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Food Security Through the Protection Plant Varieties: A Case for Nigeria

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Abstract:- **Nigeria currently has no intellectual property-based plant variety protection system despite its obligation under the World Trade Organisation (WTO) TRIPS Agreement have one. The obligation as provided by Article 27(3)b is that WTO members must protect plant varieties through the option ofthe patent system, or the option of an effective sui generis system, orthe use of both in unison, which is a flexibility intended to grant freedom for each member to implement a system that suits its peculiar socio-economic situation. This articlecanvasses for a plant variety protection system for Nigeria to fulfil its obligation to the WTO, and because of its potentials to help Nigeria improve its agriculture, eradicate hunger and promote food security. It uses the doctrinal method to explore how best Nigeria and other similar nations canutilise TRIPS Agreement's flexibility and realise its agricultural objectives through strategic implementation of its provision in Article 27(3)b.Itconcluded by suggesting that Nigeria should create its own bespoke system for plant varieties protection and not join the UPOV, despite recently submitting a draft plant variety protection bill to the UPOV for vetting which indicates an intention towards joining the UPOV.**

Keywords:- *Intellectual Property, Plant Varieties, Patents, Sui Generis System, Nigeria, TRIPS Agreement, Food Security, Flexibility, UPOV, Strategic Implementation.*

I. INTRODUCTION

Intellectual property rights are meant to grant inventors and creators in various fields human endeavours the exclusive rights of exploitation of such inventions and creations so as to recoup what they invested in the research, reward their creativity, so as to encourage further innovation and creativity. There was no protection of inventions in the field of agriculture many decades and centuries ago, as such inventions were usually regarded as largely related to nature and therefore inappropriate or immoral to grant proprietary rights over them. However, in modern times, improvements in agricultural research and development have brought the need to find some sought of protection for such inventions, but achieving that is proving to be both essential and problematic at the same time. Most of such inventions hardly fit into a defined and generally acceptable system of intellectual property rights because of their unique nature. The WTO TRIPS Agreement recognised this problem as deduced from its flexible demand in Article 27(3)b that members protect plant varieties through the options of patent, a sui generis regime, or a unison of both.

The WTO TRIPS Agreement which is the mostrecent and comprehensiveinternational law on intellectual property rights to be ever negotiated and adopted(Correa 1995 pg 23)and which 164 WTO members,[1]are to comply with, came into force in 1995. The Agreement obliges all members to establish a system for the protection of plant varieties through the options of the patent system, or a sui generis system, or a unison of both sytems.[2]

Many developing and least-developed countries are yet to implement the TRIPS Agreement due to genuine fears. It is the view of many (Bentley & Sherman, 2014, p 10)especially from developing countries that globalisation of intellectual property standards and lawsmajorly reflect the interests of various developed-world lobby groups. Most developing countries seem nonchalant about implementing the TRIPS standards as they still are not sure of the benefits. Moreover, many of these developing and least developed countries feel the potential losses of implementing the TRIPS Agreement far outweigh its benefits especially in areas of dominant interest like agriculture. Many developing countries believe that despite its attempt to balance interests, the Agreement (TRIPS) mainly benefits technology-rich countries (Correa C. 2005 pg 420).

The TRIPS Agreement has also been criticised (Abbas & Riaz 2013, p3) for protecting the interests of developed countries and neglecting to consider the impact it would have for developing and least developed countries with weak innovation capacity.

Despite all the apprehensions about the TRIPS Agreement in the developing world, this article canvasses for the implementation of the TRIPS Agreement in the area of plant varieties protection and seeks to exploreways Nigeria can benefit from the intellectual property system through the strategic implementation of the TRIPS Agreement flexibility in Article 27(2)b.The article alsogives opinion on which of the options provided in 27(2)b of the TRIPS Agreement for protection of intellectual property rights in plant varieties best suits Nigeriaconsideringits peculiar socio-economic, technological and agricultural factors, drawing examples and comparison from relevant jurisdictions.

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II. BACKGROUND

The 1st goal of the Millennium Development Goals was eradicating extreme poverty and hunger(United Nations 2015).[3]With the expiration of the time granted for the Millennium Development Goals in 2015, the Sustainable Development Goals came into being with 17 goals, out of which the 2ndgoal is 'Zero Hunger'.[4]The above intentions are in sync with the Universal Declaration of Human Rights which provides thus:

Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.[5]

These provisions show a global intention to provide adequate food and nutrition to all humans as of right. But690 million peoplewhich is equivalent with 8.9 percent of the world population are hungry(FAO report2020 xvi). Many people of the world, especially the poor, who are about 3 billion people cannot afford healthy diets, only diets that meet only dietary energy needs through starchy staplesare mostly afforded as healthy diets are by far more expensive (FAO report xvii).

