Impact of global food and agriculture laws on Africa's food security

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SUMMARY

This study considers expanding beyond the current collective understanding of research on the impact of global food and agriculture laws on Africa's food security. This paper aims to answer two basic questions: are the current global food and agriculture laws capable of facilitating and supporting the goal of ending hunger in Africa and increasing food security; will the existing global food law promote fair and equitable food production and supply practices to benefit all who need it?

This paper will answer the questions by using a qualitative approach to Africa's experience in dealing with the existing global food and agriculture laws. This will provide insight into understanding the law, the behaviour of society and the outcome of the application of the law in real life. This will enable us to identify the gap in the global food law addressing food security. The qualitative data in the study will help the in-depth explanation, exploration and understanding of the root cause of food insecurity.

This is significant because of the growing tension between population growth and the demand for food which are incompatible, especially in Africa. Currently, Africa's population is estimated to be 1.3 billion people[1] and food production is not sufficient to feed the people. Of the almost 800 million people who are considered to be living with chronic hunger globally, the majority are from Africa.[2]

A contemporary study suggests that the population growth in Africa is expected to double to 2.4 billion by 2050.[3] The question we have to ask

1 *Africa Population* 2019 available at www.worldometers.info/world-population/africa-population/ (accessed 2019-03-29).
2 *World Hunger, Poverty Facts* 2016 available at http://www.worldhunger.org/2015-world-hunger-and-poverty-facts-and-statistics/ (accessed 2016-10-31).
3 *World Population Prospects the* 2015 Revision available at http://www.esu.un.org/unpd/wpp/publications/files/key_findings_wpp_215.pdf (accessed 2016-10-31).

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here is if we cannot feed the current population, how can we feed the ever growing population and what can be done to overcome the deficit?

This paper has sought to expose the primary gaps in the existing global food and agriculture laws, weakness and constrains. It is argued that the primary failing of the current global food and agriculture law in addressing food security should be tackled with great concern. It was found that negotiations on agriculture and food at various international forums should bear partial responsibility for the lack of commitment, consistency and transparency in addressing food security.

In order to resolve the issue, it is argued that appropriate change in the system is needed, to ensure the fair distribution of benefits and burdens in society. The global food and agriculture law should, therefore, be able to provide a clear method to determine the future global food security.

1 Introduction

This paper goes beyond the existing understanding of the global food and agriculture law and examines a holistic and equitable approach to food security. The emerging understanding of the existing global food and agriculture law will be utilised in order to contribute to the most appropriate solutions for the current issues surrounding Africa's food crisis.

In a world where food security is threatened by factors such as a massive increase in urbanisation and climate change, the changes in the community food systems by new trends and globalisation are putting a major strain on food accessibility, availability and sustainability of the most vulnerable communities. The principal failing of the system and the missed opportunity of providing sufficient food in Africa is a tragedy and must be addressed and used to mitigate the current food crisis.

This paper advocate that the right to food does not warrant the distribution of free food to all citizens, rather it advocates the moral duty of governments, institutions and corporations to take sufficient steps to guard and protect the food security of the globe.

This paper analyses the application of global food and agriculture laws and their effect on Africa's food systems. It also looks at the structure of global food and agriculture laws' economic benefit and burden allocation across the social order.

For the purpose of this paper the source of the global food and agriculture laws investigated are: the Food and Agriculture Organisation (FAO) treaty, the Convention on Biological Diversity (CBD), the International Treaty on Plant GRs for Food and Agriculture (ITPGRFA), the Union for the Protection of New Varieties of Plants (UPOV) and the Trade-Related Aspects of Intellectual Property Rights (TRIPS).

2 The ongoing discussion on the global food and agriculture laws

Lord John, the first director general of the FAO in his speech said: *You cannot build peace on an empty stomach*.[4] In support of this argument, there is nothing the hungry man can do as he/she loses rationality to build peace without food. Food is power, it fuels our bodies and our communities, but it has been taken for granted by the world leaders. It is important to take a serious look at the persistence of food insecurity, especially in Africa. The failure of a response to the call for the improvement in the current mode of the 'one-size-fits-all' application of the international food and agriculture law has dire consequences.

Analysts projected that by 2024 a 60% increase in food trade in Africa can be expected.[5] The continuous debate in Africa is centred on how domestic, regional and international agricultural trade can be harmonised to foster an appropriate sustainable framework to address food security.

