Plant Breeders' Rights, Farmers' Rights and Food Security: Africa's Failure of Resolve and India's Wobbly Leadership*

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Abstract

Since 2000s, Africa and India severally rejected the notion that UPOV's 1991 standard of Plant Breeders Rights (PBRs) is the only route to fulfill their obligations under Article 27 of the TRIPs Agreement. Objecting to the exclusive focus of the UPOV regime on formal plant breeders, African countries, insisted on a holistic approach to plant breeders' rights to include protection for rights of communities, farmers and their indigenous knowledge, innovation and practices. Consequently, under the African Union's (AU) auspices, Africa proposed the Model Law for the Protection of the Rights of Local Communities and Breeders, and for Regulations of Access to Biological Resources. Self-evidently, the law not only recognizes the centrality of the smallholder indigenous and local community farmers on the continent's food production, it also underscores the interconnectedness of biodiversity conservation, farmers' rights, traditional knowledge, access and benefit sharing over genetic resources within then emergent international regimes. Nearly two decades after, Africa's resolve has proven to be fickle. The continent has reversed itself and fully embraced the UPOV regime. At about the same time as the Model Law, India enacted the Protection of Plant Varieties and Farmers' Rights Act, 2001 –an instrument consistent with the spirit of Africa's Model Law. Both regimes take into account the role of local farmers as the backbone of agricultural innovation, food production and food security in the developing world, including Africa and India, thereby further enhancing the idea of farmers' rights in food and agriculture law and policy. This Article juxtaposes the circumstances around Africa's failure of resolve and India's wobbly experience over farmers' rights. It calls attention to farmers' rights as a site for a missed and yet potentially redeemable opportunity for both Africa and India to advance South-South solidarity for food security.

Part I

Introduction:

Against all odds, Donald John Trump was elected the 45th President of the United States of America in 2016. Despite their disposition to the contrary, that victory came as a surprise to Trump himself and his ardent supporters. "Making America Great Again", whatever that means, was Trump's campaign slogan which at the time of writing this Article is unfolding simultaneously as Trump hitherto unlikely presidency. Having touted his deal-making credential[1] as a businessman during the campaigns, Donald Trump has

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collapsed those skills, or so he thinks, onto his presidency and is determined to get every extra mileage from America's factor endowments as a strategy of engagement with the rest of the world, especially on the trade and general economic fronts. Trump has ruffled, rattled and stirred existing free trade agreements and entrenched diplomatic conventions via muscular hard-balling, unilateral imposition of import tariffs, arm-twisting and carrot-and-stick approach, etc. By these brusque measures, he has coerced America's competitions, notably China, Europe, South Korea, even Canada and Mexico; stoking the possibility of a full-blown trade war with his eyes set on hitherto unimaginable concessions.[2] On the economic and related fronts, the casualties or near-casualties of Trumpism include the Trans-Pacific Partnership Trade (TPP) deal, the North America Free Trade Agreement (NAFTA), the Paris Climate Change Agreement and counting.[3] Undergirding Trump's bravado are America's strongest and all-time secret weapons –its sheer size and market power and its factor endowments in strategic sectors such as technology, innovation, intellectual property, military might, natural resources, capital, services and their cumulative effect as negotiating bully arsenals.

In realpolitik, as in the Trump world factor endowments remain sacrosanct. They are used to leverage and negotiate desired interests. Despite its hawkish parochialism and legitimate doubts about its sustainability in the fast-changing global geopolitics, this received wisdom of American global engagement, now brazenly magnified by Trump, lends itself to selective or constructive adaptation –not necessary by any single country or political entity on a viable scale save perhaps China. But by way of alignment and deliberative mobilization of comparative advantages across boundaries, countries and geopolitical spaces, it is possible for select states to consciously coalesce around shared or common interests and their distinct factor endowments in order to muster and optimize negotiation leverage. In analogous regard, smallholder farmers and traditional farming practices are key resourceful actors and sites for sustainable agricultural production and

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[1] See DONALD J. TRUMP (WITH TONY SCHWARTZ) THE ART OF THE DEAL (2015).

[2] See The March 8, 2019 edition of *The Economist* magazine under the title of "The Threat to World Trade: The Rules-Based System is in Grave Danger" which focused on how Trump's imposition of tariffs on steel and aluminium risks dismantling the global trade order under the WTO system, https://www.economist.com/news/leaders/21738362-donald-trumps-tariffs-steel-and-aluminium-would-be-just-start-rules-based-system.

[3] Not long after his election, Trump walked United States out of the TPP and led the country to abandon the Paris Climate Change Agreement affirming his position as a climate change denier. He has since forced ongoing renegotiation of the NATFA with Canada and Mexico under a cloud or threat of America's willingness to walk out of the 25-year-old regional trade accord. As at the time of the present study, Trump has by executive order imposed higher import tariffs on foreign steel (25%) and aluminium (10%) while threatening to follow suit for automobiles thereby ruffling nerves in China, Japan, and the European Union. See Philip Blenkinsop & Alissa de Carbonnel, *EU, Japan Start Push for Exemptions from Trump Tariffs*, REUTERS (March 10, 2018, 12:06 PM), https://www.reuters.com/article/us-usa-trade-europe/eu-japan-start-push-for-exemptions-from-trump-tariffs-idUSKCN1GM0PZ.

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innovation as well as alternative epistemic agencies for tackling food insecurity in Africa and India. The rich endowment of those critical human and cultural resources place Africa and India in a strong comparative and negotiation advantage. Properly deployed, Africa and India's standing as centres of genetic and cultural diversity with rich agricultural heritage can be leveraged to reposition themselves against the current external pressures that have elevated plant breeding and other hi-tech proprietary-driven agricultural models as a self-serving unidirectional vision of agriculture which is often promoted by the Western countries at the expenses of other stakeholders such as smallholder farmers of the global south. African and India's conjoined interest in the rights of farmers offers a basis for solidarity and, literally for self-defence and self-preservation in food security.

In this Article, I draw attention the prospects of Afro-Indo south-south solidarity around farmers' rights amidst rapid entrenchment of plant breeders' rights as a strategy to balance and consolidate Africa and India's factor endowments in sustainable agriculture and food security.[4] Symbolically, the rise of plant breeders' rights as a preferred proprietary protection strategy for innovation in plant genetic resources for food and agriculture is evidently representative of the head start of industrialized countries of Europe and, of course, the United States of America in agricultural innovation and transformations.[5] Whereas, the fledging concept of farmers' rights designates the role of traditional, smallholder farmers and their farming practices as the bedrock of agricultural innovation, productivity and general lifestyles of many countries of the global south, including African countries and, of course, India. The interface of plant breeders' rights and farmers' rights in law and policy making at international and various national levels evinces the tension in the negotiations of interests and outright tendencies of countries to exploit their factor endowments and comparative advantages against competing and rival interests. In these contestations of interests, while Europe and America have leveraged their advanced R&D in plant breeding to project plant breeders' rights, African countries and India have yet to broach, as a matter of solidarity, their conjoined interest in farmers' rights. Rather, they seem to send mixed signals on the subject with half-hearted resolve – a disposition that has negative ramification for food security in the regions.

Not counting the concluding section, this Article is divided into three major sections, which includes the present introduction. The second section outlines the global context for the two similar pathways that characterize the trajectory of farmers' rights and

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[4] See Habir Singh, *Emerging Plant Variety Legislations and Their Implications for Developing Countries: Experiences from India and Africa*, Paper presented at the National Conference on TRIPS –Next Agenda for Developing Countries at Shyamprasad Institute for Social Sciences, Hyderabad, 11-12 October, 2002 (this was one of the earliest attempts to focus on developments in India and Africa over the protection of plant varieties since the early 2000s) [paper is on file with the present author].

[5] See Graham Dutfield, *Turning Plant Varieties into Intellectual Property: The UPOV Convention*, *In* THE FUTURE CONTROL OF FOOD: A GUIDE TO INTERNATIONAL NEGOTIATIONS AND RULES ON INTELLECTUAL PROPERTY, BIODIVERSITY AND FOOD SECURITY 27-47 (Geoff Tansey and Tasmin Rajotte eds., 2008); see also Chidi Oguamanam, *Pressuring' Suspect Orthodoxy': Traditional Knowledge and the Patent System*, *in*., INDIGENOUS INTELLECTUAL PROPERTY: A HANDBOOK OF CONTEMPORARY RESEARCH 313–333 (Matthew Rimmer ed., 2016).

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their interface with plant breeders' rights in India and Africa within the framework of the International Union for the Protection of New Plant Varieties (UPOV) vis a vis earlier Organization of African Unity (OAU) or the African Union (AU) initiative on farmers' rights, on the one hand, and India's national legislative experience and cognate instruments on the subject, on the other. Focusing on food security and sustainability, the third part demonstrates the vital role of traditional knowledge-based informal farmers and smallholder farming communities in India and Africa as pivotal actors and cross-regional factor endowments for food security in India and on the African continent. The conclusion conjectures on the prospects of Afro-Indo solidarity over farmers' rights as a strategic approach to food security and for balancing of competing interests in global law and policy over plant genetic resources for food and agriculture.

