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ASSESSMENT ON THE STATUS, CHALLENGES AND PROSPECTS OF AGRICULTURAL TECHNOLOGIES INTELLECTUAL PROPERTY PROTECTION IN ETHIOPIA

Nahom M. Kebede*

ABSTRACT

Intellectual property right (IPR) is a broad term which describes the protections granted to the creators of IP, and includes; trademarks, copy right, patents, industrial designs, plant breeder's right and in some jurisdictions trade secrets. The objective of this review is to show the status, challenges, and opportunities for agricultural technologies intellectual protection in the Ethiopian intellectual property regime. There are many agricultural technologies that have the potential to be protected by intellectual property. The results of this review article shows that there are several challenges for the protection of agricultural technologies IPR, including lack of awareness on the concept of IP, lack of clear policy direction for the protection of plant varieties, absence of IP assets creation mechanism, low level of institutional linkage among stakeholders, agricultural IPRs are complex in nature, poor organizational structure to register, and lack of experienced and well-qualified IP officials. But there are also prospects for agricultural technologies IPR protection. Some legal frameworks are in the process of revision, an independent authority for the agriculture sector has established, the Ministry of Agriculture has prepared the draft regulation for PBRs proclamation, amendment of the agricultural and rural development policy has in the

process, and the country's WTO accession process shows some improvement. In conclusion, the status of IP protection for agricultural technologies has not been well-developed and the registration of agricultural technologies is still null.

Keywords: IP, Intellectual Property Right (IPR), Agricultural technology, EIPA, Plant breeder's right, WIPO.

1. INTRODUCTION

The agricultural sector is the backbone of the Ethiopian economy. The sector has contributed for 75% of the labour force, 40% of the GDP and 80% of the export.¹ The agriculture sector in which majority of the population depends its livelihood, to sustainably contribute its leading role in the national economy, agricultural research has tremendous advantages.² The agricultural research would generate alternative agricultural technologies of crop varieties, animal breeds, agricultural machineries, discovered bacteria's and microbial, agricultural knowledge and techniques.

To generate efficient and effective agricultural technology and knowledge, establishing and enforcing an encouraging institutional research and innovation policies are vital and strong technology and innovation management mechanisms should be in

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¹ USAID, 'Agriculture and food security', < https://www.usaid.gov/ethiopia/agri culture-and-food-security > accessed 22 December 2022

² Bechere, Efrem, 'Agricultural Research and Development in Ethiopia' <International Conference on African Development Archives> (2007)

place.³ Hence, technology creators should be incentivized for their intellectual out puts. Owing to these, Ethiopia adopted and enacted different intellectual property (IP) laws, like the invention, minor invention and industrial design proclamation, the trademark proclamation, the copyright and neighbouring right proclamation, and the plant breeder's right proclamation are the major, which are directly or indirectly protect agricultural technologies and knowledge.

Intellectual properties are of different types and many aspects. It stands for groupings of rights which individually constitute distinct rights.⁴ However, its conception differs from time to time. It is also subject to various influences. The change in information technology, market reality (globalization) and generality have affected the contents of intellectual property.⁵

The Ethiopian IP laws and the *sue generis* system gives protection for inventions and creative works through patents, utility models, industrial design, trademarks and copyrights and plant breeders rights. These IPR protection mechanisms are essentially established to perform two major functions namely to create incentives for innovative behaviour and to help the diffusion of knowledge.⁶

³ UNCTAD, 'Ethiopia Science, Technology and Innovation Policy' (Review Paper, 2020)

⁴ abyssinialaw 'Concept, Scope and Nature of Intellectual Property Rights' (Abyssinia law, 11 November 2022) https://www.abyssinialaw.com/study-on-line/388-intellectual-property-law/7338-concept-scope-and-nature-of-intellectual-property-rights accessed 22 December 2022

⁵ Diwakar Education Hub, 'UGC net law unit-9 intellectual property rights and information technology law (Diwakar Education Hub, chapter 9 2022)

⁶ WIPO, "The Economics of Intellectual Property", https://www.wipo.int/edocs/pubdocs/en/wipo_pub_944_2011-chapter2.pdf> accessed 23 September 2023

To achieve such functions, countries have enacted laws for the protection of intellectual property rights. These laws have two main objectives; the first objective is to give statutory expression to the moral and economic rights of creators in their creations and such rights of the public in access to those creations, and the second objective is to promote, as a deliberate act of government policy, creativity and the dissemination and application of its results and to encourage fair trading which would contribute to economic and social development.