The solutions so far prescribed were all rooted in the existing policies and norms which left the continent a net importer of food and agricultural products. According to the *African Green Revolution Forum Report* of 2014, Africa's food production capability in comparison to its population growth is not sufficient or sustainable.[6]

Currently the continent spends an estimated US$35 billion annually to import food from other parts of the world, which could be produced locally.[7] The present total value of agriculture in Africa accounts for US$313 billion per year; this could even be tripled if given the enabling environment and the right policies that support agriculture.[8]

The current global food systems have been widely criticised for failing to end hunger. This has most often been attributed to the existing systems that are not consistent and not well informed to respond to the present food insecurity. Poor food policies and norms could further aggravate food insecurity unless changes in the law are pursued.

Food is an essential part of the survival of any society and common to all humanity. It is important to protect and promote the food industries

4 Borlaug *The Green Revolution Peace and Humanity* 1970 available at http://www.nobelprize.org/nobel_prizes/peace/laureates/1970/borlaug-lecture.html (accessed 2015-04-20).

5 Inouye *Turning Point for Agricultural Exports to Sub-Saharan Africa* 2015 available at http://www.fas.usda.gov/data/turning-point-agricultural-exports-sub-saharan-africa (accessed 2016-09-06).

6 Kofi *African Green Revolution Forum Report* 2014 available at http//:www.africaprogresspanel.org/panelmember/kofi-annan/ (accessed 2015-03-10).

7 Kofi 2014.

8 Brooks *Agriculture as a Sector of Opportunity for Young People in Africa* 2013 available at http://www.ypard.net/sites/ypard.net/files/Agriculture%20opportunity%20youth%20africa.pdf (accessed 2017-09-22).

to introduce fair and equitable legal framework to give clear direction resulting respect to the right to food, environment and preserve cultural and traditional farming practices which are more sustainable. Food not only fuels our bodies, but a lack thereof could create social and political instability.

This study supports the view that food security is an international issue. Desperation for food causes migration and global instability. It needs to be addressed with careful consideration of providing moral guidance to the legal framework that affects the right to food for all who are born on this earth and not some.

Food and agriculture organisation treaty (FAO)

The FAO is the primary international intergovernmental organisation dealing with global food and agriculture. The organisation created a global network of gene bank to store and safeguard *ex-situ*, the main varieties of plant genetic resources (GRs) and associated information or Traditional Knowledge (TK) of food for conservation.[9] The gene bank opens to the public. The treaty has no provision for describing the legal status of plant, GRs and information or knowledge kept in the gene bank. In the absence of protection global food corporations often access and patented resources only with minimal systematic gene fixing for exclusive commercial exploitation. This has come to the attention of member states who kept the work of their ordinary farmers' GRs and associated information which has been exploited without their knowledge and excluded them from gaining the benefits. As a consequence of the misappropriation of the GRs and information kept in the gene bank, the exploitation for an exclusive commercial benefit, and to offset the misallocation of rights and benefits, the Convention on Biological Diversity was adopted in 1992.[10] Since then some of the provisions of the FAO treaty have been proposed for revision by concerned member states, but remain unresolved.[11]

The innate gap created by the treaty firstly entails that the interpretation and realisation of the right to food for the global citizen as a paramount right are neglected. Secondly, the provision lacks legal recognition in identifying and protecting the plant, GRs and associated information kept in the bank. As a consequence, the provision strengthens the corporate action to take a free ride accessing other's resources and information or knowledge kept in the gene bank. This creates an imbalance in the distribution of economic benefits and burdens across societies that need to be corrected.

These are some of the weaknesses examined in this paper. The failure to safeguard the resources and information kept in gene banks results in

9 Gillespie *Conservation Biodiversity and International Law* (2011) 522.
10 Lightbourne *Food Security, Biological Diversity and Intellectual Property Rights – Intellectual Property Theory, Culture* (2009)146.
11 Lightbourne 146.

the misappropriation of exclusive commercial exploitation other than that envisaged in the provisions of the treaty. Furthermore, Article 7(10) (a) of the treaty intended multinational networking to benefit the international community as a whole and not to benefit only individuals.[12] Without a stable and strong commitment and change in the treaty, agriculture, especially in Africa, continues to suffer leading food insecurity remaining a vicious cycle for quite some time. It is vital to change the law to a more realistic and appropriate mode to introduce fair and equitable systems to mitigate the existing global food crisis.