Part II

In the Shadow of Plant Breeders' Rights

Global Context for Agro R&D and the Proprietary Expediency

Agriculture is an exercise that thrives on the natural regenerative capacity of genetic materials from plants, animals, microbes, fungi, etc. that are relevant to food, nutrition, and ecological sustainability. Some inherent factors do not lend these genetic materials to ease of proprietary control. These include their obligate regenerative capacity as mostly symbolized in seeds and their natural proclivity for dispersal not to mention their historic ubiquity as cultural resources readily exchanged or shared as integral aspects of communal or cultural lives and practices of many traditional societies world over.[6] Consequently, formal R&D and innovations in agriculture were largely undertaken through public investment as a form of public good.[7] But the ascent of free market economic order supervised a radical shrinkage in public investment in agricultural R&D.[8] That tide provided entry and pressure points for the campaign over proprietary protection of innovations in agriculture as a guarantee for private investment in the sector. [9]

Countries with a head start in formal seed breeding opted for a legal framework, notably plant breeders' rights, to protect their advantages in the field.[10] Given the rapid globalization and opening up of markets, that framework takes an international imperative to condition proprietary seeds for global market access. It is epitomized by the UPOV, which is the major attempt at international protection, not necessarily of plant varieties as the name suggests, but more accurately of breeders' rights as a special form of intellectual property.[11] With the coming into effect of agricultural biotechnology,

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[6] See *infra* note 23 and accompanying texts.
[7] See JACK R. KLOPPENBURG, FIRST THE SEED: THE POLITICAL ECONOMY OF PLANT BIOTECHNOLOGY 1492-2000 (2004).
[8] *Ibid*.
[9] *Ibid*.
[10] Dutfield, *supra* note 5; Oguamanam, *supra* note 5.
[11] Before UPOV, there were earlier attempts at national levels for sui generis systems of protection of plant varieties. See UNCTAD-ICTSD, RESOURCE BOOK ON TRIPS AND DEVELOPMENT (2005), https://www.iprsonline.org/unctadictsd/docs/UNCTAD_frontmatter.pdf.

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which is mainly a private sector-driven experience, it did not take long before subsisting reluctance to extend intellectual property protection to life forms, including plant genetic resources, were relaxed to extend patent protection over genetic resources-based innovations.[12]

In addition to the UPOV, intellectual property, specifically patent protection, for agricultural innovation is affirmed by the TRIPS agreement in Article 27.3(b).[13] It reads, in part: "Members shall provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof". The point needs to be made. In both UPOV and TRIPS, protection of plant varieties is not a benevolent public endeavor. Both instruments are economic or trade documents. Plant varieties protection therefore aims at protecting breeders. Under the UPOV and TRIPs, breeders are exclusive objects of legal rights for putatively breeding new plant varieties, i.e. those that meet the formal scientific criteria specified under law.[14]

Europe, the United States and leading plant breeding and agro-biotechnology countries have, over the years, favored a consolidated approach to the protection of intellectual property in agriculture. To this end, advances in plant breeding have brought into line revisions and strengthening of plant breeders' rights, details of those are outside this scope of this Article.[15] Presently, the legal mechanism for the protection of PBRs is less of a sui generis model as it was originally intended. Now, it is akin to the stronger and more prescriptive and formalistic patent regime.[16] The real and potential convergence of PBRs with the patent regime nuances the melding of usually medium or smallholder plant breeding entities with omnibus agro-biotech transnational corporations reflecting and responding to the consolidation of the agro and allied industrial sectors.[17] These transnational corporations are interested in maximalist intellectual property protection. In the agricultural arena, the patent regime is that golden standard or form of such protection, even though there is now a faint line between patent protection and PBRs,[18] a situation that poses an existential threat to plant breeders themselves.[19]

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[12] See Chidi Oguamanam, *Intellectual Property Rights in Plant Genetic Resources: Farmers' Rights and Food Security of Indigenous and Local Communities*, 11 DRAKE JOURNAL OF AGRICULTURAL LAW 273–305 (2006); see also Kshitij J. Singh, *Intellectual Property Rights in Agricultural Biotechnology and Access to Technology: A Critical Appraisal*, 18 ASIAN BIOTECHNOLOGY AND DEVELOPMENT REVIEW 3–23 (2016).

[13] See Prabhash Ranjan, *Recent Developments in India's Plant Variety Protection, Seed Regulations and Linkages with UPOV Proposed Membership*, 12 JOURNAL OF WORLD INTELLECTUAL PROPERTY 219–243 (2009).

[14] For example, newness, distinctiveness, uniformity, and stability of proposed variety.

[15] See, however, Rolf Jordens, *Progress of Plant Variety Protection Based on International Convention for the Protection of New Varieties of Plants (UPOV Convention)*, 27 WORLD PATENT INFORMATION 232–243 (2005).

[16] See Dutfield, *supra* note 5.

[17] See IAASTD, CORPORATE CONCENTRATION IN AGRICULTURE: FINDINGS FROM THE UN-LED INTERNATIONAL ASSESSMENT OF AGRICULTURAL KNOWLEDGE, SCIENCE AND TECHNOLOGY FOR DEVELOPMENT PANNA (2009), https://www.panna.org/sites/default/files/CorporateControl-IAASTD-PANNABrief.pdf.

[18] See Dutfield, *supra* note 5; Oguamanam, *supra* note 5.

[19] *Ibid*.

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The interfacing of R&D and technological advances in agriculture with legal and proprietary control of agricultural innovations provides an edge for the western and industrial model of agriculture and its archetypal capitalist process of innovation and knowledge creation. This is in contrast to such agricultural knowledge productions and innovations that rely on traditional practices of sharing and exchange of seeds and genetic materials. The emphasis and orientation of the first described model on proprietary and exclusive control of agricultural R&D and innovation naturally locate it in a position of conflict with less formal and open model of agricultural innovation and production that constitute now the prime traction for farmers' rights. [20]

Accurately or less inaccurately, by default, "farmers", are the presumed custodians of traditional agricultural knowledge and practices. [21] In this loose but pragmatic context of reference, optically, *farmers* designate smallholder or medium scale categories, mostly women, who are predominantly members of indigenous and local communities (or ILCs) mainly, but not exclusively, in the global south, including Africa and India. For this category, farming and agriculture constitute a cultural process and experience fused with all the complexities of their worldviews, including ecological and philosophical orientations over humankind's relationship with the natural environment. That bundle of relationships is conceptually navigated through traditional knowledge, a holistic construct that includes but transcends traditional agriculture knowledge and practices. Traditional knowledge is yet again a convenient albeit less accurate expression which does not capture the complex breadth and sophistication involved in the relationships that shape the worldview of peoples in their cultural spaces.[22]

In the aspects of the bundle of relationships that undergird farming and agricultural production, sharing and exchange of seeds and other genetic materials and incidental knowledge, as opposed to their proprietary control, is the received wisdom.[23]

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[20] See, Craig Borowiak, *Farmers' Rights: Intellectual Property Rights and the Struggles Over Seeds*, 32 POLITICS & SOCIETY 511–543 (2004).; see also Chidi Oguamanam, *Open Innovation in Plant Genetic Resources for Food and Agriculture*, 13 CHICAGO-KENT JOURNAL OF INTELLECTUAL PROPERTY 11–50 (2009).

[21] Other stakeholders steeped in conventional plant breeding, R&D or other forms of mechanized and industrial agricultural, including agricultural biotechnology are, however, no less farmers in a way. Neither are agricultural practitioners in indigenous and local communities less involved in plant breeding and other forms of agricultural R&D and incidental innovation. As such, not only is the concept of farming a contested proposition, it is now deployed with assumptions that requires to be unpacked for analytical integrity.

[22] Indigenous peoples and local communities and others who are associated with indigenous, traditional knowledge or alternative knowledge forms are reluctant to sanction the tendency to compartmentalize knowledge into categories that do not align fully with their world views, experiences and understanding of phenomena. This explains, in part, why defining of these knowledge categories remains a work in progress as it is elusive. Available definitions, for example, as broached by the WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional knowledge and Folklore (Traditional Cultural Expression), are limited to the specific contexts in which definition is sought. See Chidi Oguamanam, *Wandering Footloose: Traditional Knowledge and the Public Domain Revisited*, JOURNAL OF WORLD INTELLECTUAL PROPERTY 1-20 (2018); https://doi.org/10.1111/jwip.12096

[23] See Jaci van Niekerk & Rachel Wynberg, *Traditional Seed and Exchange Systems Cement Social Relations and Provide Safety Net: A Case Study from KwaZulu-Natal, South Africa*, 41 AGRO ECOLOGY AND SUSTAINABLE FOOD SYSTEMS 1099–1123 (2017); see also Roy Ellen & Simon Platten, *The Social Life of*

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The predisposition of farmers in ILCs to open model of innovation and knowledge exchange around genetic resources places them in conflict with those whose interests are consolidated through closed and proprietary control.[24] It is less surprising as it is logical for plant breeders and stakeholders in agricultural biotechnology to perceive farmers as free riders who ought to be controlled and reined in through both regulatory containment and even the intellectual property system.[25] But if consideration is given to the fact that ILC farmers have been immemorial curators or custodians of the world's vast genetic heritage and diversity upon which later-day formal plant breeders and hi-tech agricultural R&D thrive, the notion of farmers as free riders becomes a contested charge.