It was also observed(FAO report xvii)that the cost of a healthy diet exceeds the international poverty line thereby making it unaffordable for the poor, it also exceeds average food budgets in most countries in the developing world. Same report observedparticularly that around 57 percent of the population in sub-Saharan Africa and Southern Asia cannot afford a healthy diet.The world and Sub-Saharan Africa, in particular, is in need of hunger eradication and food security and the intellectual property rights system can tremendously impactachieving that owing toimprovements in agricultural innovations that has led to the creation of new varieties of plants desiring intellectual property rights protection.

Nigeria is a developing country and Africa's most populous country with 182 million inhabitants and an annual growth rate of 3 percent, with Fifty-nine percent of its population under the age of 35(IFAD Report 2016 1)[6]. Nigeria is on 92.4 million hectares of land and 53 percent of its population live in rural areas.Its GDP growth averaged 3.8 percent a year from 2009 to 2014, but amid falling oil prices, security risks and policy uncertainty, growth sharply slowed, so the government now wants to reduce oil dependency and diversify growth(IFAD Report 2016 1).There is severe poverty especially in rural areas which is estimated at 44.9 percentand young people lack economic opportunities,as sporadic civil unrest worsens poverty and malnutrition.The rural population in the country has 70 percent of subsistence smallholder farmers, who produce some 90 percent of Nigeria's food on scarcely irrigated plots entirely dependent on rainfall(IFAD Report 2016 1).

The same report(IFAD Report 2016 1) also observed that despite generating 21 per cent of gross domestic product (GDP) in 2015 agriculture is underdeveloped due to various obstacles, and that only 46 per cent of arable land is cultivated, whilefarmers have no title to 95 percent of agricultural land, therefore can hardly obtain finance or investin innovation and improvements.Poor rural roads in Nigeria undermine farm profitability, frustrates the transportation and marketing of agricultural goods,increases waste, and obstructs the introduction of new input, equipment and new technology.

According to its National Agriculture Policy, the country has not succeeded in bringing about significant and sustainable agricultural growth that would ensure national and household food security, create wealth and employment and make Nigeria a competitor in the global food markets which can be attributed to having a weak mechanism for translating results of research into economic gain (National Agricultural Promotion Policy 31). Other factors that hinder agricultural growth is failure to properly incentivise innovation at the inventor level and the failure of the extension systems (National Agricultural Promotion Policy31).By stating the intention to review the process of granting intellectual property and encouraging its commercialization and licensing, the Nigerian Agricultural policy recognized that incentivising innovation is essential for promoting innovation, growth and development in agriculture.

Despite all the constraints, private sector investment is growing in Nigerian agriculture and has generated private sector demand for protection rights for their technologies(Babu and Oyedipe 2017 pg 37).Intellectual property rightsare attracting more attention in Nigeria, especially with competition to excel and be prominent in technology development among researchers on the increase, and this would impact innovation in agriculture in the country(Babu and Oyedipe 2017pg 37).

Attempts have been made to protect plant variety in Nigeria (Adebola T. 2019 pg 46) through laws that are not intellectual property-based, butonly regulate the registration, release and commercialization of plant varieties, namely the National Crop Varieties and Livestock Breeds (Registration, etc.) Act 1987, and the National Agricultural Seed Decree 1992.Under section 8b of the National Crop Varieties and Livestock breed (Registration) Act, naming or releasing crop varieties in Nigeria must be done with the written authority of the Registrar of the National Register for Crop Varieties and Livestock Breeds. A crop variety has to conform to the UPOV-styled distinct, uniform and stable requirements for protection before it is released(National Centre for Genetic Resources and BiotechnologyNACGRAB Guidelines for Variety Registration and Release of New Crop Varieties in Nigeriapg 8).It also has to pass 3 trials namely on-station trial, multi-location trial and on-farm trial in accordance with the same guideline. The NACGRAB Guidelinesexcludes small-scale farmers from its list of those qualified to develop new varieties for registration andrelease in Nigeria, as only National Agricultural Research Institutes

in Nigeria, Universities in Nigeria, Consultative Group on International Agricultural Research (CGIAR) Centres, Private Seed Companies and Non-Governmental Organisations (NGOs) are allowed (Adebola T. 2019 pg 46).It is clearly provided (Guidelines for Variety Registration and Release of New Crop Varieties in Nigeria 2016 pg 14) that every nomination to the Registrar for registration of a variety should be routed through the coordinating research Institute which could be interpreted as excluding or limiting small-scale farmers access to registration.

The National Agricultural Seed Decree No. 72, of 1992 established a National Agricultural Seed Council which shall be charged with responsibility for policy guidelines and monitoring of the development of the national seed system.The Decree (Section 3d) made provision for the Crop Variety Registration and Release Committee, and the Seeds Standards Committee, among others.But it is not clear whether these Committees have the mandate of intellectual property protection or are limited to mere registration and notification.