2 Convention on biological diversity (CBD) (1992)

The CBD promotes international cooperation to safeguard biodiversity.[13] To balance the misallocation of rights and benefits in agriculture among nations, the CBD inspired an access and benefits law, the Nagoya protocol. This came into effect in 2014 to introduce legal certainty and transparency and to safeguard global biodiversity.[14]

The CBD gives sovereign rights to the states where plant, GRs and associated knowledge is discovered.[15] The provision further provides access to the users and enables the users to share the benefits from the utilisation of plant, GRs and information or knowledge from that specific jurisdiction.[16] Article 15 of the CBD states that both provider and user shall take legislative and administrative measures as appropriate to achieve their fair share from the utilisation of plant, GRs and associated knowledge.[17] The controversy surrounding access and benefit sharing (ABS) is that the right and obligations are hard to enforce once the jurisdiction is transferred to the user. The compliance depends on whether the parties take their international duties seriously, in the absence of clear direction in the provision, to accomplish the duty of compliance in question.

The CBD, in contrast to FAO treaty, focuses on linking access with benefit sharing for the utilisation of plant, GRs and associated information or knowledge for commercial purposes. This approach has been frequently seen by developed countries as divisive and impossible to comply with the requirement of disclosure of origin.[18] Despite the call

12 Chiarolla *Intellectual Property, Agriculture and Global Food Security: the Privatization of Crop Diversity* (2011)124-125.
13 United Nations *Living in Harmony with Nature: Convention Biological Diversity United Nations decade on biodiversity* 2011-2020 available at http://www.cbd.int/2011-2020/ (accessed 2016-10-31).
14 United Nations *About the Nagoya Protocol* available at http://www.cbd.int/abs/ (accessed 2016-06-14).
15 Kamau and Winter *Genetic Resources, Traditional Knowledge & the Law: Solution for Access and Benefit Sharing* (2009)19.
16 Kamau and Winter 19.
17 Kamau and Winter 24.
18 Chiarolla 124-125.

for FAO treaties to be modified and harmonised with the CBD ABS laws remain unchanged.[19]

Although the convention tries to fill the gap in balancing the right of users and providers it still lacks in providing a clear indication in harmonising the sovereign rights and intellectual property rights. The mere positive objectives placed in the convention has no legal power over the users or providers to comply with the provision.

Considering the nature of the plant, GRs and associated knowledge once it has left its jurisdiction, the sovereign state loses control. Although Article 15 (7) prescribed that the user state must share the benefits with the provider state, there is no indication in the provision of how the shared benefit reaches the particular state or what happens when it fails to comply. The benefit sharing should be to balance the economic benefits and burdens across the nations, but it is not certain that countries take their international duty seriously. It is therefore essential to adopt a clear set of rules to prevent further biodiversity loss, misallocation of benefit and increases global food insecurity.

The primary objectives of the CBD as set out in the provision are:[20]

(a) the conservation of biological diversity;

(b) the sustainable use of biological diversity, and

(c) the fair and equitable sharing of the benefits arising from the utilisation of GRs.

The convention left it to the individual countries to implement the convention by introducing their individual implementing procedures and practices without any additional regulatory framework.[21] Furthermore, Article 1 of the convention provides that a country or custodian of the plant and GRs gives access to the user in return for fair and equitable benefit sharing for the utilisation of the GRs and associated knowledge but has no legally binding framework.[22]

3 Nagoya protocol (2010): economic benefit and burden sharing in agriculture

As a consequence, the supplementary legally binding agreement to the CBD was negotiated and adopted in the Nagoya Protocol in 2010.[23] The objective of the protocol is to bring a legally binding framework into the CBD. Once again the protocol focuses on the implementation of ABS

19 Lightbourne 146.
20 United Nations *Living in harmony with nature* 2011-2020.
21 United Nation *Convention on Biological Diversity Chapter 2* available at http://www.cbd.int/gbo1/chap-o2.shtml/ (accessed 2016-10-31).
22 United Nations *Nagoya Protocol on Access and Benefit-Sharing* 2014 available at http://www.cbd.int/abs (accessed 2016-06-14).
23 United Nations *About the Nagoya Protocol*.

agreements but lacks details on how the implementation processes can be enforced. The ambiguity of the legal text in the protocol further creates legal uncertainty. In this regard, the protocol is still evolving and requires a clear, firm and binding legal framework for enforcement.

The other problem involving the protocol is its non-retrospective effect on the cases that had been reported before the protocol was added to the convention. Most reported cases under the CBD are still pending due to lack of the agreements legally created by the system. It is unfair to have the protocol with no retrospective effects on the cases lost in the past. So much wrongdoing was done against the traditional farmers in the past through the misappropriation of the plant, GRs and associated knowledge. These discourage communities growing their local economies. The poor economies resulted in failure to support their farming practices and in the process losing their biodiversity, associated information and cultural traditional practices. This situation should be remedied ensuring fair and balance farming practises across society.

