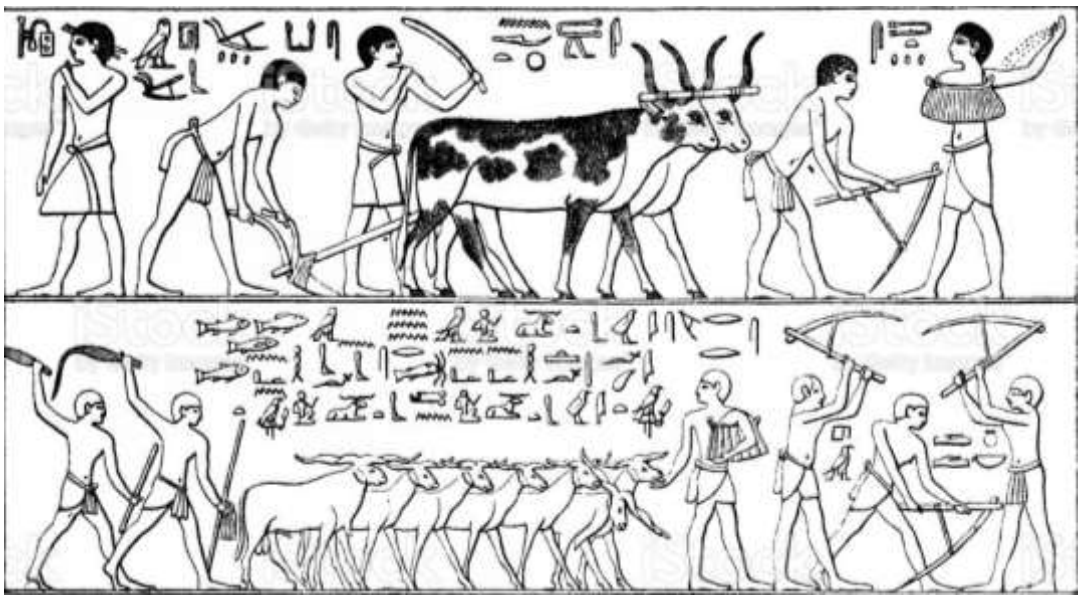
Name of informant	Age	Personality	Date of interview	Place of interview
Afo Anegu	31	Farmer	23/12/2020	Nkwen, Ntamunchie
Ateme Grace	60	Farmer	23/12/2020	Nkwen, Ntamunchie
Charles Mukong	50	Farmer	23/12/2020	Nkwen, Menda
Christina Ndifor	67	farmer	19/12/2020	Nkwen, Namoh
Dominic Ngante	84	Retired teacher	21/12/2020	Nkwen, Futru
Azeh Gladys Ngufor	60	Primary school teacher	22/12/2020	Nkwen, Futru
Lum Evelyne	56	Farmer	19/12/2020	Nkwen
Madelain Njang	60	Farmer	22/12/2020	Nkwen
Matilder Ngegha	42	Farmer at Nazareth center	22/12/2020	Nkwen, Namoh
Ngami Irene	34	Primary school teacher	21/12/2020	Nkwen, Futru
Ngobesing Siri Emilia Chungong	52	North west Regional chief of agricultural services (agronomist)	18/02/2021	Mendankwe (upstation)
Ngum Beatrice Ngufor	55	Agricultural engineer.	07/01/2021	Yaounde, Mfou
Prudent Patience	40	Farmer	23/12/2020	Nkwen, Menda
Tata Elvis	33	Manager of Nazareth agropastoral center	22/12/2020	Nkwen, Namoh
Victor Ngami	88	Retired secondary school teacher	21/12/2020	Nkwen, Futru
Mary Immaculate Mbong	48	Sub divisional delegate of agriculture	19/02/2021	Ntakekah
Azinue Ngufor	43	Quarter head at upper Bayelle and also a lifestock engineer	20/02/2021	Nkwen, Bayelle
Hilder Fuo	40	Business woman	23/02/2021	Nkwen, Bayelle
Nkamdem Boris	35	Trader	23/02/2021	Nkwen, Sisia
Lom Elizabetrh	45	Cleaner	24/02/2021	Nkwen, Menda
Emmanuel Wazeh	35	Electrician	25/02/2021	Nkwen, Menda
Stella Munde	50	Council worker in charge of general affairs	25/02/2021	Nkwen, Namoh
Mbuntun Romaric	40	Accountant	25/02/2021	Nkwen, Bayelle