As indicated above, the UPOV remains the most prominent legal framework for reining in farmers. It is an instrument designed to protect the interest of plant breeders and, arguably, at the expense of farmers. Historically, the Union is an exclusive and elitist club of European countries and conceivably a symbol of their head start in plant breeding.[26] It is the first international instrument for the protection of plant breeders. It is not as if Europe did not practice traditional farming and the culture of seed saving and exchange in the likeness currently sustained in indigenous and local communities in Africa, India and elsewhere in the global south.[27] Even presently, in parts of Europe and North America, there are still remnants of traditional farming communities including smallholder indigenous farming populations involved in traditional farming practices.[28]

However, the transformations in agriculture in Europe and the New World, notably the United States, reflect the rise in proprietary plant breeding and cognate agricultural R&D innovations. In addition, recently, private sector-driven R&D and innovation in agricultural biotechnology, including various forms of genetic modification continue to pressure indigenous and local community farmers into retreat, possibly extinction.[29] In many industrialized societies, family or smallholder farmers are fast-disappearing into nostalgic vestiges of a romantic past. Clearly, traditional, smallholder historic family farmers are 'endangered species' in Europe and North America and other industrialized regions. From over 60% in 1900s, today less than 2% of the population of those regions are involved in agriculture on a corporate industrial organizational scale.[30] Industrial agriculture has since assumed transnational tenor, leveraging the global free

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Seeds: The Role of Network of Relationship in the Dispersal and Cultural Selection of Gerplasm, 17 JOURNAL OF THE ROYAL ANTHROPOLOGY INSTITUTE 563–584 (2011).

[24] See Oguamanam, *supra* note 20.

[25] See Borowiak, *supra* note 20.

[26] Dutfield, *supra* note 7; Oguamanam, *supra* note 5.

[27] See Bruno Losch, *Family Farming: At the Core of World's Agricultural History*, *in* FAMILY FARMING AND THE WORLDS TO COME 13–36 (2015); see generally MARK B. TAUGER, AGRICULTURE IN WORLD HISTORY (2011).

[28] See John Ikerd, *Family Farms of North America*, Working Paper #152 FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS AND INTERNATIONAL POLICY CENTRE FOR INCLUSIVE GROWTH OF THE UNITED NATIONS DEVELOPMENT PROGRAM (2016), http://www.ipc-undp.org/pub/eng/WP152_Family_farms_of_North_America.pdf.

[29] Chidi Oguamanam, *Tension on the Farm Fields: The Death of Traditional Agriculture*, 27 BULLETIN OF SCIENCE TECHNOLOGY & SOCIETY 260–273 (2007).

[30] For a sampler, see Bruce Garner, *U.S. Agriculture in the Twentieth Century*, EHNET, https://eh.net/encyclopedia/u-s-agriculture-in-the-twentieth-century/.

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market, penetrating and shaping its legal architecture[31] in a similar manner that transnational big pharma captured the pharmaceutical patent and regulatory regime complex.[32] With an overreach in the global south, transnational industry agriculture is now a present and disruptive threat to the traditional agricultural heritage of indigenous and local communities of the global south,[33] including Africa and India, a development that has ramification for food security as explored in part III below.

Smallholder Farmers: Bedrock of Agriculture in Africa and India

Quite unlike the agricultural dynamic and stakeholder profile in the industrialized countries alluded to above, in many countries of the global south, including those of Africa and India, smallholder farmers (mainly women) steeped in traditional agriculture and practices, including seed saving and exchange, produce over 80% of food for the world's hungry.[34] Between 60-80% of the populations in those countries are involved in farming and agriculture which has the combined effect as the highest sectoral employer of labour in many of those countries.[35] Despite attempts by now discredited development strategy to insist upon the formalization of the informal sector in the global south,[36] the informal and communal orientation of traditional agricultural practices, like the other segments of the informal sector, reinforces the resilience of that sector. That resilience is, in part, as a result of the status of agriculture as an integral aspect of the complex cultural accoutrement of indigenous peoples and local communities. It is further stoked by the current international campaign and responsive developments on farmers' rights.[37]

A combination of factors provided the impetus for the induction of farmers' right as a fledgling concept,[38] into the international legal lexicon. For the purpose of the conceptual framework and the analytical convenience adopted in this Article, I deliberately shun detailing of those factors save for mentioning the most relevant few for our purpose. They include the exclusive dedication of the UPOV to plant breeders; its inherent opposition to seed exchange and sharing which is at the core of traditional

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[31] See RICHARD MANNING, AGAINST THE GRAIN: HOW AGRICULTURE HAS HIJACKED CIVILIZATION (2005).
[32] See ROBIN FELDMAN & EVAN FRONDORF, DRUG WARS: HOW BIG PHARMA RAISES PRICES AND KEEPS GENERICS OFF THE MARKET (2017).
[33] Oguamanam, *supra* note 29.
[34] See Smallholders, food security, and the environment, IFAD (2013), https://www.ifad.org/documents/10180/666cac24-14b6-43c2-876d-9c2d1f01d5dd.
[35] In Africa, for example, an average of 54% of the working population are employed in the agricultural sector while in many countries (where smallholder farmers hold sway) over 80% of the labour force work in that sector. See Mariama Sow, FIGURES OF THE WEEK: SUB-SAHARAN AFRICA'S LABOR MARKET IN 2017 BROOKINGS (2017), https://www.brookings.edu/blog/africa-in-focus/2017/01/11/figures-of-the-week-sub-saharan-africas-labor-market-in-2017/.
[36] See THE INFORMAL ECONOMY IN DEVELOPING NATIONS: HIDDEN ENGINES OF INNOVATION, (Erika Kraemer-Mbula & Sacha Wunsch-Vincent eds., 2016); see also AFRICAN ENTREPRENEURSHIP: THEORY AND REALITY, (Anita Spring & Barbara McDade eds., 1998).
[37] See REGINE ANDERSEN, THE FARMERS' RIGHTS PROJECT - BACKGROUND STUDY 1: THE HISTORY OF FARMERS' RIGHTS: A GUIDE TO CENTRAL DOCUMENTS AND LITERATURE, FNI Report 8/2005 (2005), https://www.fni.no/publications/the-farmers-rights-project-background-study-1-the-history-of-farmers-rights-a-guide-to-central-documents-and-literature-article749-290.html.
[38] *Ibid*, see also Borowiak, *supra* note 20.

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farming practices; the asymmetrical power dynamics and bully power deployed by the United States and Europe in the proselytization of plant breeders' rights. That tactics are evident not only in taking plant breeders right outside the voluntary and exclusive club of the UPOV but in extending it to the TRIPS agreement pursuant to section 27(3)(b) mentioned above. The significance of including plant breeders' right in TRIPS is that it leaves all countries, including those that have no formal plant breeding capacity or sub-sector, with little or no option than to provide for PBRs in their domestic laws. This is because membership of the TRIPS agreement is prerequisite to the World Trade Organization (WTO) membership.[39]

Before Trump's unconventional strategy, the WTO fraternity was a guarantor of international market access and unfettered trade relations which is critical for the economic stability of the countries in the global south and north. As if that is not enough, the US and Europe favour the UPOV standard as a preferred *sui generis* form of PBRs for African countries, for India and for countries of the global south. It does not matter that most of these countries are not significant stakeholders in plant breeding. For nearly sixty years, the United States and Europe have supervised progressive strengthening of PBRs and a radical rollback of the influence of farmers in agriculture pursuant to an agricultural vision that optimizes Europe and America's factor endowments and comparative advantages in plant breeding, and various forms R&D-driven innovations in industrial agriculture. As well, through regional trade and bilateral arrangements with countries of the global south, the United States and European countries are not averse to championing what has been referred to the stronger standard of intellectual property protection (so-called TRIPs+) over the minimum outlined in TRIPs.[40] TRIPS+ provides the justification for the prescription of the UPOV standard of PBRs for African countries, India and the global south.

