Dying to Dine: A Story of the Suicidal Indian Farmers

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The Week, a well-respected magazine in India carried a special report in May 2008, reporting an increasing trend of suicides amongst farmers. The latest reports indicate that approximately more than 25,000 incidents of suicides have occurred in India with a steady increase in numbers. The suicides paint a bleak picture of India, a country that takes pride in achieving self-sufficiency in food production from starvation and famine. The Week's report concludes that the “[p]roper price for [our] products” is required to avert further crisis in the agricultural sector.

Meanwhile, the Economist reported in its April 2008 issue of a “Silent Tsunami”: “A wave of food-price inflation,” the article highlighted, “is moving through the world, leaving riots and shaken governments in its wake.” The food crisis of 2008, the Economist asserted, has revealed market failures at every link of the food chain.

In fact, there is a crisis in the agricultural sector. Several factors are causing this. First, overall government spending on agricultural

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1 Reports of Suicides of Farmers in Vidarbha, India, Week, May 2008, at 22. Elsewhere the magazine discussed the death of farmers in Guntur, Andhra Pradesh, India owing to loss of chili crops. Id. at 31.


3 Nayla Komm'on Farmers, Ministry of Agric., Gov't of India, Serving Farmers and Saving Farming 1 (2006), available at http://krishakayog.gov.in/revdraft.pdf (discussing that “import of food-grains in India increased year after year and touched a level of 10 million tonnes in 1966, largely under the PL 480 programme of the United States of America” and highlighting that the High Yielding Varieties Programme in 1966 resulted in a major breakthrough in productivity and resulted in “Wheat Revolution”).

4 See Week, supra note 1.


6 Id.
research has decreased. World-wide spending on farming as a share of total public spending in developing countries has fallen by half between 1980 and 2004, although governments in developing countries finance agricultural research.\footnote{Interesting, the same sentiment was reflected in the Report of the National Commission on Farmers, a 2004 body that was set up by the Government of India to assess the national agricultural crisis. Since 1985, the Government of India directly reduced public sector investment in agriculture along with the rural development budget, which included expenditures on agriculture, special areas program, irrigation and flood control, and village industry, by sixty percent and as a consequence, the report notes, it indirectly caused further reduction in public investments in agriculture.}

Second, increased privatization of agriculture in developing countries has resulted in reduced public sector support of agriculture. For instance, the Economist highlights that in the 1980s, governments reduced green-revolutionary spending, either out of complacency or because they preferred to involve the private sector, which turned out to be monopolize agricultural markets.\footnote{In India too, the simultaneous privatization of agriculture along with the reduction in public sector support of agriculture resulted in a loss of government support to farmers at a time when private companies worked hard to monopolize markets.}

Third, dumping, which is a product of agricultural subsidies in the rich world,\footnote{Third, dumping, which is a product of agricultural subsidies in the rich world, in combination with the failure of the developing world to push the Doha agenda, has destabilized local markets in several developing nations, causing the current increase in food prices. The realities of the food crisis form the background to the discussion of India’s endeavor to tackle the issues relating to agriculture with special emphasis on the nation’s efforts to promote farmers’} in combination with the failure of the developing world to push the Doha agenda, has destabilized local markets in several developing nations, causing the current increase in food prices.\footnote{The realities of the food crisis form the background to the discussion of India’s endeavor to tackle the issues relating to agriculture with special emphasis on the nation’s efforts to promote farmers’}


\footnote{See \textit{Nat’l Comm’n on Farmers}, supra note 3 (the Commission, headed by Professor M.S. Swaminathan, submitted a total of four reports each of which asserts the increasing costs and risks associated with farming and calls for a comprehensive national policy for farmers); see also Anitha Ramanna, Farmers’ Rights in India: A Case Study 9 (2006), available at http://www.fni.no/doc\&pdf\%FNI-R0606.pdf.}

\footnote{See Mishra, supra note 2.}

\footnote{See Economist, supra note 7.}

\footnote{See generally Mishra, supra note 2.}

\footnote{See Economist, supra note 7 (noting that huge farm surpluses from the rich world that were dumped on markets resulted in depressing prices and returns on investment).}