The question to ask is where to start? Does it mean the neglected community or the ordinary farmers have to build up from the ground on their own after the unjust action hampering their progress in the past? Must they endure the burden of providing the modern world with their GRs and associated information flow for free without any fair benefit sharing, leaving these communities with nothing?

The argument in this paper is that the legal framework should apply retrospectively to the legitimate pending cases. The law should consider fairness and undo the wrong. The system should provide moral guidance for the legal process and provide the structure that can result in the distribution of justice by putting the community where they were supposed to be if it were not for the misappropriation, unfair distribution and unfair competition they were subjected to.

The Nagoya protocol was adopted with the objective to offset the misallocation of economic benefits and burdens across nations from the utilisation of plant, GRs and associated knowledge and to respect and protect general interest of humanity in conserving biodiversity to ensure just farming practices which respects and preserve culture and tradition in farming.

The other area identified in this paper is that the convention should have an additional mechanism for global tracking of the use of GRs in patent applications. It also must be able to identify misappropriation of any biological material and associated information or knowledge, which might have been used in various innovation processes and patented to legitimise misappropriation.

The other challenge identified that should be addressed when changing in the law, is that there is little or no scientific study about the nature and extent of the problem in monitoring the movement of the plant, GRs and associated knowledge once they have left their

jurisdiction. The law and sciences should intertwine in this regard and need to be addressed.

The various barriers to safeguarding biodiversity at every level and endangering food security identify the need for a unifying commitment not only from team players, but also individuals that believes interdisciplinary cooperation is vital.

4 International treaty on plant genetic resources for food and agriculture (ITPGRFA) (2001)

The ITPGRFA provides a general framework for the conservation and sustainable use of plant GRs for food and agriculture by creating a commonality.[24] Article 12(3)(f) and (g) of the treaty allows the intellectual protection of biotechnology, but Article 12(3) prohibits the intellectual protection of plant GRs and associated traditional knowledge,[25] subject to the reciprocated benefit to the multinational system.[26] According to the treaty, member states who had received plant and GRs from international gene banks can apply for intellectual property (IP) protection, subject to sharing the benefit tributary or flows to a multilateral system.[27] In other words, it replicates plant and GRs common to the FAO gene bank, except that the treaty promotes benefits derived from the utilisation of plant and GRs to flow to the multilateral system.

The problem is that the treaty allows IP protection to the biotech farmers, but denies it to the traditional farmers. This in itself has the potential to create unfair competition in agricultural trade between traditional and biotech farmers. Even though the farmers' right is mentioned in the treaty, it does not give a clear direction of how farmers, rights should be protected at the multinational level.[28]

The ITPGRFA, on the one hand, is the result of the emerging IP driven agriculture. The CBD, on the other hand, emerged from the sovereign right over resources.[29] The complexity and challenges of the sovereign rights in the CBD and multilateral common rights of the ITPGRFA resulting intellectual protection are not easy to grasp. The international communities supposedly are equally responsible to carry out their duty to support farmers of all nations to continue and progress with their

24 Tansey and Rajotte *The Future Control of Food: a Guide to International Negotiations and Rules on Intellectual Property, Biodiversity and Food Security* (2009)115.
25 Bibber-Klemm and Cottier *Right to Plant Genetic Resources and Traditional Knowledge Basic Issue and Perspectives* (2008) 208.
26 Chiarolla 124.
27 Pisupati *The Ten Question to be Addressed While Developing National ABS Framework19-20* available at http://www.unctad.org/meetings/en/Contribution/ditc-ted-18102016-10-Questions-on-ABS.pdf (accessed 2016-11-01).
28 Bibber-Klemm and Cottier 285-286.
29 Tansey and Rajotte115.

farming and responsible to provide the plant, GRs and associated knowledge. Failing to promote equitable economic benefits and burdens among nations at all levels will aggravate food insecurity and result in greater loss of resources and knowledge to farming. The solutions so far given all are rooted in the same rules and policies that have created the imbalance in the distribution of benefits and burdens in food and agriculture and need to be corrected.

5 The union for the protection of new varieties of plants (UPOV)

In 1961 the UPOV was adopted for the purpose of protecting breeders' rights to plant varieties. The convention has been amended several times. In 1991 the convention was amended to ensure the member states recognised and protected the discovery of new plant varieties by breeders.[30] The UPOV is the primary convention to bring the identical system of IP into agriculture, although it differs with respect to its approach from that of patents.[31]

The eligibility criteria of the UPOV are:[32]

(a) Novel – (not been sold before). This particular criterion only addresses the commercialisation of the plant varieties not sold before. Prior existing plant varieties are problematic.