The attempt to globalize plant breeders' rights and to foster a stronger proprietary regime of agricultural knowledge production in societies where indigenous and local community farmers are the pivot of agricultural production and innovation such as Africa and India presents an opportunity for consolidation of interests in the two regions for self-preservation. Surprisingly, however, in their various policy fluctuations on the subject, Africa and India have not been able to forge a synergistic response to preserve their mutual or conjoined interests that naturally crystalize around the concept of farmers' rights.[41] Africa's disposition amounts to the failure of resolve and that of India is one of

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[39] See Chidi Oguamanam, *Developing Countries and Legal Institutions at the Intersection of Agricultural Biotechnology and Development*, *in* HANDBOOK ON AGRICULTURE, BIOTECHNOLOGY AND DEVELOPMENT 230–242 (2014).

[40] Christine Haight Farley, *TRIPS-Plus Trade and Investment Agreements: Why More May Be Less of Economic Development*, 35 UNIVERSITY OF PENNSYLVANIA JOURNAL INTERNATIONAL LAW 101–112 (2014); see also Chidi Oguamanam, *Breeding Apples for Oranges: Africa's Misplaced Priority Over Plan Breeders' Rights*, 18 JOURNAL OF WORLD INTELLECTUAL PROPERTY 165–195 (2015).

[41] This trend in Africa and India is not isolated from the trend in the rest of the developing world. See Christoph Antons, *Article 27(3)(B) Trips and Plant Variety Protection in Developing Countries*, *in* TRIPS PLUS 20: FROM TRADE RULES TO MARKET PRINCIPLES 390–411 (2016), https://ssrn.com/abstract=2817628.

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wobbly leadership. These mixed signals translate to lost opportunity for south-south solidarity for food security.

As a continent, Africa has been mindful of the role of indigenous and local community farmers, especially women, as the bedrock of food production and food security on the continent. Africa insists on a holistic approach to policy making in agriculture as opposed to fragmented one that creates artificial and preferential division between farmers and breeders.[42] In Africa, farmers are inherently breeders, versed in using crop diversity to adapt to complex ecological dynamics, including climate change for example, even though their method of breeding does not conform to the formal scientific test tube agricultural model. A holistic approach to agriculture, which is associated with indigenous and local communities, links agricultural production to agrobiodiversity, ecological stewardship and environmental sustainability. Africa demonstrate its commitment to that holistic approach by extending its interest in cognate international regimes that help to balance UPOV and TRIPS' hard-edged bias in favour plant breeders and industrial forms of agricultural R&D innovations with ones that are sensitive to traditional models of agricultural production.

Agriculture Regime Complex

The current regime complex in agriculture in which the balancing of PBRs or other interests in industrial agriculture are negotiated with other stakes and stakeholders in traditional agricultural production include the UPOV-TRIPS, the Convention on Biological Diversity (CBD) and its Nagoya Protocol on Access and Benefit Sharing (NP-ABS), the International Treaty on Plant Genetic Resources for Food and Agriculture (IT-PGRFA) [43] among others. As the name implies, the CBD is a dedicated and highly influential international instrument for the conservation of biological diversity.[44] Article 8(j) of the CBD text is perhaps the most revolutionary provision with significant impact on strategic protection of traditional knowledge (including traditional agricultural knowledge and practices) through the model of what has since evolved as access and benefit sharing. It enjoins members to "respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional

[42] See Preamble, AFRICAN MODEL LEGISLATION FOR THE PROTECTION OF THE RIGHTS OF LOCAL COMMUNITIES, FARMERS AND BREEDERS, AND FOR THE REGULATION OF ACCESS TO BIOLOGICAL RESOURCES, http://www.wipo.int/edocs/lexdocs/laws/en/oau/oau001en.pdf.

[43] See Koffi Dogbevi, *The Sui Generis System of Plant Variety Protection Under the TRIPS Agreement: An Empty Promise for Developing Countries*, SSRN (2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2961801; see also Keith Aoki, *Seeds of Dispute: Intellectual Property Rights and Agricultural Biodiversity*, 3 GOLDEN GATE UNIVERSITY ENVIRONMENTAL LAW JOURNAL 79–160 (2009), https://digitalcommons.law.ggu.edu/gguelj/vol3/iss1/6; Carlos M. Corea, *Sui Generis Protection for Farmers' Varieties*, *in* FARMERS' CROP VARIETIES AND FARMERS' RIGHTS: CHALLENGES IN TAXONOMY AND LAW 154–183 (2015).

[44] Pursuant article 1, the 3 cardinal objectives of the Convention "are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources…"

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lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices".

Article 8(j) of the CBD indirectly captures traditional agricultural knowledge and associated practices, notably those relating to seed sharing and exchange which is invaluable to sustainable biodiversity, including agro-biodiversity. By implication, it requires that those who benefit from that knowledge system (plant breeders and stakeholders in hi-tech agricultural R&D included) through various epistemic scaling up should commit to "equitable sharing of the benefits arising from the utilization of such knowledge and innovations, and practices". ABS is an important balance introduced by the CBD which has since found significant relevance and application in the agriculture regime complex through the IT-PGRFA. ABS has subsequently evolved through a gradual schematized pathway, first within the CBD's ad hoc Working Group on Article 8(j), then the 2002 Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of Benefits Arising out of their Utilization,[45] the 2001 IT-PGRFA and, finally, the 2010 Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity;[46] without failing to mention the United Nations Declaration on the Rights of Indigenous Peoples.[47] All of these instruments directly recognize the contributions of indigenous (peoples) and local communities to innovation in various spheres of knowledge production, including biodiversity conservation and agricultural knowledge production.

Specifically, the IT-PGRFA – the first treaty, strictly called, to implement ABS, is also the first to provide for farmers' rights.[48] The latter designates the recognition of indigenous and local community, indeed, the world's farmers' contributions to the conservation and development of plant genetic resources as the foundation of global agriculture and food production. In furtherance of farmers' rights, the IT-PGRFA prescribes the protection of TK associated with PGRFA, and farmers' entitlement to equitable benefits sharing arising from the utilization of PGRFA as well as their participation in decision making regarding the conservation and sustainable use of

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[45] For text of the Guidelines, see Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization, CBD (2002), https://www.cbd.int/doc/publications/cbd-bonn-gdls-en.pdf.

[46] For Protocol text, see Nagoya Protocol On Access to Genetic Resources and The Fair and Equitable Sharing of Benefits Arising from Their Utilization to The Convention on Biological Diversity Text And Annex, CBD (2011), https://www.cbd.int/abs/doc/protocol/nagoya-protocol-en.pdf.

[47] See specifically United Nations Declaration on the Rights of Indigenous Peoples (UNDRIPs), UN ARTICLE 31 (2008), http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf.

[48] See International Treaty on Plant Genetic Resources for Food and Agriculture (IT-PGRFA), FAO ARTICLE 9 (2009), http://www.fao.org/3/a-i0510e.pdf. It is recognized, however, the International Undertaking on Plant Genetic Resource provided for farmers' rights in exact language as the International Treaty but the Undertaking unlike the treaty is a voluntary and non-binding instrument.

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PGRFA.[49] Unequivocally, the IT-PGRFA provides that "Nothing in this Article shall be interpreted to limit any rights that farmers have to save, use, exchange and sell farm-saved seeds/propagating material, subject to national laws as appropriate".[50] So, the subtext here is that the application of PBRs and/or patent pursuant to UPOV and TRIPS to protect agricultural knowledge production must be balanced by various considerations outlined in other instruments such as CBD and its inspired treaties and or protocols. Clearly, for African countries and India and, of course, their counterparts in the developing world where TK, agrobiodiversity, sustainability and conservation ethics, including the practice of farm-seed saving and exchange are the dominant core of their agricultural knowledge and production, it is necessary as it is logical to put their money where their mouth is. In so doing, they ought to be conscious of the implication of uncritical embrace of UPOV and TRIPS' vision of PBRs and patents in agriculture and its ramification for their food security.[51]

Africa and India's Response: Two Identical Pathways to Farmers' Rights

In 2000, African countries under the aegis of then Organization for African Unity, now the African Union, rejected external pressures to adopt the 1991 revisions of the UPOV as the prescribed model of compliance with Article 37.3(b) of the TRIPS agreement.[52] This was in the background of the then diffident campaign by the UPOV to induct the region onto the UPOV '91. The latter is the third and most current revisions of the treaty.[53] It has, as its hallmark, the strongest ever protection for PBRs and the most marginal accommodation for farm seed-saving practices of indigenous and local community farmers. At a time of unprecedented level of R&D in agriculture as evident in the disruptive advent of agricultural biotechnology, including genetic engineering and consequential convergences of transnational agro-corporations not to mention heightened trade liberalizations, the implication of a proprietary and missionary agricultural model that is insensitive to the alternative agricultural system was not lost on African countries. Africa's resistance to the UPOV '91 and its preference for balancing of rights in agricultural innovation and knowledge production through a holistic model that recognizes the preeminent role of smallholder indigenous and local community farmers and the practice of seed saving and exchange is epitomized in the adoption by the regional body in 2000 of *the African Model Law on the Protection of the Rights of Local Communities, Farmers, Breeders and for the Regulation of Access to Biological Resources*. Elsewhere, I noted that the model law was an African continental attempt "to leverage on the opportunities offered by the CBD … [through] a holistic approach to biodiversity conservation, breeders' and farmers' rights, traditional knowledge, intellectual property rights, access and benefit sharing over genetic resources, food

[49] For elaborate analysis of the elements of farmer's rights under the International Treaty, see Oguamanam, *supra* note 12.
[50] *Supra* note 48, ARTICLE 9.3.
[51] See Oguamanam, *supra* note 42; see also Susan Isiko Strba*, Legal and Institutional Considerations for Plant Variety Protection and Food Security in African Development Agendas: Solution from WIPO?*, 12 JOURNAL OF INTELLECTUAL PROPERTY LAW AND PRACTICE (2017) 191-205.
[52] Oguamanam, supra note 40.
[53] See Jordens, *supra* note 15.