\footnote{See Mishra, supra note 2; see also S. Ragavan, \textit{To Sow or Not to Sow: Dilemmas in Creating New Rights in Food}, in \textit{Agricultural Biotechnology and Intellectual Property: Seeds of Change} 318 (J. Kesan ed., 2007).}
rights under the Protection of Plant Varieties and Farmers' Rights Act, 2004 (PPVFA). The story of the PPVFA is interesting because the legislation represents India's fulfillment of its international obligations by introducing breeders' rights while simultaneously recognizing farmers' traditional rights. Thus, Part I of this article outlines the steps India took to promote farmers' rights as part of enacting a legislation to protect breeders' rights to fulfill its obligations under Article 27(3) of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). After discussing the three types of protection regimes, this part then outlines the interaction between the three protection regimes that characterize the unique nature of the PPVFA, with particular emphasis on farmers' rights. Part II addresses the central thesis of this paper. This part highlights that while it is important that small farmers are not deprived of their traditional rights, helping farmers cannot be limited to creating or protecting existing rights. It necessitates preserving markets, which goes beyond the simple question of farmer versus breeder. Thus, this part outlines the various strategies (not solutions) that India can adopt to create markets for its farmers in the context of the overall issues currently prevalent in international agricultural trade.

I. Protecting Farmers in the Breeder Context

Traditionally, India has a demonstrated reluctance to privatize agriculture because of its stated constitutional goal to balance economic rights (of the innovators) with social rights (of the poor who cannot afford the protected varieties). Thus, prior to the 1980s, India established significant restrictions on private sector investment and seed imports. Part of India's reluctance was dictated by the importance of agriculture to its overall economic development. An estimated seventy percent of the population depended on agriculture,

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16 Ramanan, supra note 8.
and in 2002 alone agricultural trade contributed to an output of 2925 billion Rupees ($61 billion U.S.)\textsuperscript{17} although the total contribution from agriculture as a percentage of GDP is low.\textsuperscript{18}

India took its first steps towards liberalization in the early 1980s when it allowed foreign seed companies to enter the market. By 2001, a World Bank Study estimated that India housed more than 500 private seed companies (the largest with an annual turnover of about $3 million U.S. at official exchange rates), twenty-four of them with links to multinational seed companies, and many with their own hybrid development programs.\textsuperscript{19} Since then, the share of private sector in gross capital formation has steadily increased in India.\textsuperscript{20} India's efforts to introduce plant breeders' rights, which is part of the pattern that resulted in privatizing the agricultural sector, is generally perceived as an outcome of the pressures from India's membership to the WTO, as well as the entry of foreign corporations into the market. The prevailing wisdom dictates that even if privatization of agricultural trade is largely beneficial overall, it shifts farming towards larger holdings which inevitably marginalizes poor farmers. The PPVFA is India's solution to balance the effects of creating private rights by outlining clear boundaries of the public/private divide. Thus, the PPVFA, discussed below in Part I, is a sui generis model with three specific protection regimes created to balance the interests of all players in the national agricultural trade.\textsuperscript{21}

A. The Three Types of Protection Regimes Under the PPVFA

The PPVFA, discussed below, creates three protectable varieties of seeds, which are:\textsuperscript{22} (a) New variety, which protects breeder's rights, (b) Extant variety, which protects biodiversity materials, and (c) Farmers' variety, which is a sub-classification of the extant variety which protects varieties that result from farmers' creativity either collectively or individually.

\textsuperscript{17} Id.
\textsuperscript{18} Deepak Kumar, Private Sector Participation in Indian Agriculture: An Overview, EFFEC-
0506/0506006.pdf.
\textsuperscript{19} Indep. Group, World Bank, The Seed Industry in South Asia (2001), availa-
ble at http://lnweb15.worldbank.org/oed/seedclub.nsf/f57456d58aba40e585256ad4007364
04/eea847661f5c30d1b5256750056c30d?OpenDocument&Highlight=0,India; see also RAMANNA, supra note 8, at 2.
\textsuperscript{20} See Kumar, supra note 18, at 20.
\textsuperscript{21} The term sui generis refers to systems engineered to meet the unique needs of a particular country or nation. See RAGAVAN, supra note 13, at 325-28.
1. New Variety