Based on these conceptions, the Ethiopian legal system recognized the protection of intellectual property rights at constitutional level, article 40 sub article 2 of the FDRE constitution⁷, which stated that any tangible or intangible product which has value and is produced by the labour, creativity, enterprise or capital of an individual citizen or associations are considered as private property. So, according to this constitutional provision intangible property includes the intellectual property rights of the innovators or creators. Based on this constitutional protection, different laws were enacted by the government. Some of these laws are the plant breeder's right law, the invention, minor invention and industrial designs law, the collective trademark law, the copyright law. Other regulations were also enacted by the government to incorporate provisions for the protection of agricultural innovations (technologies and knowledge). An agricultural innovation includes agricultural technologies and knowledges, article 2 sub article 4 and sub article 5 of proclamation number 527/2022.8 However, the protection mechanism for these technologies and knowledge are decided based on the type of the innovation.

⁷ The Federal Democratic Republic of Ethiopia constitution 1995

⁸ The Ethiopian Institute of Agricultural Research Establishment Council of Ministers' regulation 527

One of the major areas of protection for agricultural inventions is the patent system. However, there are two conflicting views on the protection (patentability) of agricultural inventions especially on living things. Traditionally, in most legal systems, plants were excluded from national and international IPR regimes.9 IPRs in plant varieties and other life forms and processes generally have evoked opposition from diverse groups for socio-economic, ethical, and environmental reasons. There had been deep-rooted social antipathy towards the consolidation of commercial interest in food production.¹⁰ On the other side, patent on plants was described by some as a design that will "reduce rural population to beggars".¹¹ Lack of IPRs in agriculture has hampered the development of the seed industry and agricultural business generally.¹² The pressure from interest groups eventually led to the development of a special form of legal protection different from patent that somehow reflected a compromise between monopoly concerns related to IPRs in agriculture and interest of the private sector in the seed industry. At international level, this was first achieved within the context of the 1961 international union for the protection of new varieties of plants, known by its French acronym, International Union for the Protection of New Varieties of Plants (UPOV).¹³

Generally, there is an established legal regime for the protection of intellectual property rights in Ethiopia. The country is also a

⁹ Gizachew Silesh, 'The Ethiopian Legal Regime on Plant Variety Protection: Assessments of Its Compatibility with TRIPS Agreement, Implications and the Way Forward' (2010)

¹⁰ Michael Blakeney, 'Trends in intellectual property rights relating to genetic resources for food and agriculture' (2011)

¹¹ Vaver David, 'the challenges for Intellectual Property law', paper presented at an international discussion group meeting (Chatham House 2009)

¹² Filatova, Elena A., 'Intellectual Property Rights in the Seed Industry: Barriers to Sustainable Agriculture' (2021)

¹³ Rolf Jördens, 'Progress of plant variety protection based on the International Convention for the Protection of New Varieties of Plants (UPOV Convention)' (2005)

member of the World Intellectual Property Organization (WIPO), the 1992 Convention on Biodiversity (CBD), Cartagena protocol and Nagoya protocol.¹⁴ Having all these national and international laws on IP regime, there are lots of constraints or challenges to effectively protect agricultural technologies. Some of the major challenges are lack of awareness on IP, the complex process to acquire IPR, enforcement challenges, legal constraints, and poor institutional linkage. On the other hand, there are also opportunities to establish strong IPR system for agricultural technologies.

The basic objective of this study is to examine with the status, challenges, and prospects for IPR protection of agricultural technologies in Ethiopia. This review paper will support the country to develop inclusive agricultural technologies protection laws and policies in consideration of the innovation potential of the country; recommendation for policy makers will be produced for policy makers to enact coherent laws for the protection of Agricultural technologies; and to initiate researchers for further research works on the area.