(b) Distinct – The variety must bear an unquestionable characteristic. This approach seams narrow in its approach considering the plant varieties might vary in various environments and through climate change, but at the same time be similar to others.

(c) Stable – The composition of the new plant varieties must be steady. To this effect farmers' plant varieties also often called landrace include the region of origin. This can't at all times be absolute. The variety could easily adapt its routine to a different environment.

(d) Uniform – The seedlings propagated must have a uniform composition. Plant variety in nature could adapt to a different atmosphere and situation. It is hardly realistic to expect uniform results in all circumstances.

The UPOV is administered by the World Intellectual Property Organisation (WIPO) in providing certain administrative and practical services. However, the UPOV focuses on a *sui generis* form of intellectual property protection enabling plant breeders to provide multinational protection.[33] This is similar to a patent, granting breeders exclusive

30 United Nations *UPOV report on the impact of plant variety protection* available at http://www.upov.int/about/en/pdf/353_upov_report.pdf (accessed 2017-02-21).
31 Bibber-Klemm and Cottier 81.
32 United Nations *UPOV report on the impact of plant variety protection*.
33 United Nations *UPOV report*.

rights to plant varieties deemed newly discovered.[34] Another argument in the UPOV is its opposition to the mandatory disclosure of the origin of plant and GRs utilised in producing the new variety as a condition expressed in the CBD.[35]

In terms of the TRIPS agreements of the WTO provision in Article 27(3)(b) it is detrimental for member states to select an effective *sui generis* system if they choose not to use patent protection for the protection of plant varieties.[36] Although UPOV did not introduce patent within its framework, the 1991 amendment of the convention allows dual protection for both plant breeder's rights under UPOV and patent at the same time.[37] Patent protection differs from the UPOV as it covers genes and the processing of the variety.[38] The convention as it stands does not protect the interests of ordinary farmers, but only that of commercial and industrialised farmers. Currently, 27 African countries including South Africa customise *sui generis* local legal frameworks to local circumstances in avoiding UPOV.[39]

The mix of and complex existing global rules that govern agriculture and food create non-inclusiveness and prevent ordinary farmers from progressing in farming. As a consequence the traditional farmers are dislocated from farming practices and due to the erosion of biodiversity and knowledge, these farmers are lost altogether. The latest FAO report indicates that 75% of crops diversity was lost between 1990 and 2000, and predict that as much as 22% of the wild relatives of important plant and seed for food will disappear by 2050.[40] It is important that changes to laws must be made to help elevate, preserve cultural practices and safeguard biodiversity for food needed for the growing global human population.

6 The agreements on trade-related aspect of intellectual property rights (TRIPS)

The TRIPS agreement seeks to establish an enforceable universal minimum protection for plant varieties. The provision of TRIPS, Article 27(3) (b) in particular, provides protection to plant varieties whether by patent or any other available harmonisation of protection in order to comply with the provisions of the agreement.[41] The provision further

34 Tansey and Rajotte 32.
35 Lightbourne 150.
36 Lesser and Lynch *IP Handbook of Best Practices* (2006) 381.
37 Lesser and Lynch 381.
38 Lightbourne 44-48.
39 Spoor & Fisher *Kenya Accedes to the 1991 Act of the UPOV Convention* 2016-04-14 available at http://www.spoor.com/en/news/kenya-accedes-to-the-1991-act-of-the-upov-convention/ (accessed 2017-02-21).
40 Food & Agriculture Organisation *Crop biodiversity: use it or lose it* available at http://www.fao.org/news/story/en/item/46803/icode/ (accessed 2016-04-23).
41 Venson and Santaniello *Regulation of Agricultural Biotechnology* (2004)110.

confirms the supreme importance of Article 27(3)(b) as paramount,[42] despite countries' choice of interest that could benefit their social need. Contrary to this view, Article 8 of the TRIPS agreement stresses that member states must adopt a mechanism to protect public health and nutrition.[43] These two views are in conflict with each other, where the obligation on the member states is on the one hand to protect plant varieties and on the other hand the provision prescribes to them to adopt a mechanism to protect public health and nutrition. It also recommends that in case of conflict, the supremacy of Article 27(3)(b) will prevail.

Many developing countries view the application of IP to agriculture in its present form as problematic and serving only the interests of advanced agricultural sectors and not that of the vulnerable communities and ordinary farmers.[44] That is why it is argued that the TRIPS agreement, in general, is a bad deal to developing countries.[45] As a consequence developing countries have long been calling for a review of Article 27(3) (b) of the TRIPS agreement.[46] The review of TRIPS not only focused on the procedure but also expanded to the relations with the CBD and the protection of GRs and associated knowledge.[47] The TRIPS agreement negotiation on the review of particularly Article 27(3)(b) is far from over.