A variety would be eligible for protection as *new* provided it is novel, distinct, uniform, and stable.\(^{23}\) The new variety classification promotes private rights in plant breeding. Hence, the protection threshold for this classification is similar to the requirements outlined under the Union for Plant Variety Protection Treaty (UPOV), whose objective is to promote breeder friendly plant protection regimes.\(^ {24}\) Of the threshold requirements under the PPVFA, novelty of a new variety will be satisfied if the variety has not been "sold or otherwise disposed of" in India more than a year prior to filing or outside India for more than four or six years, depending on the type of plant.\(^ {26}\) Importantly, a variety being well known on the application date, by methods other than by sale or disposal, shall not affect novelty under the statute.\(^ {26}\)

The distinctiveness bar requires the application variety to be clearly distinguishable by at least one essential characteristic from any other variety whose existence is a matter of common knowledge in any country at the time of filing of the application.\(^ {27}\) Further, the explanation highlights that the filing of an application for granting breeders' rights or the entering of a variety into any official register renders it as a matter of common knowledge. (Note that the common knowledge of the application material itself seems to be inconsequential to the distinctiveness requirement under the statute).\(^ {28}\) Notably, under the PPVFA, an application material that is not clearly distinguishable from biodiversity varieties, but is distinguishable from varieties that have been applied for registration or entered into any official registry, could pass the test of distinctiveness and become eligible for protection. Similarly, it is unclear how biodiversity materi-

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\(^{23}\) *Id.* § 15.


\(^{26}\) *See* The Protection of Plant Varieties and Farmers' Rights Act, 2001 § 15(3)(a).

\(^{26}\) *Id.* § 15(3) proviso.

\(^{27}\) *See id.* § 15(3)(b).

\(^{28}\) *See* Ragavan, *supra* note 13, at 328-330 (discussing how common knowledge is treated under UPOV).
als that have not been applied for registration or entered into any official registry will serve as a prior art reference to compare with application materials (since comparison can only be made with materials that are either registered or were part of an official application for registration). Stability relates to the varieties’ ability to retain its features despite generational propagation, and uniformity refers to the homogeneity of the essential characteristics.

Examination guidelines, established under the PPVFA, set out the principles used for testing the distinctiveness, uniformity, and stability (DUS Guidelines) of a variety, which is used to determine its registration status. A candidate will be considered a variety if it results from a given genotype (or a combination of genotypes) and is consistent and repeatable in a particular environment. The examination generates a definition of the variety using its relevant characteristics like plant height, leaf shape, and flower and fruit characters. The characteristics should also exhibit sufficient variations to be distinct (e.g., male, female, long, short, etc.). Any breeder, farmer, group, or community of farmers may apply for registration of a new variety.

2. Extant Variety

The extant variety register serves as a compilation of matters known and existing in the public domain. Thus, the extant variety encompasses: (a) a variety about which there is common knowledge, (b) a variety in the public domain (including the farmers’ variety), or (c) any variety included under Section 5 of the Seeds Act, 1966.

The objective for introducing the extant variety is manifold. First, the introduction of farmers’ variety and extant variety is meant