A recent and significant effort towards the attainment of food security was the establishment of the Agricultural Research Council of Nigeria (ARCN) in 1999 which took off in 2006 as the institution mandated to coordinate and supervise all agricultural research in Nigeria.[7] Its vision is to reduce poverty and increase food security by contributing to the establishment of sustainable agricultural growth and development in Nigeria. And amongst its missions is to promote innovation, establish a knowledge management capacity witha highly motivated and intellectually up to date agricultural research network with the aim of developing Nigeria's agricultural potentials to self-sustenance and export.

Nigeria's agricultural policy aims to reform and reposition the ARCN which includes reviewing the process for granting intellectual property to researchers at ARCN institutionsandencouraging commercialization of existing and future intellectual property emerging from the ARCN.[8]One is left with questions as to whether the ARCN can realize all the objective of encouraging the licensing and commercialization of intellectual propertyin the absence of a plant variety protection system.

And according to section 1(4) of Nigeria's Patents and Designs Act, patents cannot be validly obtained in respect of:

(a) plant or animal varieties, or essentially biological processes for the production of plants or animals (other than microbiological processes and their products); or

(b) inventions the publication or exploitation of which would be contrary to public order or morality (it being understood for the purposes of this paragraph that the exploitation of an invention is not contrary to public order or morality merely because its exploitation is prohibited by law).

With the above provision, it is safe to say that in Nigeria, even when an invention is new, possesses inventive step and is capable of industrial application it would not obtain patent, therefore creating a sui generis regime remains the most viable option for the protection of plant varieties in Nigeria today.

Recently, the National Agricultural Seeds Council (NASC), the regulatory body for the national seed industry and other stakeholders in Nigeria have advocated for the passage of the Plant Variety Protection (PVP) Bill into law stating that the PVP law would help in resolving food security issues and create economic opportunities if passed into law.[9]

Interestingly, Nigeria deposited a draft law with the UPOV titled "Plant Variety Protection Bill of Nigeria" which will allow Nigeria to deposit its instrument of accession to the 1991 Act of the UPOV once the Draft Law is adopted with no changes.[10]The bill has not been passed into law yet, but it is suggested that further and better stakeholder consultations be made again before taking the next decision on the bill.

Nigeria being a member of the World Trade Organisation (WTO) without having a plant variety protection system is expected to have established one in accordance with Article 27(3)b of the WTOs TRIPS Agreement, but has not done so due to factors which may include the impression that implementing the TRIPS Agreement may not be in its best interest. And if Nigeria is to implement the TRIPS Agreement which it may have to do in the near future in order to comply with its international obligation, it would have to either adopt the patent system or create a*sui generis* system, or adopt a unison of both systems.

The recent intention to incentivise innovation and research by the ARCN, the absence of a plant variety protection system for Nigeria, and therecent developments between Nigeria and the UPOV combine to make Nigeria an interesting case for this article. The aim of this article is tofirst advocate for a plant variety protection system for Nigeria,and then to evaluate the options available for plant variety protection, to expose policy makers and stakeholders to the issues around plant variety protection, and tomake suggestion on which system is best for Nigeria and similar countries.

III. ISSUES SURROUNDING PLANT VARIETY PROTECTION

Farmers have from time immemorialalways saved, replanted, exchanged and sold their seeds without any restrictions, a practice which constituted the pillar of agricultural biodiversity and was fundamental to food security(Oke 2019 p1). And during the 'Green Revolution' among the factors that contributed immensely to the successes of the campaign to increase crop yields to feed a growing population(Chiarolla2011, p8) are that national and international agricultural research institutes could

disseminate technological and scientific advancements relevant for crop improvement without hinderance, and as a consequence, private and public plant breeders could exploit inventions without having to worry about infringement because the recognition of intellectual property rights in agriculture was understated (Chiarolla 2011, p8).Another factor was the freedom bypublic agricultural research institutions to collect and distribute plant materials from various countries without particular legal restraints because proprietary interest associated with such resources were then perceived as secondary issues(Chiarolla 2011, p8). Intellectual property rights later arrivedon the scene with the need to reward innovations and research in agriculture and also with the arguments and prospects in support.

In support of intellectual property rights in agriculture, it is argued that new gene-editing technologies help to overcome the challenges of sustainable food supply and enables agricultural professionals to meet an ever-growing demand for food(Holthius & Velden 2019, p96). And that genetically modified crops increase food security and combat malnutrition and poverty by creating speciality crops with high productivity, better nutritional value and enhanced resistance to disease(Olusegun & Olubiyi 2017, p254). Theprevailing hunger and malnutrition and the need for technological improvements in agriculture in Nigeria as highlighted aboveunderscores the need for an intellectual property-based plant variety protection system for Nigeria and give credence to the above arguments.