Unlike WIPO negotiations on the review of IP protection, the WTO negotiations have a tendency to lead to the political recognition of the validity of some review and demands made by developing countries.[48] The provision is clearly an exception to the rule that permits the patenting of micro-organisms and biological processes but excluded GRs and associated traditional knowledge. This has been seen by developing countries as permission to bio-piracy.[49] The rules that regulate the distribution of economic benefits and burdens of nations concerning agriculture are uneven as it stands now. The 2013 report by World Bank states that, despite the world's impressive economic growth, developing countries' poverty has increased from 21% in 1981 to 59% in 2010.[50]

It is argued that this deterioration in poverty levels was often created by changing farming methods from centuries-old farming practices to

42 Venson and Santaniello 110.
43 Blakeney *Intellectual Property Rights and Food Security* (2009) 87.
44 Venson and Santaniello 110.
45 Khor *Intellectual Property, Competition and Development* available at http://www.wipo.int/edocs/mdocs/mdocs/en/isipd_05/isipd_05_www_103984.pdf (accessed 2016-01-29).
46 Yu "*Intellectual Property and Information Wealth: Issues and Practices in the Digital Age*" 2007 46.
47 Yu 46.
48 Yu 46.
49 *Patents on Life Patently Undermine Food Security* available at *http*//www.sis.org.uk/trips3.php (accessed 2016-01-27).
50 *The Remarkable Decline in Global Poverty and the Major Challenge Remains* available at http://www.worldbank.org/.../remarkable-declines-in-global-poverty-but-major-challenges (accessed 2016-12-09).

bioengineering. Furthermore, the high cost of buying those seeds by ordinary farmers further increased the global poverty level. This unfortunate situation is created by the effect of systems on the ordinary farmers where the lack skills and lack of resources have resulted in them being unable to practice the same farming methods as industrialised farmers.

The law and the economic benefits focused on bioengineering have resulted in ordinary farmers being forced to buy food instead of farming for themselves and their communities. As the population of the majority of the developing countries have been engaged in conventional farming practices, they are now being dislodged from farming to join the unemployed urban populations. According to the World Bank, the demand for food will double by 2020, with the majority of consumers located in Africa.[51] The question we have to ask is what can be done? There is a need to change the law to be just and inclusive ensuring sustainable farming practice.

The concern about the failure to protect and promote GRs and associated knowledge rightfully raises fundamental questions about the moral and ethical justification of the law, which has personalised itself and aims to protect and promote industries and neglect ordinary farmers.

The appropriate starting point for developing countries to devise a new approach and alternative proposal, which can promote the transformation of GRs and associated knowledge into industrial to gain equitable protection must be identified. Furthermore, the lack of investment in IP has so far restricted the developing countries in terms of their global economic participation and they bear the burden of providing GRs and associated knowledge. Africa needs skills to assist in IP negotiation and ways to find alternative strategies to protect GRs and associated knowledge.

This may help to avoid over-exploitation and further degradation of the plant, GRs and associated knowledge and may support the local economy and mitigate food insecurity. In this way, distributive justice could be achieved by providing moral guidance for the political process between developed and developing countries and structures the legal framework appropriately to influence the creation of an inclusive legal system.

51 Brenton et al *Africa Can Help Feed Africa: Removing Barriers to Regional Trade in Food Staple* available at http://www.siteresources.worldbank.org/INTAFRICA/.../Africa-can-feed-Africa- report.pdf (accessed 2016-09-12).

6 Critical approach to patent application and its economic implication on agriculture

There is a greater challenge in today's agriculture than has ever been faced in its 13 000 years of history.[52] As the general rule, the existing patent law criteria are novelty, non-obviousness and usefulness. However, it is argued that the application of patent criteria on agriculture is not satisfactory or appropriate.[53] The dispute raised by ordinary farmers about the authenticity of bioengineering is the challenge to proof its prior existence considering the complex processes that are seen as too costly, sophisticated and time consuming for them.[54] As a consequence, the ordinary farmers have lost the economic benefit of their own inventions due to their inability to claim or seek protection under the existing system. Thus it is very likely true that the application of patent law to agriculture has a negative incentive for small-scale farmers who are the principal providers of food to local communities. The result is that food insecurity persists in these communities.

The question is not whether bioengineering increases agricultural production, but whether the moral guidance of the application of the patent law and the structure of the legal framework are designed appropriately. The challenge lies in the understanding of the legitimacy of bioengineering and the distribution of economic benefits and burdens across society.