ANNEX

Annex I

Illustration of agricultural practices (plaughing, hoeing, sowing and trampling) in Ancient Egypt. Ancient Menfi, Saqqara Necropolis Mastaba of Ti, Old Kingdom, Dynasty V, ca. 2400 B.C. Annex



Source: https://www.istockphoto.com/vector/19th-c-engraving-of-ancient-egyptian-tomb-engraving-ploughing-the-field-with-oxen, visited on the 25th August 2022.

Annex II

Farm land preparation for the cultivation of vegetables, hoeing

Source: Captured during field work at mile 4, Nkwen North West Region of Cameroon

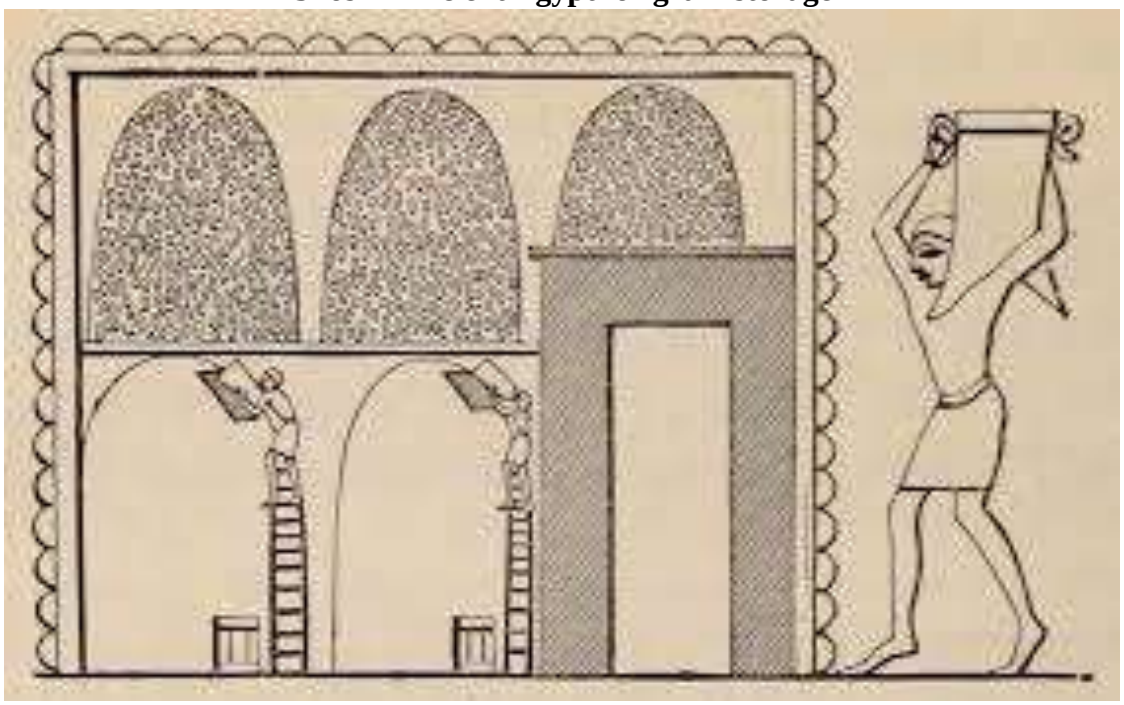
Annex III

Wet land farming (river water irrigation with canals) of huckleberry locally know as *njama njama*

Source: Captured during field work at mile 4, *Lekunun* (wet land)

Annex IV

Silos in Ancient Egypt for grain storage



Source : https://commons.m.wikimedia.org, visted on August 30, 2022

Annex V

Traditional silos in the Nkwen Fondom

Source: Captured during field work in Nkwen

Annex VI

Corn preservation at the farm school Nazareth Center at Menteh

Source: Captured during a tour at the Nazareth Agro Pastoral Training and production Center Menteh, Nkwen, during the month of December 2020