Butit has also been argued that establishing intellectual property rights on seeds and plant varieties have direct and indirect ecological, economic and social consequences (Olusegun & Olubiyi 2017, p254) and which every country must thoroughly evaluate before establishing such. Also, that intellectual property rights and its current global framework protecting seeds and plant varieties can affect the local farmers liberty to their usual practice of saving, reusing and exchanging their seeds, and this might, in turn, have a negative impact on the right to food and food security (Oke 2019 p1) as this practice is crucial to their economic survival. It is further suggested (Trommetter 2010, p241)that in most countries of the South, the institution of intellectual property has not boosted the local seed sector through technology transfer or direct foreign investmentsposing the risk of local seed firms disappearing and local farmers relying solely on rich breeders from developing countries. The inflow of foreign direct investment and technology transfer should be amongst the chief gainsof developing countries from the intellectual property system, and any noble system of plant variety protection should be seen to reflect and demonstrate deliberate intention towards attaining that.

The protection of plant varieties is not as straightforward as trademarks or patents. Applying intellectual property rights to agriculture continues to be controversial in the first place, and then the type of IPR system to be applied on plant varieties by various countries has been another controversial issue, and it is due to these issues that the TRIPS Agreement made a flexible provision in its Article 27(3)b.

IV. INTELLECTUAL PROPERTY PROTECTION OPTIONS FOR PLANT VARIETIES IN NIGERIA

Article 27(3)b of the TRIPS Agreement provides that:

Members may also exclude from patentability:
(b) plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination there of. ….

The above provision provides three options for WTO members who can protect plant varieties through patent, sui generis system, or a combination of both and which is amongst the flexibilities the TRIPS Agreement presents. A little sneak into the implementation of these options is presented below.

- *Patent*

The traditional scope of patents(Clancy &Moschini 2017, p3) typically excludes important kinds of scientific discoveries, such as laws of nature, natural phenomena,abstract ideas, and biological innovations. The belief that patents are not obtainable for plants or biological innovations led to the development of sui generis protection systems to protect plant varieties.

But this position changed in the United States following the 1980 US Supreme Court decision in *Diamond v. Chakrabarty*,[11] which held that modified microorganisms were patentable. This landmark case opened the door for patent rights on biologically based invention once there is human intervention in the process.The United States has since protected plant varieties through three mediums: the utility patent and the plant patent (both granted by USPTO), and then the PVP certificates (granted by the Department of Agriculture) each according to different criteria[12]and granting different levels of protection.

Desirable traits in plants such as insect and virus resistance and herbicide tolerance have come about as a result of improvements in biotechnologies associated with genetic engineering, resulting in strong claims for patent protection (Holthius&Velden2019, p104). Transgenic constructs can be identified as inventionswithout hesitation, and this has led to grant of patents for various techniques for plant transformation since the 1980s (Holthius& Velden 2019, p104).

But generally, plant variety rights usually offer exceptions and limitations and a lower scope and level of protection from what is contemplated under patent rights, therefore the intellectual property rights granted under patent are more absolute. The level of exclusivity under

patent raises big questions about its capacity to promote food security in developing countries without inflicting poverty and hardship on the farming community.

It is argued (Bedasie 2012, p131) that despite the existence of separate legal regimes for patent and plant variety protection in many countries like the USA, understanding the boundaries between them has always been a major problem and the issue of interface between these laws remains to trouble the intellectual property protection systems.

Even though there are strong arguments for protecting some plant invention through patent, faming, survival and livelihood in Nigeria is dependent on exchange of seeds and ideas, and patent protection would deprive farmers of these privileges that are key to their survival and livelihood.Nigeria therefore requires a system that grants rights without too much exclusivitytherefore making protection of plant varieties by patent unsuitable for Nigeria.

- *Sui Generis*

a. International Convention for the Protection of New Varieties of Plants (UPOV) 1991

According to Articles 6-9 of the UPOV, to qualify for protection under theConvention, the plant variety has to be new, distinct, uniform and stable.It grants the breeder the exclusive rightsover the production or reproduction; conditioning for the purpose of propagation; offering for sale, selling or other marketing; exporting; importing; and stocking for any of the above purposes(Holthius & Velden 2019, p100).[13]

Under the UPOV, authorisation of the breeder is not required to use a protected variety for breeding other varieties, therefore acts done with the 'other' varieties too does not require the authorisation of the initial breeder, except for the circumstances specified in the 1991 UPOV Convention Act(Holthius & Velden 2019, p100).