In addressing food security, the increased food production alone does not guarantee accessibility of food due to the systematic genetic fixing. The available food in the marketplace often is not accessible to the low-income population. This leads to the ethical question of what is in the best interest of countries with a high deficit in food production. Is it continuing granting patents on food? It is argued that the existing patent law application on agriculture is more focused on trade and monopoly and unfavourable for countries with high shortages of food.[55]

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52 Stapleton *Protecting Crop and Feed diversity Enhances Food Security While Reducing Green House Gases* (2016-04-14). Reported that the Executive director of the global crop diversity trust Marie Haga speaking at a high-level seminar held, at Addis Ababa state… if food security were easy, we would have it by now. The complexities are all well understood and it is clear that crop diversity is prerequisite for a sustainable food system. Crop diversity can be conserved and shared among the world community, but it needs global leadership and strong partnership available at https://news.ilri.org/2016/03/01/protecting-crop-and-feed-diversity-enhances-food-security-while-reducing-greenhouse-gases/ (accessed 2016-06-14).

53 Rimmer *Intellectual Property and Biotechnology: Biological Inventions* (2007) 50.

54 Rimmer 50.

55 Oddi *The International Patent System and Third World Development: Reality or Myth* 1987 Duke Law Journal vol 36 no 5 832 available at http://www.scholarship.law.duke.eduke.edu > … > journals > DLJ > vol. 36 > No. 5 (1987) (accessed 2016-06-03).

The increasing imbalanced application of patent law in agricultural industries aggravates the situation of small-scale farmers preventing them from progressing from the use of agricultural innovation to address local food security. According to the executive summary of the 2013 report the world five largest IP offices, by the end of 2012, there were 8.5 million patents filed and 90% of them are put into effect globally.[56] Currently, 90% of the genetically modified food products that can be found in grocery retailer stores are owned by eight (8) companies from the developed world, such as Kraft (USA), Nestle (Switzerland), Coca-Cola (USA), PepsiCo (UK), Kellogg's (USA), Mars (UK), General Mills (USA) and Unilever (Dutch-UK).[57] This creates monopolies in certain jurisdiction than other and increases unfair competition.

It is very important to identify the economic cost and benefit of patent applications by examining the impact it has on innovation at every level of society. However, in practice, there is certainly no equalising evidence that patent law benefits society in particular.[58] This does not suggest that we should scrap the patent law application in agriculture, but rather suggests that the system should be changed appropriately to result in the distribution of economic benefits and burdens morally and to constitute fairness.

This paper did not attempt to precisely measure the full social benefits and burdens of patent law in agriculture. It was rather to provoke further discussion on the subject based on available studies to contribute to the possibility of restructuring the existing patent law application in agriculture and to offset the misallocation of resources and rights.

It would be fair to say that unfair exclusion created by the existing patent law applications in agriculture in economic terms has led to lower outputs and less competition in society, which in the process dislodged millions from farming and aggravated food insecurity. Future hopes for more innovation, especially in the traditional communities through cumulative knowledge in agriculture, will be eroded. This results in resources being concentrated in a few hands, with the majority of vulnerable ordinary farmers and their communities still unable to put food on their tables unless changes in the law are pursued.

56 Five IP Offices *Statistics Report – Five Intellectual Property Offices* 2013 available at http://www.fiveipoffices.org/statictics/statisticsreport/2013 edition/ip5sr2013corr.pdf (accessed-07-04-2016).

57 Wilton *The 8 Companies that Stock 90% of Grocery Foods-All Use Genetically Ingredient* available at http://www.twitter.com/i_am_jessicah/status/64542 4616672923648 (accessed 2017-08-23).

58 Bessen and Meurer *The Cost and Benefit of the Patent to Innovators* 2008 4 available at http://www.patentlyo.com/patent/2008/03/the-costs-and-b.html (accessed 2017-03-12).

7 Agricultural trade battle in the world trade organisation (WTO)

The agricultural trade battle in the WTO began in Doha in 2001. This negotiation was supposed to be completed by January 2005 but has since been extended indefinitely.[59] In practice, the developing countries have little or no major influence in the decision-making process in the agricultural trade battle in the WTO and their fate is often determined by the deals brokered between the developed worlds.[60] Mostly, delegates from the developing countries come to international negotiations without a clear mandate from their local government and without particular expertise. They, therefore, failed to negotiate to their advantage.[61]

The battle for agricultural trade in the international forum between the developing and developed world remains unresolved.[62] The developing countries' concern is solely to support and protect their farming community in the multilateral system, but they have failed.[63]

In 2013, the first time in almost 20 years, the battle of agricultural trade at the WTO reached an agreement on certain ideas; however, failed on the challenge of food security.[64] Developing countries had long expressed their displeasure, particularly with the application of patent law in agriculture and the lack of preferential arrangements in the translation of works to verify novelty.[65] In cases, they claimed bioengineering was derived from the substantial work of the existing plant, GRs and associated traditional knowledge and patented. The law certainly failed to establish where and to what extent the patentee disclosed the origin of the knowledge and resources.[66] The burden of proving the prior existence of the knowledge and resources by the complainant, which process requires resources, time and scientific skills, is something of which most developing countries are not capable of.[67] The battle is yet to be resolved and negotiations are still on hold.