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security and food sovereignty".[54] The African Union was quite unmistaken over the raison d'être for the model law, which was to preserve and not compromise Africa's immemorial communal-based breeding innovations and farming practices. Those practices were perceived to be under the threat of novel forms of externally sponsored commercial breeding innovation that targeted market expansion with little regard to other considerations.

Interestingly, at the same time Africa signaled its opposition to the UPOV '91 version of PBRs as the only TRIPS-compliant model of sui generis form of protection of new plant varieties, India was similarly inclined. Without foraying into the checkered history of India's resistance and response, it suffices to mention that after prolonged negotiation by many stakeholders, in 2001, India enacted the revolutionary Protection of Plant Variety and Farmers' Rights Act (PPVFRA).[55] The Act was a bold move on the part of India, not only as a sub-continental country but also a regional influence in Asia and a credible voice in the global south. Like the African Model Law, the PPVFRA recognizes, in a holistic manner, the various roles of farmers *qua* farmers and as breeders and conservers in a balanced relationship with other actors including conventional and institutional plant breeders. Key features of the PPVFRA include the following: i) Farmers' rights to save, use and exchange farm-saved seeds and propagating materials; ii) farmer's proprietary rights over own varieties – i.e. recognition of farmers as breeders; iii) protection of existing varieties – including farmers' varieties, those in public domain and/or subject to common knowledge; (iv) protection over essentially derived varieties; v) right to register new varieties, vi) right to be compensated for use of breeder's variety that fails to perform; vii) right of reward for contribution to conservation; viii) right to benefit sharing; ix) miscellaneous categories of rights, including rights to information regarding claimed or anticipated performance of a breeder's variety; immunity over innocent infringement; right to availability of seeds of third party (breeders)'s proprietary variety; right to free legal services incidental to claims under the Act.[56]

Even though the nature, extent and impact of the Act on farmers' rights in India and generally elsewhere is an ongoing concern for stakeholders,[57] by this Act, India was able to articulate and balance the rights of local farmers in their special national, socio-cultural and economic reality with those of breeders. It is important to note the PPVFRA was enacted before the major international legal instrument to make specific provision on farmer's rights (the 2001 IT-PGRFA) came into force.[58] However, PPVFRA was India's response to concerted pressure following the coming into effect of the TRIPS agreement to bring its laws into compliance with the treaty.[59] The language of PPVFRA on farmers' rights is inspired by the 1983 FAO International Undertaking on the Protection of Plant

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[54] See Oguamanam, *supra* note 42 at 19.
[55] See Prabhash Ranjan, *Recent Developments in India's Plant Variety Protection, Seed Regulation and Linkages with UPOV's Proposed Membership*, 12 JOURNAL OF WORLD INTELLECTUAL PROPERTY 219–243 (2009).
[56] For comprehensive highlights of the PPVFRA, see ANDERSEN, *supra* note 37.
[57] *Ibid*; see also Ranjan, *supra* note 55.
[58] The IT-PGRFA was signed in 2001 but it came into effect in 2004.
[59] See Ranjan, *supra* note 55; see also Singh, *supra* note 6.

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Genetic Resources for Food and Agriculture, the precursor to the ITPGRFA.[60] The PPVFRA is contextualized in the universe of several laws in India such as National Biodiversity Act, 2002; Seed Bill (2004, 2010); revisions of the 1970 Patent Act via consecutive amendments Acts and even the Geographical Indications of Goods (Registration and Protection) Act, 1999 –all which reflect India's delicate balancing of its national interests in farmer-based agriculture and external pressure for full-blown proprietary approach to agricultural innovation for global trade and market access.[61] Seventeen years after the PPVFRA, India continues to struggle in the balancing of those interests with increased tensions across all cadre of stakeholders, including its robust civil society, rural farming communities, its rapidly growing institutional research and breeding concerns not excluding transnational agricultural corporations interested in penetrating India as a prime and prized agricultural market.

Africa's Failure of Resolve, India's Wobbly Leadership

In parallel to the motivations behind the African Model Law and the PPVFRA, the resolve of Africa and India to insist upon the protection of farmers remains shaken and wobbly. Between the early 2000s when the two laws were made and now, both Africa and India have come under multipronged pressures by Europe, the United States and their multi-billion-dollar transnational agro-biotech corporations. The latter have not hidden their insistence on the globalization of the UPOV '91 model of plant breeder's rights. Through a combination of carrot-and-stick in bilateral agreements and regional free trade agreements, they press for the highest standards (TRIP+) of intellectual property rights. In the case of Africa, a 2015 study examined the pattern of response to the pressure by UPOV at specific institutional, regional and select country levels.[62] The study uncovered Africa's failure of resolve and the continent's jettisoning of the 2000 Model of Law. Today, through the following trade and economic blocs: OAPI[63] (African Intellectual Property Organization), the African Regional Intellectual Property Organization (ARIPO))[64]and the Southern African Development Community (SADC), African countries have embraced the UPOV '91 model of PBRs.[65] In the case of OAPI, all members of the economic and trade bloc are now members of the UPOV '91 by virtue of that membership of OAPI. Whereas, in the case of ARIPO, individual member countries have either concluded or are involved in an ongoing process of entering into the membership of the UPOV'91 taking the cue from the regional body.[66]

India's PPVFRA remains in effect. However, its symbolism as a bold resolve to debunk the erroneous and self-serving view held by the industrialized world that the UPOV is the model for compliance with TRIPS provision of sui generis protection of

[60] See *supra* note 11 and accompanying text
[61] See Ranjan *supra* note 55; see also, RAMANNA, *infra* note 73.
[62] See Oguamanam, *supra* note 40.
[63] For Organisation Africaine De La Propriété Intellectuelle (for Franchophone Africa).
[64] ARIPO is mostly for Anglophone African countries.
[65] Oguamanam, *supra* note 40.
[66] *Ibid*.

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plant variety seem to have waned for a number of reasons. As a matter of ongoing pressure, some of those reasons continue to demonstrate India's dilemma and its wobbly resolve over prioritization and optimization of its factor endowment around traditional farmer-driven agricultural production through farmer's rights and associated incentives. A few of those reasons or developments require mentioning. The first is successive revisions of the 1970 India Patent Law to gradually open patent protection to agriculture while preservation exemption to plants and seeds. The second is India's long-drawn-out attempt to review the 1966 Seed Act via the 2004 Seed Bill and its subsequent revision in 2010. On its surface, the Bill was an attempt to bring India's moribund seed regime in tune with the reality of seed industry that is driven by transnational plant breeding and agro-biotechnology stakeholders with strong proprietary inclinations. Even though the Bill preserved farmers' practice of farm seed-saving and exchange, it imposed barriers to the ability of farmers to engage in open commercial seed sales. Subsequent revisions via the 2010 version are unequivocal on its attempt to provide for an accountable commercial seed trade by industrial or formal actors while remaining ambiguous on the status or extent of participation of farmers in the seed trade. Through its checkered history, the Seed Bill evokes skepticism among proponents of farmers' rights who are apprehensive that it has the potential to undermine the PPVFRA and by so doing pave the way for India to become UPOV-compliant as a condition for India's planned accession to the body.[67]

Perhaps the most significant indication of a wobbly resolve by India is the fact that during the checkered process leading up to the enactment of the PPVFRA and in the shadow of the yet-to-be-resolved Seed Bill, India is on record as having indicated its intention to join the UPOV![68] The implication of India's potential membership of UPOV'91 is the assured erosion of the gains on farmers' rights as symbolized in the PPVFRA. Such conceivable eventuality leaves India in no better position than the majority of African countries who have since abandoned the 2000 Model Law for UPOV'91. A combination of the cloud of UPOV membership that has continued to hang over India and the protracted delay in passing the Seed Bill coupled with sustained reservation over the actual impact of the PPVFRA on farmers only goes to demonstrate the wobbly nature of India's leadership over a sustained resolve to fully seize its factor endowments in farmer-driven or grassroots agriculture to negotiate a balanced and sustainable global agricultural order. The next section explores the ramification of Africa's failure of resolve and India's wobbled leadership on the farmers' right project for food security in Africa and India and by extension the global south.