According to Holthius& Velden (Holthius& Velden 2019, p103) members have introduced the UPOV system to provide farmers with varied improved varieties, and the fact that its membership were found to be associated withincreased breeding activities,greater availability of improved varieties, increased number of new varieties, increased foreign new varieties, improved access to foreign plant varieties and enhanced domestic breeding programmes amongst other advantages.

The UPOV Convention provides an optional exception, which permits UPOV members to exclude, for example, farm-saved seed from the breeder's right, subject to certain conditions (Article 15 UPOV) whose 3 aspects include: the farmer's holding – where it can take place; the product of the harvest – the material involved; and the reasonable limits and safeguarding of the legitimate interests of the breeder(Holthius & Velden 2019, p101).[14]Another exception (Article 15.2 UPOV) provides for a compulsory exception for acts done privately and for non-commercial purposes.But these exceptions are not wide enough to accommodate the interests of farmers of developing countries. The UPOV standard of protection cannot protect their local innovationsso they would remain vulnerable to appropriation and modification of their knowledge and innovations,which can then be protected with stringent IP rights that excludes them from exploiting. Having a too strict IP regimewould in the long run throw these farmers out of their profession and livelihood and would threaten food security in their domains. No wonder, the UPOV was described as(Dang & Goel 2009, p307) deficient in accommodating national goals for its failure to balance the interests between farmers of the south, and the breeders. Generally, the UPOV is mostly viewed by the developing world as similar to patent for the scope and duration of exclusive rights it grants a breeder and the limited exceptions it offers.

The UPOV system is another option available to Nigeria, and Nigeria has demonstrated intention to accede to it. It has been adopted by many African countries including the African Intellectual Property Organisation (OAPI) and then the African Regional Intellectual Property Organisation (ARIPO) has adopted a UPOV-styled PVP law,but Nigeria is amongst the few countries yet to accede to the UPOV or enact a UPOV-styled legislation.

b. Tailor-Made Sui Generis

India is a typical example of a country that adopted a tailor-made sui generis system. While analysing India's PVP system (Dang & Goel 2009, p304)Dang & Goel observed that it is necessary for developing nations to create a national regime for plant variety protection rather than adopt a system prevalent in developed nations. This is because in developing nationsagriculture is closelylinked to the national economywith a higher agricultural population compared to developed nations,hence the level of economic dependence on local farming differentiates the agricultural sectors of the South from that of the north. The differences between developed and developing countries (Dang & Goel 2009, p304) include smaller landholdings and labour-intensive agricultural practices, subsistence landfarming and lower participation in international trade, and with these distinguishing features of agriculture and its impact on their economies, it necessitates the prioritisation of national goals for developing countries when introducing plant breeder's rights. And one of the national agricultural goals of a country like Nigeria apart from introducing a plant variety protection system,must be to create a system that accommodates the local farmers interests and practices.

In India, apart from the demand that plant variety must conform to the criteria of novelty, distinctiveness, uniformity and stability, the Protection of Plant Varieties and Farmers' Rights Act allows four types of varieties to be protected: a new variety, an extant, an essentially derived and a farmers' variety so as to cater for varied interests(Dang & Goel 2009, p309).This clearly provides far more accommodation for the farmers unlike in patent and the UPOV.The Indian Act also provides for different protection durations for different types of plants. Section

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24(6) of the Act states that trees and vines for eighteen years from registration date, while it is fifteen years from the date of the notificationof that variety by the Central Governmentin the case of extant variety, and then in other cases it is fifteen years from the date of registration of the variety thus providing a duration that is less than the 20 years required by patent and the UPOV systems.

The Indian system (section 26 Indian Protection of Plant Varieties and Farmers' Rights Act) publishes plant variety application details to the public and invites claims to benefit sharing under each certificate of registration before the Protection of Plant Varieties and Farmers' Rights Authority.This provision would help protect indigenous traditional knowledge. In the same vein, communities are allowed by section 41 of the Indian Protection of Plant Varieties and Farmers' Rights Act to file claims where they allege that the evolution of a variety is attributable to thecontribution of the people of that village or local community.

Furthermore, section 42 of the Act protects innocent infringing farmers. This is a deliberate provision with the knowledge that some of the acts of the farmers may be thought to be honest practices as they may not beaware that they were infringing intellectual property rights. These are typical examples of legal provision that are tailor-made for certain peculiar situations.

TheProtection of Plant Varieties and Farmers' Rights Authority by the power conferred by section 47 of the Actcan in consultation with the central government receive and consider compulsory licensing cases in situations where there are allegations that the reasonable requirements of the public for seed or other propagatingmaterial of a variety have not been satisfied or is not available to the public at a reasonable price. Thisis another food security measure.