2. METHODOLOGY

The researcher has employed a doctrinal research approach. Different literature, laws and policies were reviewed to develop conceptual framework on the subject matter. The researcher has also collected primary data through an interview from Ethiopian Institute of Agricultural Research (EIAR), Ethiopian Intellectual Property Authority (EIPA), Ethiopian Agricultural Authority (EAA) and Ministry of Agriculture (MoA). The interview results were used to analyse the status, challenges, and prospects of IP in the agriculture sector.

¹⁴ CBD 1992

3. DISCUSSIONS ON THE CURRENT LEGAL REGIMES OF ETHIOPIA

Most innovations in the agricultural sector are "process innovations" that relate to production techniques (e.g., adoption of improved seeds, irrigation and waste management technologies, and the development by farmers of practices adapted to their situation)¹⁵. But there are also inventions called "product innovations" which include improved crop varieties, animal breeds, agricultural machineries, irrigation systems, buildings, and food with new functional attributes.

IP law aims at safeguarding creators and other producers of intellectual goods and services by granting them certain time limited rights to control the use of those productions.¹⁶ These rights do not apply to the physical object in which the creation may be embodied but instead to the intellectual creation as such. Intellectual property (IP) is protected by giving the creator of a work or an inventor who has an exclusive right owner to commercially exploit its creation or invention for a limited period. These rights can also be sold, licensed, or otherwise disposed of by the rightsholder.

In the Ethiopian legal system, Article 40 (2) of the FDRE Constitution recognizes that every Ethiopian citizen has the right to ownership of private property with certain restrictions.¹⁷ It defines private property as any tangible or intangible product which has value and is produced by the labour, creativity,

¹⁵ OECD, 'Agricultural innovation system: A framework for analyzing the role of the government' (2013)

¹⁶ Vaver David, 'the challenges for Intellectual Property law', paper presented at an international discussion group meeting' (Chatham House 2009)

¹⁷ The Federal Democratic Republic of Ethiopia constitution 1995

enterprise or capital of an individual citizen, associations which enjoy juridical personality under the law. Thus, the constitution declares protection for every property whether it is tangible or intangible. That means protection is afforded equally for intellectual property rights as any other property since they are intangible products.

Allocating IPRs to the creator of a work balances the private interests of the creator, by ensuring that she/he still has an incentive to create, against those of the society at large in having the information available for it.¹⁸ The fear of losing exclusive rights to the information once shared is real because another person can use the same idea without having recourse to the originator of the idea.

The implementation of an IPR system requires a clear legal framework on these rights; a supportive infrastructure for the implementation of the laws and policies which includes trained personnel and office resources necessary to get the framework.¹⁹ The most critical test for an IP regime is the extent to which it promotes creation of new knowledge for national development.

Under the inventions, minor inventions and industrial designs proclamation No. 123/1995, there are four forms of protection for inventions. These are patents, patents of introduction, utility model certificates and certificates of industrial designs. According to this proclamation to grant a patent, an invention must fulfil three conditions. These are the invention must be new, it should be capable of industrial application, and it must be non-obvious.²⁰ But, if the invention loses to fulfil one or more criteria's of patent it can be protected by Patents of introduction or utility model

¹⁸ Kameri-Mbote Patricia, 'Intellectual Property Protection in Africa' (2005)

¹⁹ Maredia, Mywish K, 'Application of Intellectual Property Rights in Developing Countries' (WIPO 2001)

²⁰ Federal democratic republic of Ethiopia, Inventions, minor inventions and industrial designs proclamation 1995

certificate. Patent of introduction will award for an invention which fulfils the criteria of a patent granted abroad, the patent period has not expired, the patent has not been registered in Ethiopia. On the other hand, utility model certificate was awarded for an invention which is new in Ethiopia and industrially applicable.

To implement this proclamation, regulation No.12/1997²¹ was issued with the objective to create favourable conditions to encourage local inventive and related activities thereby building up national technological capability; and to encourage the transfer and adoption of foreign technology by creating conducive environment to assist the national development efforts of the country. As per these laws, some agricultural inventions, particularly agricultural machineries and microbials have been granted protection.