Part III

Farmer-Driven Agriculture: The Food Security Ramification

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[67] See generally, Ranjan, *supra* note 55; RAMANNA, *infra* note 73; see also Kavitha Kuruganti, THIS SEEDS BILL MUST GO INDIA TOGETHER (2005), http://indiatogether.org/seedbill-agriculture; Jagjit Kaure Plahe, *TRIPS Downhill: India's Plant Variety Protection Systems and Implications for Small Farmers*, 41 JOURNAL OF CONTEMPORARY ASIA 75–98 (2011).

[68] *Ibid*.

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Farmers' Rights: Of Justice, Legal Rights, Culture and Development

On a direct literal impression, the phrase "farmers' rights"[69] locates the concept in the realm of legal rights. But the historical context for its evolution and its textual expression specifically in Article 9 of the IT-PGRFA suggests that farmers' rights are in addition to being a legal construct – some form of counterpoise to breeders' rights – it has overarching social justice significance not to mention the idea of an inclusive approach to knowledge production in agriculture and its ramification for development.[70] Associations of farmers' rights to development have effects and implications for a litany of a wide range of interests usually associated with development, including grassroots empowerment, gender equity, eradication of poverty, and improved and sustainable standard of living and, most importantly, in the present context, food security, to mention the few.[71]

The danger of limiting farmers' rights to the intellectual property construct is that farmers' rights become another layer of knowledge enclosure that stifles circulation and access to vital knowledge.[72] Yet, as evident in the African Model Law and India's PPVFRA, farmers are also involved in agricultural innovations, including breeding new varieties and curating old ones (farmers' varieties and existing varieties) which constitute legitimate subjects of ownership and a basis for the assertion of proprietary interests. But a linear emphasis on the intellectual property ramification of framer's rights creates and promotes tickets of competing legal regimes in agriculture that has the potential to become counterproductive. Such an outcome is one of the concerns expressed over India's PPVFRA.[73] Generally, the nature and the extent to which farmer's rights square up or are analogized to intellectual property rights remain suspect as it is debatable.[74] Those will not detain us here since the interest in exploring farmers' rights implication for food security is one that directly engages the development ramification of farmers' rights more than its import as a quasi-intellectual property of sorts.[75]

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[69] When references is to the concept, "farmers' rights" is used as singular and when it is to content, it is deployed as plural.

[70] See Borowiak, *supra* note 20; Plahe, *supra* note 67.

[71] Lauren Winter, *Cultivating Farmers' Rights: Reconciling Food Security, Indigenous Agriculture and TRIPS*, 43 VANDERBILT JOURNAL OF TRANSNATIONAL LAW 223–254 (2010); see also Oguamanam, *supra* note 12; Oguamanam, *supra* note 20; PHILIPPE CULLET, FOOD SECURITY AND INTELLECTUAL PROPERTY RIGHTS IN DEVELOPING COUNTRIES (2004), http://www.ruig-gian.org/ressources/Brochure6FoodsecDPI.pdf.

[72] See Borowiak, *supra* note 20; see also Ranjan, *supra* note 55; Ramanna, *infra* note 73.

[73] See ANITHA RAMANNA, FARMERS' RIGHTS IN INDIA: A CASE STUDY FARMERS' RIGHTS IN INDIA: A CASE STUDY, FNI Report 6/2006, 49 (2006), http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.730.7117&rep=rep1&type=pdf.

[74] Oguamanam, *supra* note 12.

[75] It is not suggested that the line between the development and intellectual property ramification of farmers' rights is clear one. In fact, they are mutually reinforcing if the right balance is struck. For example, farmers' proprietary interest over farmer varieties is a source of economic strength and capable of making farming economically beneficial with positive effect to farmers' standard of living and overall multitier effect on the entire community.

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In the realm of food security, farmers' rights take on a package of relevance and a universe of meanings within a complex rubric of development and its multifarious components, including but not limited to rural empowerment, poverty eradication, agrobiodiversity and agro-ecological sustainability. Amidst differing perceptions on the content of farmers' rights, early attempt at seeking common understating on the subject identifies it as "central to the fight against poverty"[76] and, by extension, to the realization of two major UN development charters, namely the moribund Millennium Development Goals (MDGs: 2000-2015) and contemporary Sustainable Development Goals (SDGs: 2015-2030). According to a 2006 study commissioned by the Fridtjof Nansen Institute of Norway, "the aim of developing such rights is not just to privatize more public goods in a similar manner as breeders' rights, but to promote a whole range of concerns of farmers' historical contributions and community and shared knowledge".[77] Given that 75-80 percent of the world most poor (estimated at 1.2 billion) are rural dwellers whose major preoccupation is farming, their interests are central to the wide range of concerns referred to in the immediately preceding sentence.[78]

Farmers' rights are, in a way, an umbrella strategy for rewarding all farmers, especially those in the centres of diversity, for the conservation and sustainable use of crop genetic resources and for maintaining the global genetic pool or reservoir on an in-situ basis. It is premised on the recognition of the interdependent nature of agricultural knowledge systems.[79] It is a way of acknowledging that modern industrial or cutting-edge forms of agricultural R&D innovations are not isolated happenstances. But they build from the contributions of traditional agricultural knowledge of indigenous peoples and local communities who are entitled to expect a fair and decent value from their invaluable endeavours. The itemized elements of farmers' rights pursuant to Article 9 of the IT-PGRFA are, for practical purposes, broad indicators of the reward principles the details of which should lie mainly (rightly or wrongly) with national governments under the treaty framework. As such, rewarding the contribution of farmers does not preclude creating negative obligations against any discriminatory practices that undermine their contributions and consequential benefits. Such will include dissuading the use of proprietary and other legal and technological devices where they undermine the interest of the farmers as they seek to contribute and to benefit from available knowledge in agriculture. It is in this regard that India banned the use of terminator technology in the

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[76] See Food and Agriculture Organization of the United Nations (FAO), IMPLEMENTATION OF ARTICLE 9 OF THE FAO INTERNATIONAL TREATY ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE: FARMERS' RIGHTS (2007), http://www.fao.org/3/a-be182e.pdf, being an Input paper submitted by Norway and Zambia based on the outcome of an informal international consultation on Farmers' Rights held in Lusaka, Zambia, September 2007 at 3.

[77] See Ramanna, *supra* note 73 at 49.

[78] See FAO, *supra* note 76 at 3.

[79] Chidi Oguamanam, *Plant Genetic Resources Interdependence: Re-Integrating Farmers into the Global Food System*, *in* FOOD SYSTEMS GOVERNANCE: CHALLENGES FOR JUSTICE, EQUALITY AND HUMAN RIGHTS 143–162 (Amanda Kennedy & Jonathan Liljeblad, eds., 2016).

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PPVFRA.[80] Similarly, it is in the same vein that farmers find the prohibition of the practice of saving and exchanging of farm-saved seeds of proprietary varieties under the UPOV and patent law to constitute a serious existential threat to traditional farming as we know it.[81]

Informal exchange of farm-saved seeds among farmers is a culturally rooted practice that designates a worldview of communality and collaboration in agricultural knowledge production. It symbolizes a core feature of alternative philosophical approach to agriculture vis-à-vis a strictly proprietary model typified by breeders' right. In this alternative model, farmers serve as cultural agents and stewards of agricultural knowledge. In India and Africa, the diversity in the modes of agricultural production, in available genetic resources, including seeds and existing agricultural crops or landraces as well as the diversity in cultural and various forms of agencies associated with farming are the hallmarks of informal agriculture. It is hardly by accident that farmer-driven agriculture is associated with centres of biological diversity which are, correspondingly, centres of ethnic and cultural diversity. Farmer-driven agriculture is a natural guarantor of agrobiodiversity –a critical component of sustainable agriculture.[82]

Farmer-centred agriculture is a cultural as well as an economic process. It is cultural in the sense that farmers grow culturally appropriate or culturally preferred crops, even if those crops do not have global market appeal. By so doing, they exercise control over rural and local food choices in ways that make vulnerable indigenous and local communities depend less on external interests who are mostly the proponents and propagators of plant breeders' rights. This approach is consistent with the idea of food sovereignty which is a component of food security.[83] So much has been said already about the exclusive economic and market considerations that account for the focus of

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[80] Technically called genetic use restriction technologies (GURTs), terminator is a genetically engineered model of controlling or limiting the regenerative capacity of specific variety or trait – a form of technology enforcement of proprietary right to seeds. It ensures that farmer's interests in use of specific trait is controlled and that the value of a proprietary seed is limited to the harvest since the resulting seed or harvest could not be viable for the next generation or for return to the farm.