The main contribution of the Act it is argued is the possibility that farmers have to save, use, sow, re-sow, exchange, share, or sell their farm produce, including seeds, but with the proviso that these seeds must not be 'branded' with breeder's registered name(Dang & Goel 2009, p309). The system promises protection to both farmers and breeder's because the breeder's innovations and inventions are rewarded while the farmer's ability to engage in his usual practices central to his livelihood and that of other farmersis not threatened (Dang & Goel 2009, p309).

Some other valuable features of the Act include the explicit and detailed disclosure requirements in the passport data required at the time of applying for a breeder's certificate which would promote technology transfer, the complete ban on Gene Use Restriction Technology (GURT) to check the excessive power of the breeder, and the exemption of fees for farmers(Dang & Goel 2009, p309).

But the Indian PPV&FR Act has also been criticised for wanting to simultaneously protect on the one hand the rights of farmers to save, sell and re-sow seeds, and recognise and promote farmer innovations, and then on the other hand promote innovation in the private sector seed industry whichare divergent goals in effect and emphasis(Kochupillai2016, p143). It appears incompatible to encourage private sector innovation, and then farmer innovation and agrobiodiversity conservation using the same instrument.

Despite the Act including farmers in the definition of a 'breeder' (Holthius & Velden 2019, p122) these farmers face various practical challenges of utilizing this opportunity because they hardly can meet the Distinctive, Uniform and Stable (DUS) criteria provided by the Act. That the farmers varieties have the lowest number of registration certificates despite having the highest number of applications (Holthius & Velden 2019, p122). The Indian tailor-made sui generis styleor something very similar is also another option that Nigeria can adoptdespite its demerits, as it grants farmers far more leverage than the UPOV or patent systems and would be far more suitable to Nigeria's socio-economic peculiarities.

V. REGIONAL LANDSCAPE OF PLANT VARIETY PROTECTION IN AFRICA

In consideration of a possible plant variety protection for Nigeriaalong regional lines, it is prudent to also look at thepractices across Africa concerning plant variety protection.Egypt, Tunisia, Morocco, Kenya, and South Africa are already individual members of the UPOV.The two prominent regional practices are by the African Intellectual Property Organisation (OAPI) which is a member of the UPOV and the African Regional Intellectual Property Organisation (ARIPO) whose Arusha Protocol is almost identical to the UPOV law.

A tiptoe into the OAPI application of UPOV in Africaas reported by the Association for Plant Breeding for the Benefit of Society[15]revealedthat (Coulibaly & Brac de la Perrière 2019, p24)within its first 10 years of joining the UPOV, OAPI received only 122 applications from seven member states (Mali (54), Cameroon (24), Senegal (11) Burkina Faso (7), Togo (7), Cote d'Ivoire (4) Benin (1)) and two foreign countries (France (14), Germany (1)). The plant variety certificates issued are 177 out of the 122 applications. Only 51 out of the 117 certificates granted are currently in force, the remaining have lapsed due to non-payment of annual fees. The fact that 80% of the PVP certificates in force are held by public institutions shows that the system has yet to attract any significant private and foreign investment in plant breeding in OAPI countries(Coulibaly & Brac de la Perrière 2019, p24). In addition, it is claimed that royalties or licence fees were not generated by public institutions by obtaining PVP, thereby invalidating the argument that the UPOV model would enable public institutions to recoup their investments (Coulibaly & Brac de la Perrière 2019, p24).

It also claimed that many of the varieties protected by the public research institutes within its members were already available in these member-countries and in some cases, even before the introduction of the OAPI PVP system(Coulibaly &Brac de la Perrière 2019, p24).That

while the ITPGRFA recognizes the important role of local and indigenous communities and farmers in the development of plant genetic resources and their right to fair and equitable sharing of the benefits arising from the use of plants and genetic resources, these issues are not addressed by the OAPI PVP system. That the system does not recognize or protect varieties that do not meet the DUS standard, and does not have mechanisms to ensure fair and equitable benefit sharing and to prevent misappropriation of local varieties(Coulibaly & Brac de la Perrière 2019, p28).

The same source(Coulibaly & Brac de la Perrière 2019, p26) states that public and private breeders have continued to develop new varieties but shun PVP protection like in Mali where a participatory breeding project which involved farmers developed three new varieties of sorghum which are not PVP-protected but simply registered in the national catalogue for notification and is left for public exploitation without any restriction.That in the OAPI region, a UPOV-based PVP system does not determine of affect development or introduction of new varieties(Coulibaly & Brac de la Perrière 2019, p27).

The documentconcluded that the system has failed to deliver the promised agricultural transformation in the OAPI region (Coulibaly & Brac de la Perrière 2019, p30). That only seven member states have made use of the system out of its 17 members and which came with significant costs from public funds, and thatthe private sector has not recorded any significant use of the system since its inception. That thereare no results of any significant increase in plant breeding activities or the development of the seed industry across the region and it has led to the mis-appropriation of local and farmer varieties through its adopting a “one size fits all” UPOV 1991 approach to PVP that ignored the socio-economic system and practices prevailing in the OAPI member states.