Regarding the protection of plant varieties, the authority to register the varieties and to grant the ownership right was given to the Ministry of Agriculture (MoA) but now according to proclamation number 1263/2021 this power has been transferred to the Ethiopian Agriculture Authority (EAA).²² The right on plant varieties has been given to the plant breeder through proclamation no. 1068/2017.²³

Plant breeders to acquire a right on the new plant variety, the new variety shall fulfil the following four criteria: newness, distinctiveness, uniformity, and stability. A plant breeder's right entitles the holder an exclusive right to; sell, license, and produce,

²¹ Federal democratic republic of Ethiopia, Inventions, minor inventions and industrial designs regulation 1997

²² Federal Democratic Republic of Ethiopia, Definition of Powers, and Duties of the Executive Organs Proclamation 2021

²³ Federal Democratic Republic of Ethiopia, Plant Breeders Right Proclamation number 2017

the plant or propagating material of the protected variety. Notwithstanding the existence of a plant breeder's right, any person or farmers' community may propagate, grow, use, sell the protected variety. However, farmers cannot sell farm-saved seed or propagating material of a protected variety in the seed industry at a commercial scale. The restriction of farmers to sell the protected variety or propagating material has implications. The first implication is if farmers are restricted from selling farm saved seed at a commercial scale the owner of the variety has got protection from market competition. Even though the absence of market competition has its own effect, but it encourages the owner to invest on further innovation and generate another plant variety will be produced. The second implication is that if farmers are restricted from selling farm saved seed at commercial scale, the qualities of seed avail at the market by the variety owner is not compromised. If farmers are allowed to sell farm saved seed at large scale the quality of the seed available at the market may be compromised due to several associated reasons. The plant variety right (PVR) shall be granted for a period of 20 years in the case of annual crops, and 25 years in the case of trees, vines, and other perennial trees from the date the successful application.

After detailed evaluation of the four criteria's stated above, the EAA shall grant a plant breeders' right for the applicant after evaluating the following procedural requirements; if there is no ground of refusal to grant the right exists, the breeder has a proof that he/she has obtained the genetic resource used in accordance with the relevant laws, the right has not been granted to another person in respect of the variety, there has been no withdrawn or rejected earlier application, and all required fees are paid. ²⁴

²⁴ Federal democratic republic of Ethiopia, Plant Breeders Right Proclamation number 2017

Even though the proclamation and other implementation directives were enacted by the ministry, due to the non-operationalization of the EAA organizational structure there is no PVR granted to any breeder. However, the ministry of agriculture has established a varieties registry and release procedure. This variety registry has not similar effect with the plant breeder's right. The variety registry system shows the maintainer of that particular variety, and the examination process is very shallow compared with the plant breeder's right.²⁵

4. THE STATUS OF INTELLECTUAL PROPERTY PROTECTION IN AGRICULTURE

Agricultural technology is among the most revolutionary and impactful areas of modern technology, derived from the fundamental need for food and for feeding an ever-growing population. Agriculture-related innovations enjoy a somewhat special and rather complicated set of IPRs, the effects of which have been mostly ignored, until recently.²⁶

Innovation in the agricultural sector involves the development of healthier, safer, and more nutritious food for human and animal consumption, new breeding techniques, and fuel for industrial use. Innovation is the main driver of productivity growth in the agricultural field. Plant variety rights, patents, trademarks, geographical indications, and copyrights can also create value in agricultural innovation. Nonetheless, concerns have been raised regarding the large number of IP rights over agricultural inventions concerning genetic resources and traditional

²⁵ Federal Democratic Republic of Ethiopia Ministry of Agriculture: Variety registry book (2020)

²⁶ Moschini Gian Carlo, 'Intellectual Property Rights and World Trade Organization: Retrospect and prospect' (2004)

knowledge, and regarding the proliferation of terminator technologies and the rise of litigation costs.²⁷

Over the past few decades, agricultural innovation has increased significantly hence IP protection has been increasingly raised. This also contributes for the production growth of agriculture in low-income countries like Ethiopia.²⁸

The strengthening of IP protection in recent decades has been associated with an increase in private sector investment in agriculture-related research and development, and a surge in innovation leading to improved plant varieties, agricultural chemicals, and production technologies.²⁹

Intellectual property rights, particularly patents, have also made possible the growing investment in plant genomics research. Scientists are using advanced genomics as a means of identifying, mapping, and understanding the expression of crop genes, and their link to agriculturally important traits.³⁰

The spread of IP protection over such innovations has meant that germplasm is often covered by many IP rights, including key process technologies required to bring about genetic transformations embodied in the seeds. In this sense, financing and managing access to the necessary inputs and processes can become challenging, especially for smaller firms.