30 See General Guidelines for the Examination of Distinctness, Uniformity and Stability and the Development of Harmonized Descriptions, Protection of Plant Varieties and Farmers’ Rights Authority, Department of Agriculture and Cooperation, Government of India, reprinted in 1 PLANT VARIETY J. INDIA 127 (2007), [hereinafter DUS Guidelines]. Based on Paragraph 2.2 and 2.3 of the General Guidelines, Specific Guidelines for DUS testing of several crop varieties have been developed and are now available at http://www.plantauthority.gov.in/Draftcropguide.htm (last visited July 6, 2009).
31 DUS Guidelines, supra note 30.
32 Id.
33 See The Protection of Plant Varieties and Farmers’ Rights Act, 2001 § 15(3)(b) (highlighting that distinctiveness is examined by comparing relevant characteristics).
34 See DUS Guidelines, supra note 30, R. 5.2.2 at 9.
35 Id.
36 See The Protection of Plant Varieties and Farmers’ Rights Act, 2001 § 16(1)(d).
37 Id. § 2(j).
to balance breeders’ rights with rights of other players in agricultural trade. Second, being a compilation of matters already known and existing, the extant variety typology seeks to protect traditional knowledge and indigenous rights. Third, the extant variety classification indirectly creates a higher bar to determine distinctiveness of a new variety. Considering that India is a country with rich biodiversity materials, the lower standards of distinctiveness of the plant protection regime (per se as well as in comparison with the nonobviousness requirements of the utility patent regime) creates a dangerously thin divide between public and private domains. Hence, countries like India, lacking well-documented systems for identifying matters in the public domain, require cautiousness to prevent matters embodying low levels of distinctiveness from being elevated to a private domain status. The extant variety classification indirectly serves to create a higher threshold for determining distinctiveness for new varieties. Fourth, the extant variety classification takes care of India’s obligation under the Convention on Biological Diversity (CBD), to which it is a signatory. The Convention requires member states to take adequate steps to preserve biological and genetic materials. Unfortunately, privatization of agriculture tends to erode genetic diversity as farming communities adapt to hybrid varieties. Yet, there are traits in traditional varieties that are useful to humanity. Hence, sovereign nations have a duty to preserve traditional genetic materials. The extant variety classification, by creating a log of ge-

38 Id. § 14(b).


40 Id. at 709 (“The prior art for an application material refers to publicly available existing knowledge that is relevant to an invention for which a patent applicant is seeking protection. If the prior art is too closely related to the claimed invention, the application may be rejected on the grounds of lack of an inventive step. The registration officers are required to check for the absence of prior art before awarding a patent.”).

41 Id. at 710 (“India must document and legally protect the farmers’ varieties (FVs) and use them globally as a trade strategy. The FVs therefore can be equated with the prior art provision of The Patents (Amendment) Act, 2005. Providing necessary legal framework will ensure that already known FVs are not encroached as ‘New Variety.’”).

42 Convention on Biological Diversity, June 5, 1992, 1760 U.N.T.S. 79. The CBD was signed at the United Nation’s Conference on Environment and Development in 1992 and came into force on December 29, 1993. The CBD addresses the need for an international framework to beneficially exploit and conserve biodiversity. Thus, the CBD is the international treaty conceived as a tool to promote sustainable development. The Convention has three important objectives: first, the conservation of biological diversity; second, promoting sustainable use of biodiversity components; and, lastly, sharing benefits from biodiversity resources in exchange for transfer of technology. See id.

43 See generally Nagarajan, Yadav & Singh, supra note 39.
netic materials, minimizes some of the known market effects of privatization.

An extant variety may be registered by a breeder, farmer, a community of farmers, a university, or a public sector.44 Although a breeder can register an extant variety, she or he is not entitled to exclusive rights over the variety.45 Section 28 of the PPVFA provides that the Government, as the owner of the extant varieties, enjoys the rights to determine their production, sale, marketability, distribution, importation, or exportation.46

Government ownership over the materials ties in with the objective of protecting biodiversity by empowering the government to negotiate with entities that require biodiversity materials for creating biotechnology innovations.47 Considering that the extant variety register is a log of materials in the public domain, the registration requirements are not rigorous. Extant varieties need not be novel, and the requirements of distinctiveness, uniformity, and stability are regulated by administrative notifications.48 The examination guidelines for the registration of extant varieties are yet to be finalized. The Government of India constituted an Extant Variety Recommendation Committee (EVRC) to develop appropriate procedures for examining


45 Id. § 28. The proviso to Section 28(1) omits the word “exclusive” to determine the breeder's rights. The language implies that the breeder can never have exclusive rights to extant variety (as opposed to other varieties). To that extent, the rights of the breeder seem limited by the statutory language. Further, the definition of extant varieties in section 2(j) includes "any other variety which is in public domain." Id. § 2(j). However, materials in the public domain cannot become a subject of monopoly private rights of a breeder (or any other private individual or body because of the nature of the IP rights). Such a reading of the provision is bolstered by the fact that the PPVFA does not specify anywhere that breeder’s rights over an extant variety exclude materials that are in the public domain. Thus, the statutory language explicitly specifies that a breeder cannot be the first creator of an extant variety — if she is, then it is a new variety — otherwise, it is just material in the public domain with lack of adequate distinctiveness to qualify as a protectable variety. However, a breeder can get some rights over an extant variety for use during a specific period (although this is not exclusive).