It was then suggested (Coulibaly & Brac de la Perrière 2019, p30) that for the system to be able to deliver its purported benefits, there has to be immediate or potential market opportunities for new varieties, but such markets don’t exist in the region because the most farmers are unperturbed by developments in the formal seed sector and continue to dwell their traditional practices. That even the OAPI secretariat acknowledged the constraints of the PVP system including the low utilization of the system and non-exploitation of protected plant varieties(Coulibaly & Brac de la Perrière 2019, p30) but are together with UPOV proponents promoting more of the same as a means to remedy the situation, which according to the document is a flawed strategy that is bound to fail.

The document gives an impression of a system imposed on the organisation’s members without proper consultation and reflection. The likelihood that the local agricultural practices of freely sharing agricultural innovation information and which is an economic pillar would gradually disappear and pave way for the big players of plant variety inventions and sales from developed countries to dominate the seed market and prey on the poor farmersmay not have been thoroughly considered. This has huge economic implications.

In the case of ARIPO (dominated by Southern African countries) its Arusha Protocoland the Regulations modelled under the UPOV 1991 constitute a harmonised regional legal framework for the protection of plant breeders’ rights for ARIPO member states who become party to the Protocol.

Another tiptoe into issues around theimplementation of the Arusha Protocol and Regulationsshow that its adoption is not a very popular decision. Itis viewed by the African Center for Biodiversity (African Centre for Biodiversity 2018, p6)as constituting a draconian regional intellectual property legal framework, based on the UPOV 1991 or even stricter than the UPOV which is regarded as a restrictive and inflexible international legal regime, emanating from industrialised countries to protect their interests in large-scale commercial farming and plant breeding.

It is believedto establish (African Centre for Biodiversity 2018, p6)a one-size-fits-all-model for Plant Variety Protection in ARIPO member states which is inherently harmful to local farmers rights,but offering extremely strong protection of plant breeders’ rights. That it provides for very narrow exceptions to breeders’ rights, with regard to the use of farm-saved seed by smallholder and peasant farmers, especially women farmers who are often the custodians of seed, while also undermining age-old farming practices that form the backbone of seed, agricultural, and food systems in the ARIPO region and in conflict with the implementation of Farmers’ Rights as outlined in the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) to which, fourteen of the nineteen ARIPO member states are Parties(African Centre for Biodiversity 2018, p6).

That there is no explicit provision in the Protocol that allows smallholder farmers to freely exchange and sell farm-saved seed of protected varieties, including engaging in local rural trade, a practice that underpins agricultural systems in ARIPO countries(African Centre for Biodiversity 2018, p6). And that even language used in the legal framework hardly reflects the unified position African countries have taken at international fora on genetic resources, access and benefit sharing, indigenous knowledge, and farmers’ rights(African Centre for Biodiversity 2018, p6).

Before the making of the Arusha Protocol, ARIPO was accused by Alliance for Food Sovereignty in Africa (AFSA)[16]forthe continued deliberate exclusion of African civil society and farmer representation from its meetings, ignoring the principles good democratic governance and participation as enshrined in multiple International Treaties and UN Human Rights guidance despitethe promise of ARIPO to engage stakeholders (Alliance for Food Sovereignty in Africa 2017, p1).According to the document, the ARIPO Secretariat is determined to pressurize its members to adopt a draconian law that offers extremely

strong protection of breeders' rights and that threatens Farmers' rights and sustainable agricultural development in the region.

- *African Centre for Biodiversity's Director, Mariam Mayet, observed as follows:*

The Protocol and the draft regulations are not the result of an evidence based and transparent process, but rather the result of a process dominated by foreign entities acting on behalf of the powerful seed industry of developed countries i.e. the International Union for the Protection of New Plant Varieties (UPOV), the European Community Plant Variety Office (CPVO), the United Stated Patent and Trademark Office (USPTO), the World Intellectual Property Organization (WIPO) and the French National Association for Seeds and Seedlings (GNIS).[17]

AFSA and its partners have raised alarms about the Arusha Protocol, and its draft Regulations claiming that they grant extensive breeders' rights with extremely narrow exceptions with regard to the use of farm saved seed by farmers, which would render its members less competitive from the standpoint of agricultural development(Alliance for Food Sovereignty in Africa 2017,p1).

Even though this article advocates for a plant variety protection system for Nigeria, the issues discussed above show discontent so far with the implementation of the UPOV within the two largest IP organisations in in Africa, and it is hardly an invitation for Nigeria to join same or introduce a similar law.