²⁷ Díaz, Carolina, 'Intellectual Property Rights and Biological Resources: An Overview of Key Issues and Current Debate' <Wuppertal Papers, No. 151, Wuppertal Institut für Klima, Umwelt, Energie, Wuppertal, https://nbn-resolving.de/urn:nbn:de:101:1-20091 0062169> (2005)

²⁸ Mercedes Campi, 'The Effect of Intellectual Property Rights on Agricultural Productivity'

²⁹ Federal democratic republic of Ethiopia 'Agricultural policy monitoring and evaluation' (2012)

³⁰ < https://doi.org/10.1016/j.pbi.2019.12.004>

According to the information gathered from the EIPA, until 2021 in all fields including agriculture, a small number of inventions are registered as patent, utility model and patent of introduction. A total of 8,142 applications were submitted for registration to EIPA, and of these applications 2,287, which means 28.1 % were get certificate of ownership. These numbers shows that the culture of IPR registration in Ethiopia is very low.

According to fig. 1 below, 3905 (48 %) of the local inventions applied for registration are utility models and from these number 1024 (45%) are granted IP ownerships for utility models (minor inventions). Therefore, witnessed that majority of the inventions generated in Ethiopia are minor inventions. The number of patent applications and grants are very small, and this means that the level of inventions produced in the country did not satisfy the requirements of patent examination for granting. Therefore, laws and policies enacted by the country on IP should consider the promotion and protection of minor inventions, in which majority of the inventions in the country are minor inventions. When we see the detail lists of the EIPA database, majority of the registered utility models are related with agricultural machineries of preharvest, harvest, and post-harvest.

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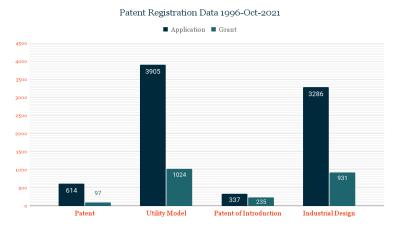
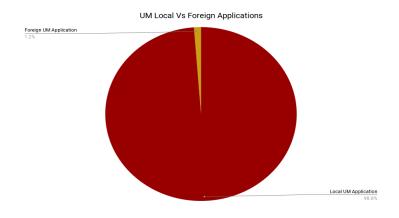
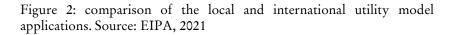


Figure 1: patents, utility models, patent of introduction and industrial design applied to and certified by EIPA (Source: EIPA documentation data, 2021)





According to fig. 3 below, from the registered IP, the private sectors contribution is comparatively higher than the contributions of the public institutions (universities and research institution). The low number of public institutions registered IP has two implications. The first implication is that public research institutions are not generating new technologies that fulfil the requirements for the registration of IP. The other implication is that public research institutions even they generate proven inventions they did not give due attention to register IP. Therefore, public research institutions should give proper attention for the registration of their inventions and also, they should have their own institutional IP policy that promotes institutional inventions and innovations.

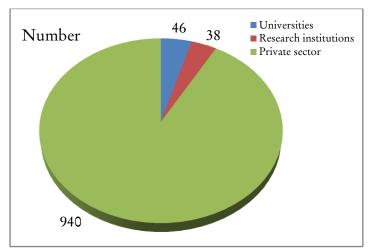


Figure 3: The contribution of the public institutions in IPR registration. Source: EIPA, 2021

Until 2020, from 141 crops about 1413 crop varieties were registered under MoA plant varieties release, protection, and seed quality control directorate.³¹ This registration is not like a plant breeder's right registration. The MoA has registered improved varieties developed by public and private agricultural research institutions to certify its maintainer right and to claim responsibility from the maintainer. However, there is not any right granted for plant breeders until this time.