59 Clapp *WTO Agriculture Trade Battles and Food Aid: Third World Quarterly* 2005 vol 25 No 8 1452/2004.
60 Blakeney 2.
61 *Developing Countries in GATT/WTO Negotiations* available at http://www.odi.org/resources/doc/4738.pdf (accessed 2016-07-05).
62 Donna *The Business of Global Food Security 2014 2* available at http://www.ft.com/reports/global-food-security (accessed 2016-03-15).
63 *Hunger Facts* 2017 available at http://www.wfp.org/share-a-hunger-fact (accessed 2017-08- 23).
64 Donna 1.
65 Tansey and Rajotte 50.
66 Tansey and Rajotte 149.
67 Tansey and Rajotte 149.

8 Conclusion and Findings

This paper investigated and evaluated the existing global food law in addressing food insecurity, particularly in respect of weaknesses and constraints on its significance to countries with a high shortage of food production such as Africa. In doing so, change in the global food laws including the application of IP law in agriculture has been pursued.

A particular restricted approach to answering the research questions:

8 1 Are the current global food and agriculture laws capable facilitating and supporting the goal of ending hunger in Africa and increasing food security?

Although food insecurity is a complex issue and has one too many faces, achieving food security must not be considered as impossible. It is argued that protecting the erosion of biodiversity and associated traditional know-how through effective rules and regulations is a prerequisite to having sustainable global food system in ensuring just farming practice.

It is apparent that the existing global food laws have failed to adequately protect and recognise the right to food, respect and preserve culture and tradition in farming. Currently, there are no existing disclosure provisions that could capture all the existing concern about the plant, GRs and associated TK relevant to patented inventions. As a result, traditional communities suffer the most.

8 2 Will the existing global food law promote fair and equitable food production and supply practices to benefit all who need it?

For a number of years, countries have been proposing the introduction of fair and equitable application and interpretations of international laws beyond countries' political and economic positions. However, this proposal seems to lack an in-depth assessment of the extent of harm aggravated by the system with regard to the critical area of present and future global food security. The current global food systems create gaps in promoting fair and equitable practice in the production and distribution of food across society.

In stressing the positive look toward the future food security the current global food system need to change which is more sustainable ensuring just farming practices, preserve culture and tradition in the production and distribution of food. There is a need to create international legal certainty, provide clear direction and participation of the affected communities in the restructuring of an appropriate global legal framework.

The aim of this study is to expand the collective understanding of research on global food systems including IP law, to examine a holistic and inclusive approach in restructuring the proposed laws governing food and agriculture. This is significant because the increasing pressure on the current food system especially in Africa to ensure adequate food supply for the ever-growing population is huge. Often the effect of the global food law on food security has been overlooked but has had a clear detrimental effect.

During this study, a number of sources on global food laws were consulted and discussed in the context of complex political, economic and historical backgrounds. However, this study focused on the non-inclusive formulation of the laws governing food and agriculture to place it in context.

The study also addresses the importance of the main disciplines to be taken into account in restructuring the law namely agriculture, trade and the law. The three disciplines are intertwined. Agriculture without economics can't sustain itself and therefore fair and equitable trade in agriculture are compulsory to improve agricultural productivity to mitigate food insecurity. Without an appropriate and inclusive legal framework, there will also be no expectation of justice. Therefore, change in the existing laws governing food and agriculture may lead to a fairer result for future food security. It is argued that the law should represent the right of ordinary farmers in building a sustainable food system. It is in the interest of the wider community forming appropriate legal reform in agriculture to guard future food security.

The lack of improvement of the system in the near future, as suggested, would cause an unnecessary delay in solving the long-standing social ills and would therefore further aggravate food insecurity. For this reason, the study recommends that a solution is carefully sought in an inclusive and balanced legal framework resulting in the distribution of economic benefits and burdens fairly across the member of society. The principle of distributive of justice is therefore seen as providing moral guidance for the restructuring of the legal framework. This could result in more sustainable farming practices ensuring food security and preserving culture and tradition.