46 Id. § 28. The definition of extant variety includes “matters in the public domain.” Hence, if there is any perpetual ownership over it, it has to be of the government — such ownership would be consistent with the provisions of the Convention on Biological Diversiy, 1992.


48 The Protection of Plant Varieties and Farmers’ Rights Act, 2001 § 15(2); see also Nagarajan, Yadav & Singh, supra note 39, at 710 (highlighting that “the criteria of Distinctiveness, Uniformity and Stability (DUS) to be adopted for the EV may marginally vary from those specified for new varieties.”).
applications to register an extant variety.\textsuperscript{49} The PPVFA allows applicants the right to exploit extant varieties (biodiversity material) for up to fifteen years from the date of publication.\textsuperscript{50} Registering a plant as an extant variety would enable researchers to work with it but also prevent attempts to protect it by exploiting the lack of general awareness of the material.\textsuperscript{51} The disadvantage with the extant variety register is its reliance on the general public to create the register. Presumably, some species in the public domain remain can go unnoticed and hence, unregistered.

3. Farmers’ Variety

“Farmers have taken up crop-improvement activities by selecting useful traits, out of the periodically accruing natural variation.”\textsuperscript{52} Hence, “farmers’ variety” is a traditionally cultivated variety evolved collectively by the farmers “in their fields, or is a wild relative or land race of a variety about which the farmers posses the common knowledge.”\textsuperscript{53} The farmers’ variety is distinguishable from the larger extant variety, since the latter encompasses biodiversity or genetic materials.\textsuperscript{54} Being a sub-set of the extant variety, the farmer’s variety is ineligible for intellectual property or sui generis protection. The advantage in creating the farmer’s variety is to encourage farmers to register varieties they have cultivated for years to prevent misappropriation.

In creating the farmers’ variety, the PPVFA distinguishes itself from the traditional IP based statues by recognizing community rights. The PPVFA defines “farmers” as those who “cultivate crops by

\begin{itemize}
\item \textsuperscript{49} See Ministry of Agric. Notification, Protection of Plant Varieties and Farmers’ Rights Regulations, 2006, Gazette of India, Extraordinary, pt. II, § 3(i) (Dec. 7, 2006), available at http://isolink.fao.org/docs/pdf/find65512.pdf; see also Nagarajan, Yadav & Singh, supra note 39, at 710 (noting that a notification was issued regarding the constitution of the EVRC);
\item \textsuperscript{50} See The Protection of Plant Varieties and Farmers’ Rights Act, 2001 § 24(6)(ii). By defining extant varieties as including “matters in the public domain,” the statute treats extant varieties as equivalent to biodiversity materials. Since the statute does not create a difference between matters within the public domain but not necessarily biodiversity materials, the existing definition includes biodiversity materials within the larger framework of extant varieties.
\item \textsuperscript{51} See generally Ragavan, supra note 13, at 329; see also News Release, ETC Group, Hollow Victory: Enola Bean Patent Smashed At Last (Maybe) (May 6, 2008) (discussing patenting of Enola Bean and the issues that arise therefrom).
\item \textsuperscript{52} See Nagarajan, Yadav & Singh, supra note 39, at 709.
\item \textsuperscript{53} See The Protection of Plant Varieties and Farmers’ Rights Act, 2001 § 2(1).
\item \textsuperscript{54} See supra note 50.
\end{itemize}
cultivating the land," and those who supervise cultivation directly or indirectly through other people, or anyone who "conserves and preserves, severally or jointly, with any other person . . . [plant varieties] through selection and identification of their useful properties."\textsuperscript{55} Farmers usually follow a selection criterion of "stability, risk avoidance, low dependence on external inputs and attributes related to storage, cooking and taste."\textsuperscript{56} Such selection leads to qualitative characters like aroma, weather withstanding abilities, etc.\textsuperscript{57} Selection, coupled with the unlimited transfer of knowledge that has traditionally characterized farmers, leads to a general conclusion that those characters should be emphasized to identify the farmer's variety.\textsuperscript{58} The continuous evolution of the traditional systems of cultivation resulted in farming techniques that promoted consumer friendly non-hybrid varieties.\textsuperscript{59} In order to specifically identify and protect the farmer's varieties, the EVRC is assigned the task of developing DUS examination guidelines after duly considering the traditional selection criterion and the traditional systems of cultivation. Of course, the general rule should not discount perceivable differences, if present.\textsuperscript{60}