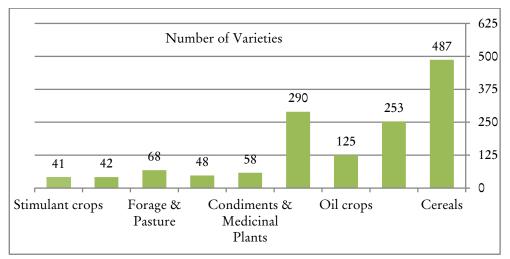


Figure 4: Crops and released varieties registered by National Varieties Registration Committee (NVRC) until 2020 Source: MoA crop variety registers issue No. 23, June 2020

³¹ Federal democratic republic of Ethiopia Ministry of Agricultur, 'Variety registry book, plant varieties release, protection and seed quality control directorate' (Federal democratic republic of Ethiopia Ministry of Agriculture, 2020)

5. THE CHALLENGES OF AGRICULTURAL TECHNOLOGIES IPR PROTECTION IN ETHIOPIA

Even though there are laws concerning agricultural technology protection, the level of agricultural technologies protection is very low. For these low levels of technology protection, several challenges and constraints were raised by different actors during an interview conducted at agricultural research institutions including the EIAR, EIPA and EAA. Some of the major challenges and constraints raised by respondents at these institutions.

IP protection in general and agricultural technologies protection in particular are recent concepts for Ethiopia. Due to its short history, it faces challenges of refusal from fear of unknown. Researchers working at public research institutions have no appetite to register their innovation to claim IPR. This unwillingness was come from lack of awareness on IP and associated benefits. Researchers and innovators considered IP document preparation to claim IPR are not familiar and the IP examination process to get the right is not supportive.

Low awareness level on the concept of intellectual property, due to this low level of awareness the community didn't give credit for IPR. IP owners are facing difficulty to commercialize or utilize their IPR. Lack of clear policy direction for the protection of plant varieties, which is the very fundamental challenge facing this sector. The purpose of legal protection is to encourage those who may wish to create, finance, or exploit new plant varieties. However, the existing environment is not attractive for inventor or breeders. There is not any encouragement mechanism designed by law to promote breeders to bred high potential plant varieties.

Low levels of IP assets creation mechanism, IP assets have economic value because of their ability to enhance the value and financial return from technologies, products, and services. Until this time there is not any institution that make IP valuation so that when IP owners demand to utilize for instance when they request loan through IP collateral, financial institutions are not willing to provide the loan and very few of the financial institutions willing to provide the loan they valuate the collateral IP with minimum amount of money.

Weak institutional linkage to provide IP protection for agricultural technologies is the other challenge. In Ethiopia the institutions that have the responsibility to grant right for IP are the EIPA and the EAA. But these two institutions are not working collaboratively. Due to this, inventors/ researchers are facing challenges to claim their IP, the EIPA forwards the application to the EAA and the applicant goes to the EAA they are not ready to register.

Poor organizational structure to register the technologies generated. The plant breeders right proclamation was enacted in the 2018 whereas until this day the EAA, which is the authority responsible to register the plant breeder's right didn't start the registration. This is due to poor organization structure and absence of accountability. Lack of experienced and well-qualified officials and experts for agricultural technologies administration. Regarding the registration, examination and granting of plant breeders right, the EAA has no experience. As a result, it faced a difficulty to start the registration of the plant breeder's right.

6. PROSPECTS OF AGRICULTURAL TECHNOLOGIES IPR PROTECTION IN ETHIOPIA

Though there are several challenges for the intellectual property right protection of agricultural technologies, the starting works on the legal revision and the institutional arrangements are promising in the future the problems will be alleviated. There have been some improvements or developments in this sphere.

The EIPA has established a team of experts to draft the amendment for the invention minor invention and industrial design proclamation number 123/1995, in this amendment the existing challenges related to this proclamation are expected to be revised. So, this initiation of legal revision would be taken as an opportunity to promote and utilize IP in future.