VI. CONCLUDING REMARKS

The justification of granting IPRs on plant varieties has always been controversial on the one hand, and then on the other hand the system of IPR to be adopted to protect plants has been another highly debated issue. But while the controversy continues a country must before establishing or choosing a system of plant variety protection deeplyappraise such a system's gains and demerits, and such a country's internal factors like the level of impact on the traditional farming system, the capacity of innovation and researchin agriculture and biotechnology, the impact of agricultural innovation on the environment, growing population, land utilization, and nutritional needs of its population.

Incentivising innovation is essential for the sustenance of research and development in agriculture and the attainment of food security. It is suggested that the national seed system operating in Nigeria is inadequate in responding to the growing national seed requirements for improved crop output and achieving the goal of food security as it is yet to receive institutional attention with full legislative backing, and it is not intellectual property-based. Therefore, there is a vacuum in Nigeria in terms of a plant variety protection within the intellectual property systemwhich would have to be filled so as to properly incentivise research and innovation in agriculture towardsthe attainment of food security.

While it is true that a plant variety protection system cannot guarantee food security, as it also depends on several other factors like infrastructure, technological base, level of soil conservation and irrigation, it is suggested that a plant variety protection system can have a great impact in the quest towards improving agriculture, making food available, and meeting the nutritional needs of the present and future population. Achieving this would place Nigeria firmly on the path to food security. The time has come for Nigeria to make a decision to adopt a plant variety protection system and no matter how difficult or risky making such a decision is, it is one that has to be made.

While pondering on the creating a plant variety protection system for Nigeria one must also consider the provisions in Convention on Biological Diversity (CBD) and International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) because they impact the implementation of TRIPS. Since Nigeria is a signatory only to the CBD and ITPGRFA, and has not joined the UPOV, the country is presently not under an obligation to create an UPOV-like plant breeder's rights system, and therefore free to create its own special law based on provisions in accordance with the TRIPS Agreement, the CBD, the ITPGRFA, and perhaps even the UPOV.

The establishment of the Agricultural Research Council of Nigeria and themandate it is given is a significant step towards the attainment of food security in Nigeria. It is suggested that the government should pay more attention to the Council's activities and grant it all the necessary support it requires to fulfil its mandate because mere protection of intellectual property without creating same within a country deprives such country of the chance from truly benefiting from the intellectual property system.

Creation and ownership of intellectual property within Nigeria would greatly ease the fears of and reservations about the global intellectual property system harboured by developing countries like Nigeria. With a population estimated at about 200 million and still growing rapidly, Nigeria has too many mouths to feed, and investing in intellectual property ownership in the field of agriculture should be one of Nigeria's top priorities.

Section 1(4) of Nigeria's Patents and Designs Act expressly excludes plants from patentability, therefore it seems the only viable option for Nigeria for protection of plant varieties is to introduce a sui generis regime.

It is suggested that the UPOV sui generis regime does not fit the current agricultural practice and the socio-economic disposition of Nigeria, therefore it should discard the steps made towards joining the UPOV. That Nigeria creates a special sui generis system that would reflect its specific developmental needs similar to that of India, but after and in-depth study of its practice in India in order to learn from its experience.

Even though before demonstrating an intention to join the UPOV there must have been some sought of stakeholder consultations in Nigeria, it is now suggested that before

taking the final decision on joining the UPOV and passing the Plant Variety Protection bill into law, there should be even wider consultation in order to avoid the stiff protests such as was experienced with the Arusha Protocol under ARIPO. Also, because it a very big and risky decision which requires the greatest prudence and caution.

Nigeria should find a sui generis plant variety protection system that balances the interest of local farmers and plant breeders. The country should then provide all the necessary infrastructure and support that would enable the system be a catalyst to the strategic utilization of the global intellectual property system and attainment of food security.

ENDNOTES

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[11]. *Diamond v Chakrabarty* (1980) 447 U.S. 303, 310
[12]. See generally Clancy and Moschini, Supra.
[13]. See also Article 14 UPOV.
[14]. See also International Convention for the Protection of New Varieties of Plants (1968) n 34, Article 15.2.
[15]. APBREBES in conjunction with Association biodiversiteechanges et diffusion d'experiences (BEDE), Third World Network (TWN), Public Eye, The Development Fund – Norway (DF), and Swissaid.
[16]. Alliance for Food and Sovereignty in Africa (AFSA) is a broad alliance of Civil Society actors who are part of the struggle for food sovereignty and agroecology in Africa. It has the major mandate of influencing policies and promoting African solutions for food sovereignty. It presently has a 34-member network active in 50 African countries, which includes African farmers' organizations, fisherfolk, pastoralists, indigenous peoples, women and youth networks, African NGO networks, specialist African NGOs, and consumer movements in Africa. AFSA members represent smallholder farmers, pastoralists, hunter/gatherers, indigenous peoples, faith-based institutions and environmentalists from across Africa.
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