\textbf{B. Interaction Between the Three Varieties}

1. Common Knowledge: The Connecting Thread

The PPVFA envisages distinct protection regimes for each of the three varieties that it creates by using \textit{common knowledge} as the differentiating feature. That is, new varieties are those for which there is no common knowledge. Extant varieties are those that enjoy general common knowledge. A variety subject to farmers' common knowledge is the farmers' variety. Yet, the statute does not provide a definition of common knowledge. The PPVFA, however, provides an explanation of \textit{common knowledge} to determine the distinctiveness of a new variety.\textsuperscript{61} Under the PPVFA, a variety will be considered distinctive if it is "clearly distinguishable by at least one essential char-

\textsuperscript{55} See The Protection of Plant Varieties and Farmers' Rights Act, 2001 § 2(k).

\textsuperscript{56} Nagarajan, Yadav & Singh, \textit{supra} note 39, at 710.

\textsuperscript{57} Id.

\textsuperscript{58} See \textit{id}.

\textsuperscript{59} See \textit{generally} Ctr. for Indian Knowledge Systems, www.ciks.org (last visited July 1, 2009) (discussing traditional methods of cultivation with particular emphasis on the selective techniques used by farmers).

\textsuperscript{60} See Nagarajan, Yadav & Singh, \textit{supra} note 39, at 710.

acteristic from any other variety whose existence is a matter of common knowledge." Borrowing from UPOV, the PPVFA renders only varieties that have undergone the application process for granting breeders' rights or have been entered into any official registry as a matter of common knowledge.

The statutory definition of common knowledge contributes to a low standard of distinctiveness. For instance, common knowledge of the application material does not affect the distinctiveness of the variety — application material that is well known or itself a matter of common knowledge (including by prior registry or application for PBRs) can pass the test of distinctiveness, provided the material is distinguishable from another that is a matter of common knowledge. Similarly, application materials that are indistinguishable from commonly cultivated or well-known materials are not a bar to distinctiveness. Both commonly cultivated and well-known varieties (even if commonly known) that are indistinguishable from other well-known species will continue to qualify as "distinct" so long as they can be distinguished from varieties that are not known by registry or by application for breeders' rights. Perhaps it is in consideration of this defect that the General DUS guidelines formulated under the PPVFA require common knowledge to be determined by factors such as commercialization of propagating or harvested material of the variety, or publication of a detailed description and existence of living plant material in publicly accessible plant collections. The DUS guidelines track the UPOV guidelines, which were amended after several criticisms that common knowledge excluded even materials about which there was published information. It is worth pointing out at

62 See id. § 15(3)(b).
63 See UPOV, supra note 24, art. 7; see also The Protection of Plant Varieties and Farmers' Rights Act, 2001 § 15(3)(b) explanation ("The filing of an application for the granting of a breeder's right or for the entering of another variety in an official register of varieties, in any country, shall be deemed to render that other variety a matter of common knowledge from the date of the application, provided that the application leads to the granting of a breeder's right or to the entering of the said other variety in the official register of varieties, as the case may be.").
64 See DUS Guidelines, supra note 30, R. 6.2.2 at 19.
65 See Ragavan & Mayer, supra note 24, at 106 (discussing the issues in UPOV with reference to common knowledge).
66 UPOV, General Introduction to the Examination of Distinctness, Uniformity, and Stability, and the Development of Harmonized Descriptions of New Varieties of Plants, § 5.2.2.1, UPOV Doc. TG/1/3, Apr. 19, 2002 [hereinafter UPOV Guidelines], available at http://www.upov.int/en/publications/tg-rom/tg001/tg_1_3.pdf (requiring common knowledge to "be determined by considering among other things, commercialization of propagating or harvested material of the variety, or publishing a detailed description, existence of living plant material in publicly accessible plant collections); see also DUS Guidelines, supra note 30, at R. 6.2.2 (embodying the same words as the UPOV guidelines).
this stage that while common knowledge is relevant to identify a variety with which application material is compared to determine distinctiveness, it is inconsequential to determining novelty.