The government has organized an independent authority for the agriculture sector, the Ethiopian Agriculture Authority (EAA).³² The authority has the responsibility to register and protect the plant breeder's right which has not yet started. So, the major gap for the protection of plant breeder's right was the absence of functional organizational structure. However, the council of Ministers were issued a regulation to execute the proclamation and the Ministry of agriculture has issued implementation

³² Federal democratic republic of Ethiopia, 'Definition of Powers and Duties of the Executive Organs Proclamation Number' (2021)

directives and working guidelines to commence the registration of plant breeders right.

The Ministry of Agriculture has prepared the draft amendment work of the agricultural and rural development policy of Ethiopia and the draft policy is under scrutiny process by the council of ministers. The draft amended policy has clearly dealt with plant breeder's right protection and the commercialization of agricultural research outputs.³³

Ethiopia has already started official negotiation for accession process to join WTO.³⁴ For the successful accomplishment of the accession process, acceding states are required by other member states to make change on the legislations including IP legislations in accordance with the TRIPS and other WTO agreements.³⁵

7. CONCLUSION

IP laws are designed to promote creativity, dissemination, and application of inventions, as well as encourage fair trading; to contribute to economic and social development. With respect to agriculture, IPR involves the conscious efforts to promote the rights of breeders or other crop scientists, livestock, and fisheries scientists, as well as the rights of farmers.

The protection of intellectual property rights (IPR) is fast becoming an important instrument and tool for the expansion of trade and generation of income when adequately exploited. With

³³ Federal democratic republic of Ethiopia, Agriculture and rural development draft policy 2022

³⁴ <https://research.hktdc.com/en/article/MzUxODU1Mzc2> accessed on 23 September 2023

³⁵ Begashaw Israel, 'The Ethiopian Patent Regime and Assessment of its compatibility with TRIPS Agreement' (2010)

the new developments and challenges arising from the protection of intellectual property rights, it has become obvious that developing countries like Ethiopia can benefit from the intellectual property system in the same way as industrialized countries.

The noticeable problem is that Ethiopia like any other developing country is yet to develop its technological capabilities that will enable the country competent at the global market. However, with the increasing awareness and development of the intellectual property system, the impetus for the development of innovative and inventive skills, the commercialization of indigenous research and development in the country as well as the efforts being made to cope with the new developments and challenges posed by the protection of IPR, Ethiopia stands to benefit from the economic potentials offered by the protection of IPR.

In addition, Ethiopia like other developing countries will further benefit from the protection of intellectual property rights and penetrate the global market by concentrating on its areas of economic advantage, the protection of appellations of origin and geographical indications; and utilized same as commercial strategies for distinguishing the local products from the region. To make it successful, the researcher has provided the following recommendations.

The institutional capacity in terms of institutional arrangement, working system and the capacity of experts in the EIPA and the EAA are limited. Though, efforts are already being made to create awareness on intellectual property matters through different training modalities, expert's capacity to examine IP applications took long time. The PVP registration is not yet started until today so that breeders have not got protection for their varieties. Therefore, the concerned institutions (EIPA and EAA) should work hard to build their institutional capacity to deliver their IP registration service efficiently and effectively.

The awareness level of researchers and innovators in the agriculture sector is very low. Some agricultural research institutions have their own structure (unit) that follow up IP issues of the institution. But most institutions have no structure (unit) that follows up the IP issues. So, research institutions have not given due consideration for IP protection this is due to lack of awareness of the institutions. Therefore, research institutions like, the Ethiopian Institute of Agricultural Research (EIAR) and others should work hard to aware their researchers on IP. The Ministry of Innovation and Ministry of Education should also work for the inclusion of the concept of IP in the subject matter in the school syllabi from the elementary level.

Develop national policy for IPR issues that identify and promote the national interest of the country. The national IP policy was drafted some years ago but still the policy has not approved by the council of ministers. Therefore, having a policy that considers the innovation capacity of the country and that gives attention for agriculture and geographical origin should be very important.

Ensure that the national laws and policies should meet international IPR laws, conventions, and standards. National IP laws and policies are one of the issues considered by the investors. So, Ethiopia should have local laws that feet with the international standards it attracts foreign direct investment (FDI).

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ETHICAL CONSIDERATION

The Author was undertaken various steps to ensure that the study adheres to research ethical standards. The Author sought consent for the information used from all concerned institutions and individuals.