[81] See Borowiak, *supra* note 20; see also Chidi Oguamanam, *Genetic Use Restriction (or Terminator) Technologies (GURTs) in Agricultural Biotechnology: The Limits of Technological Alternative to Intellectual Property*, 4 CANADIAN JOURNAL OF LAW AND TECHNOLOGY 59–76 (2005), https://ssrn.com/abstract=2308629.

[82] I. S. Bisht, et al., *Subsistence Farming, Agrobiodiversity, and Sustainable Agriculture: A Case Study*, 38 AGROECOLOGY AND SUSTAINABLE FOOD SYSTEMS 890–912 (2014).

[83] Food Sovereignty refers to the rights of peoples, especially vulnerable rural populations to heathy and culturally appropriate food produced in culturally sensitive and sustainable methods whereof farmers and grassroots have control of their food preferences and agricultural knowledge system. See Food Sovereignty: Turning the Global Food System Upside Down, GRAIN (2005), https://www.grain.org/article/entries/491-food-sovereignty-turning-the-global-food-system-upside-down; see also Angelo Rinella & Helen Okoronko, *Food Sovereignty: Processes of Democratisation of the Food Systems and the Right to Food*, 17 REVISTA GENERAL DE DERECHO PÚBLICO COMPARADO (2015); for a constructive critical perspective on food security in relation to indigenous peoples, see Kyle White, *Food Sovereignty, Justice and Indigenous Peoples: An Essay on Settler Colonialism and Collective Continuance*, *in* OXFORD HANDBOOK ON FOOD ETHICS (A. Barnhill, T. Doggett, & A. Egan eds., 2017).

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agriculture R&D on a few crops on the basis of their global relevance.[84] This monocultural orientation is not concerned with sustaining the endemic crop genetic diversities in rural Africa, India and the rest of the world. Rather, the interests of multinational plant breeding concerns and their local agents in India and Africa that constitute foot soldiers in the converging global agricultural landscape are perceived to be better served when traditional landraces are eroded or appropriated and farmers are enticed with proprietary monocultures. The spate of Indian farmer suicides in the 1900s which was associated with their use of proprietary Bt cotton seeds that failed to deliver to the hyped projections of its promoters comes handy.[85] One bright light out of that sad experience is that it helped to amplify some farmer-friendly provisions of the PPVFRA.[86] Recently, the Western African country of Burkina Faso officially abandoned the cultivation of Bt genetically modified (GM) cotton, citing poor quality of the product in a move analysts argue has implications for the future of GM crops in Africa.[87]

Farmers' rights are an emphasis on farmer-driven agriculture. In Africa and India, notwithstanding recent progress in formal agricultural research and development, the dominant model of agricultural production is farmer-driven. The informal seed system, which includes the practice of sharing and exchange of farm-saved seeds, still holds sway. Formal seed supply from the public and private sectors remains at all time low, below 10%, whereas over 80% of farmers rely on informal farm-saved seeds for their seed supply.[88] Despite overt and covert attempts in development narrative to pressure or stampede the informal sector to formalize, in many developing countries of the global south, the informal sector remains a significant driver of economic activity[89] and the key to the food security.

Framers' Right and the Food Security Intersection

Amidst hundreds of parallel definitions, a widely shared definition of food security endorsed by the FAO is "the condition in which all people, at all times, have physical, social and economic access to sufficient safe and nutritious food that meets their

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[84] See KLOPPENBURG, *supra* note 7; see also MANNING, *supra* note 31.

[85] See Gigesh Thomas & Johan de Tavemier, *Farmer-suicide in India: Debating the Role of Biotechnology*, 13 LIFE SCIENCE SOCIAL POLICY (2017), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5427059/; see also Prasidh Raj Singh, *History of Farmers' Suicide in India*, (2010), https://ssrn.com/abstract=1689462.

[86] Such as farmer's right to seek compensation where the representation made by proprietary seed owner fails.

[87] See Claire Robinson, *Burkina Faso Abandons GM Bt Cotton*, (2016), http://www.gmwatch.org/en/news/latest-news/16677-burkina-faso-abandons-gm-bt-cotton.

[88] See Ramanna, *supra* note 73.

[89] See NANCY BENJAMIN ET AL., INFORMAL ECONOMY AND THE WORLD BANK INFORMAL ECONOMY AND THE WORLD BANK (2014), http://documents.worldbank.org/curated/en/416741468332060156/pdf/WPS6888.pdf; see also KRAEMER-MBULA, *supra* note 38; COLIN C. WILLIAMS, THE INFORMAL ECONOMY AS PATH OF EXPANDING OPPORTUNITIES, CENTRE FOR DEVELOPMENT AND ENTERPRISE (2017), http://www.cde.org.za/wp-content/uploads/2017/08/Colin-Williams-The-informal-economy-as-a-path-to-expanding-opportunities.pdf.

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dietary needs and food preferences for an active and healthy life".[90] The 2009 World Food Summit identifies three pillars of food security as availability, access, utilization, while the FAO added stability – which is a reference to sustainability or stability of the first three pillars of food security. At the moment, the world is currently producing much more food than it needs. About one-third of the food produced globally, which approximates to 1.3 billion tonnes is wasted.[91] Of the over 1 billion hungry people in need of food, over 80% of them are in the developing world, and many of them fall within the rank of indigenous and local communities whose main preoccupation is farming!

The implication of the above dismal statistics is that food security or insecurity is not a factor of food production, but one that engages complex socio-economic and, by extension, cultural dynamics which determine the availability, access and the extent to which food is utilized by those in real need of food in a sustainable manner.[92] For people to have food security, they must be able to have a control over their food choices or preferences which affirms the overlap between food security and food sovereignty. Their ability to access food must be premised on economic and social equity and in a context that preserves their human dignity.[93] For example, a population in a permanent state of dependence on food aid is not food secure even where there is no real threat to the sustainability of the food aid. However, the ability of a distressed population to access food aid as an interventionist and humanitarian matter enhances their food security.[94] Where people are directly or indirectly in a state of permanent dependence on external interests for their food, is antithetical to food security. A system that is based on external sourcing of food for a vulnerable population is less likely to ensure that food is culturally appropriate, let alone available in a state of human dignity. As well, a state of permanent dependence on another for food which is a logical result where actors other than farmers exercise propitiatory control over genetic resources does not enhance the cause for food security and food sovereignty. Sourcing food by the weak in a globally fractured food system and its symmetrical socio-economic order is less likely to foster human dignity of the world's poor and hungry. This is so because historically, food has been used a weapon of warfare and political pressure.[95]

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[90] An Introduction to the Basic Concepts of Food Security, FAO (2008), http://www.fao.org/docrep/013/al936e/al936e00.pdf.

[91] SAVE FOOD: Global Initiative on Food Loss and Waste Reduction, FAO, http://www.fao.org/save-food/resources/keyfindings/en/.

[92] See Chidi Oguamanam, *Africa's Food Security in a Broken Global Food System: What Role for Plant Breeders' Rights?* 5 QUEEN MARY JOURNAL OF INTELLECTUAL PROPERTY 409–429 (2015).

[93] See Nandini Ramanujam & Stephanie Chow, *Towards a Human Dignity Based Approach to Food Security: Lessons from China and India*, 11 FRONTIERS OF LAW IN CHINA 1–23 (2016).

[94] The Food and Agriculture Organization's Annual State of Food and Agriculture for 2006 focused on the intersection between food aid and food security. See THE STATE OF FOOD AND AGRICULTURE 2006 (2006), http://www.fao.org/docrep/009/a0800e/a0800e00.htm.

[95] As far back as March 31, 1941, the Time Magazine dedicated its edition to War and Peace: Food a Weapon" which explored how Hitler's Nazis and Russia's Stalin used food ingeniously as a political

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For the world's food insecure, most of whom are in the developing countries of Africa, India and the global south, farmer-based agriculture is vital for their food security. The fact that smallholder farmers in these regions also double as the most food insecure locates them in a position of direct beneficiaries of farmers' rights. The realization of farmer's rights becomes an urgent interventionist development strategy. As a development matter, farmers' right must have a poverty eradication outcome, reversing the perennial impoverishment of farmers which is partly a result of a system in which they are framed as threats to plant breeders and subservient actors in the global political economics of agriculture.[96] When farmers are unfettered in their ability to grow their traditional crops, to experiment with them, to produce new varieties and curate existing ones, they are most likely to have full control of their own food production. As an integral part of the grassroots, farmers are in a position to efficiently navigate the access and utilization elements of food security. This is so because not only are farmers critical chunk of the world's food insecure, they are also a part of rural socio-economic and cultural ecosystem in which other non-farmer food insecure populations are nested in the agriculture and food value chain.