The DUS examination guidelines highlight that the considerations for determining common knowledge apply "equally to all types of variety, whether protected or not." It is, however, unclear whether additional limitations would apply to determine common knowledge for extant and farmers' varieties in India. Considering that the PPVFA defines common knowledge as an explanation (as opposed to a general definition) to determine distinctiveness of a new variety, it implies that the common knowledge as applied to determine extant and farmers' variety may be different. Furthermore, given that the DUS Guidelines highlight that the considerations to determine common knowledge are non-exhaustive, perhaps additional considerations can apply to determine farmers' or extant varieties. Unless the term common knowledge were applied more broadly, it would limit materials qualifying as "extant" or "farmers' variety" in a manner defeating the purpose of creation of these varieties. Since UPOV does not concern itself with extant or farmers' varieties, such a reading of common knowledge would fit well with the existing UPOV mechanism as well. But it leaves the EVRC with the burden of having to carefully create the appropriate distinctions.

2. Achieving Biodiversity Protection & Protecting Farmers' Rights

The PPVFA's sui generis stamp is showcased by the various exceptions that it carves out from the breeder's rights to either protect the traditional rights of farmers, or protect biodiversity. The following discussion highlights some of these efforts.

a. Protecting Biodiversity

The PPVFA requires every application for registration of a new variety to include a denomination of the variety and describe: (a) the geographical origin of the material, and (b) all information regarding the contribution of the farmer, community, or organization in the development of the variety. Moreover, section 40 requires the applicant to disclose information "regarding the use of genetic material

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67 See DUS Guidelines, supra note 30, R. 6.2.2 at 19.
68 Id.
conserved by any tribal or rural families in the breeding or development of such [new] variety. Further, the application must affirm that all genetic or parental material used to develop the variety has been lawfully acquired. The information in the application has three benefits. First, it promotes benefit sharing (where the new variety is created from an existing variety); second, it automatically generates prior art to conduct the DUS testing; and third, it creates a clear wall between materials in the public and private domain.

b. Right to Benefit Sharing

“Benefit sharing” is a concept by which a proportion of the benefits accruing to a breeder of a new variety are shared with qualifying claimants who could be indigenous groups, individuals, or communities. Qualification to share benefits depends on (a) the extent and/or nature of use of genetic material in the development of the new variety, and (b) the commercial utility and demand in the market of the new variety. Individual farmers and communities can submit a claim for benefit sharing in response to the Director’s invitation to claim benefit sharing to the registered variety. The Director will then, after due hearing, determine if benefit sharing is available and the extent of sharing between the breeder and community or individual as the case is.

The money thus collected towards benefit sharing and as royalties are credited into a statutorily created fund, termed “the gene fund,” established by the Central Government. The funds thus deposited into the gene fund are due to farmers and the communities. The funds shall be applied towards compensating the farmers and the community (where benefit sharing applies), for other identified expenditures, and for specific schemes that support conservation and sustainable use. The benefit sharing arrangement is meant to encourage farmers to conserve and improve traditional genetic materials, land resources, and communities and to preserve biodiversity materials.

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71 See id. § 40.
72 Id. § 18(1)(k).
73 Id. §§ 2(b) & 26.
74 Id. § 26(5).
75 See id. § 45.
76 Id. § 45(2).
77 See id. § 59 (outlining that a farmer engaged “in the conservation of genetic resources of land races and wild relatives of economic plants and their improvement through selection and preservation shall be entitled in the prescribed manner for recognition and reward from the Gene Fund”).
c. Right to Reward

The right to reward is closely associated with the right to benefit sharing. Once benefit sharing is established, the farmer or the community is entitled to the reward, provided a contribution is given to the creation of a new variety. The National Gene Fund, another distinguishing feature of the PPVFA, provides the rewarding mechanism. The proceeds from the Gene Fund can be used to reward individual farmers or to support biodiversity conservation efforts. Biodiversity protection has been stymied by a lack of systematic efforts towards conservation and protection of traditional farming mechanisms. The rewarding mechanism creates an incentive for farmers to preserve traditional systems and funding for areas depleted from bio-prospecting.