A situation like the one that currently prevails at the global level in which farmers are pressured to serve as retail outlets for proprietary seeds holders is antithetical to food security. Through aggressive technological control and proprietary rights enforcement, farmers are now akin to vending machines for proprietary product manufacturers (in this case plant breeders or patent holders). Consequently, through unfair seed laws and contracts with seed companies, farmers may have a limited choice of what seeds to plant and when; as they are constrained to use their farm-saved seeds while being staged to rely on proprietary ones.[97] If not for insisting on growing their traditional landraces and saving and sharing seeds from their harvests, farmers risk being literarily and metaphorically franchise operators for few transnational agricultural corporations. But in such a situation, as a significant demographic of the world's food insecure, farmers would lack the socio-economic standing needed to make them food secure. When farmers are under the capture of industrial and proprietary rights holders, the outcome is that there is no guarantee of sustainability which is the fourth pillar of food security. First, there is

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weapon. The same place has been referenced in contemporary political struggles and war situations. See, for example, Michael Curtin, *Using Food as a Weapon of War*, INTERNATIONAL POLICY DIGEST, November 27, 2017, http://intpolicydigest.org/2017/11/27/using-food-as-a-weapon-of-war/.

[96] See Borowiak, *supra* note 20; see generally Kloppenberg, supra note 7, Manning, supra note 31.

[97] This form of inequity and unfair contractual relationship between farmers and seed companies is not a reference to conventional farmer seed networks – see, for example, Oliver T. Coomes, et al., *Farmer Seed Networks Make a Limited Contribution to Agriculture: Four Common Misconceptions*, 56 FOOD POLICY 41–50 (2015). Here, the concern is in relation to the relationship between smallholder farmers and transnational agricultural corporations such as Monsanto. See, for example Deniza Gertsberg, MONSANTO'S IRONCLAD CONTRACT - IN FEAR OF THE DOTTED LINE GMO JOURNAL OF FOOD SAFETY POLITICS (2010), http://gmo-journal.com/2010/01/19/monsantos-ironclad-contract-in-fear-of-the-dotted-line/; see also La Via Campesina, SEED LAWS THAT CRIMINALISE FARMERS: RESISTANCE AND FIGHTBACK GRAIN (2015), https://www.grain.org/article/entries/5142-seed-laws-that-criminalise-farmers-resistance-and-fightback.

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no basis for sustainability in regard to access, availability and utilization of food. Second, neither is there ground for sustainability of traditional agricultural knowledge system which is the driver of farmer-centred agriculture. Proprietary seeds come as total packages which prescribe custom agro inputs to be used; when, how, and what conditions farmers should plant, tender and harvest; not to mention other details through which farmers are controlled and placed under the surveillance of breeders and right holders to the proprietary varieties.

In addition to the elements of accessibility, availability, utilization and sustainability, food security is also considered from a food system approach. I have noted elsewhere that "Essentially, a food system framework seeks to strike a balance between competing knowledge systems in agricultural production. It embraces the essence of agro-biotechnology or industrial agriculture, as well as underscoring the importance of agro-ecological imperatives or traditional systems of agricultural production. A food system approach to food security and hunger eradication grounds the multidisciplinary and critical essence of global political economics of food and agriculture".[98] In that contexts, it is recognized that farmers' rights are theoretically an agency to realize and integrate traditional agricultural production into the food security equation. Unless farmers' rights and their animating justifications assume urgency and importance in the political economics of agriculture, food security in Africa, India and certainly in the rest of the global south which is home to over 80% of the world's food insecure will be hard to attain.

Conclusion

In Africa and India, smallholder indigenous and local community farmers are the dominant divers of agricultural production and innovation. Ironically, that demographic is the most food insecure, a situation that implicates the inequity of the global political economics of agriculture in which farming as a concept is increasingly contested. Within that rubric, indigenous and local community smallholder farmers as well as respected intergovernmental and non-governmental organizations have since become fierce defenders of farmers' rights. Farmers are pitched against proprietary stakeholders in agriculture, notably plant breeders and converging agro transnational corporations involved in all forms of industrial agriculture, including agricultural biotechnology. These are mainly sponsored by Europe and America. In the process of prosecution and optimization of their factors endowments and head start in plant breeding and formal R&D innovation in agriculture, Europe and America have cast informal and smallholder farmers and their age-hold open and communal model of agricultural production epitomized by the practice of exchange of farm-saved seeds as objects of regulatory containment designed to secure plant breeders and other related actors.

[98] Oguamanam, *supra* note 92.

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However, in Africa, India and, certainly, elsewhere in the developing world, despite their marginalization, smallholder indigenous and local farmers have continued to operate in these traditional centres of genetic diversity, demonstrating the resilience of the informal sector as the engine of cultural and economic activities in the developing world. Over the years, their commitment to epistemic pluralism and to genetic diversity in agricultural production contrasts with more proprietary driven and monocultural tenor of industrial agriculture. Farmers' contributions to the curation, preservation and conservation of global genetic diversity not only demonstrate the obligate dependence of knowledge systems in agricultural innovation. As well, it renders imperative the need for equitable legal, even non-legal frameworks for rewarding and empowering farmers' invaluable contributions to agricultural innovation. That framework has since crystalized in the idea of farmers' rights, the detailing of which lies at the intersection of its strict juridical (legal) and development (quasi-legal or downright non-legal) ramifications as it remains a work in progress.

Because farming is the highest sectoral employer of labour and the most intensive informal economic activity, it has direct or indirect effect on everyone in Africa and India. Farmers' rights represent a vital entry point for addressing development gaps and for tackling the food security challenge in the two regions and, unquestionably, in the rest of the developing world. The practice of exchange of farm-saved seeds amongst farmers is at the heart of farmers' ability to thrive and to double as breeders. This practice is critical to farmer empowerment and to the ability of farmers to produce culturally sensitive food and to exercise control over food choices at cultural and communal levels in ways that enhance the food security of the most vulnerable and most food insecure. Farmers are foot soldiers of food security and food sovereignty. They operate within a global food and agricultural system in which the undergirding political economics is a factor of power dynamic that threatens to relegate farmers into retail or downstream outlets of proprietary rights holders in agriculture. Yet the centrality of farmers in the food and agricultural sector in Africa and India accounts for the resolve with which the African continent and India as sub-continental country (of near equal populations size as Africa) and a credible voice of the global south have championed farmers' rights amidst aggressive attempts by Europe, United States and industrialized countries in general to subject farmers to the whims and caprices of plant breeders and other right holders in agriculture.

Africa and India have conjoined interests in securing the role of farmers in agriculture. Safeguarding of that interest constitutes a strategic and direct approach to tacking food insecurity in Africa and India with ultimate ramification for a universe of issues associated with development and sustainability on the African continent, in India and the rest of the global south. As demonstrated in this article, so far, Africa and India have executed their interest in farmers' rights with some degree of fickleness, evident failure of resolve and wobbly leadership. There are perhaps not many sites of interest convergence and solidarity that compels the urgency for self-preservation in food security

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and agro-epistemic pluralism for Africa and India than those engaged by farmers' rights. The cultural rootedness and resilience of informal farmer innovation and practices in Africa and India and, of course, among Indigenous peoples elsewhere, is a factor of the natural concurrence of genetic diversity with ethnic diversity. It is a unique state of affair that constitutes extraordinary factor endowment and comparative advantage for India and Africa over Europe, United States and the rest of the industrialized world's lineal, industrial and proprietary, even if monoculture, model of agricultural R&D innovation and production.

With a combined population of 2.5 billion[99] (which is 33 percent of the current global population of 7.6 billion) about 70-80 per cent (2 billion) of which are involved at some level in smallholder and informal farming practices, Africa and India are true vestiges of farmer-centred agriculture. Given the acknowledged contributions of farmers to global genetic pool and, by extension, the dependence of modern agriculture R&D innovations on traditional forms of farmer-centred agriculture, Africa and India are in far stronger position than they have demonstrated in championing farmers' rights as strategic tool to plug the existing deficits at the logical intersection of food security and development. If Africa and India were to synergize and pull their strengths together in championing farmers' rights, on a global scale of solidarity, they are most likely to leverage or tamper American and Europe's intrepid consolidation of proprietary agro-industrial model at the expense of farmer-driven agriculture with greater credibility than the bravado with which Trumpism threatens to overreach America's historic negotiation advantage. Africa and India are in a position to spearhead the impetus for saving farmer-centred agriculture. Such a commitment in itself is a shortcut to expedite development and food security in those regions. In addition to fast-tracking development, by leading the charge Africa and India are serving their mutual self-interest and self-defence over a world that is running riots with an agricultural and food system that feeds off market-driven and inequitable political economics with an outcome that alienates the global food and agricultural system from concerns about sustainability to genuine and practical consideration for food security and development.

[99] As of 2017, Africa's population is 1.2 billion while that of India is 1.3 billion.

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