Additionally, the PPVFA identifies specific rights that accrue to the farmers. They are:

d. Right to Register Varieties

The right to register varieties is in itself an important recognition for farmers' role in agriculture.

e. Rights to Re-Sow (Seed)

Farmers can retain their traditional right to save and re-use seeds from their harvests. A farmer may "save, use, sow, re-sow, exchange, share or sell his produce," including non-branded seed, even if it is a protected variety. To facilitate the use of this right, the statute requires new varieties to not contain terminator technology. The caveat to re-saving is that the farmer cannot use the

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78 RAMANNA, supra note 8, at 10.
80 Id. § 45.
81 But see, e.g., Srividhya Ragavan, The Global South As The Key To Biodiversity And Biotechnology — A Reply To Professor Chen, [2002] 32 Envtl. L. Rep. (Envtl. Law Inst.) 10,363 (2002) (arguing that biodiversity exploitation agreements, like the In-Bio Merck agreement, lacks funds specifically earmarked for larger community development, biodiversity conservation and/or sustainable development); see also RAMANNA, supra note 8, at 11 (highlighting that the gene fund is designed to promote overall sustainable development).
82 RAMANNA, supra note 8, at 10-12.
83 Id.
84 See Sahai, supra note 69.
86 Id. § 18.
breeder's brand name when reselling second generation produce. In recognizing the right to re-sow, PPVFA deviates from UPOV and supports the traditional right of farmers. The right to re-sow has been controversial because farmers treat re-sowing as their natural right, while breeders insist that farmers re-using protected varieties take away a part of their rightful compensation for the second generation seeds. By introducing the right to brown-bag, the PPVFA removes the most crippling impediment to introducing formal plant variety protection in developing nations.

87 Id. § 39(1)(iv). ("[A] farmer shall be entitled to save, use, sow, resow, exchange, share or sell his farm produce including seed of a variety protected under this Act in the same manner as he was entitled before the coming into force of this Act: provided that the farmer shall not be entitled to sell branded seed of a variety protected under this Act.").

88 The 1991 UPOV does not per se recognize the general right to re-use protected seeds. See Ragavan & Mayer, supra note 24, at 118.

89 In developed nations, seed companies or large farm owners own large tracts of land, mechanically harvest seed, process, bag, tag, and sell their seeds. In developing nations like India seed companies tend not to own large seed farms. Instead, they enter into seed production contracts with small farm owners to produce all seeds, including hybrid seeds, with rights to supervise the field operations. In turn, the seeds produced by the farmers are purchased back by the seed company by giving a price incentive over the grain price, which the farmers would not otherwise fetch for their harvest. This arrangement gives the seed companies several benefits by reducing issues from having to maintain farm assets and reducing risks from seed production. Similarly, the seed producing farmer gets government subsidies for electricity, water, and several other agro-inputs, which the seed company will not normally otherwise get if they own a large seed farm. The tariff rate for industry is avoided and thus out-sourcing seed production is attractive to the seed company. This is called locally "subsidy siphoning." Seeds thus procured from the farmers are cleaned, graded, treated, tested, bagged, and sold back, at a premium price. This, therefore, encourages some farmers to assume that re-sowing is not illegal because it is after all they who produced that seed that was value added by the company. E-mail from S. Nagarajan, Chairperson, Protection of Plant Varieties and Farmers' Rights Authority, India to author (July 18, 2008) (on file with author). In essence, the Chairperson opines that the Material Transfer agreements create easy access to genetic materials as well as the traditional knowledge on the respective genetic materials. The low threshold for clearing the distinctiveness requirement allows minor innovations to be protected as plant patents, which is largely done by ignoring the contributions of the holders of the genetic materials. These patented plants (super crops) are sold back to the place of origin of the genetic materials at a premium price.


91 Denying the right to re-sow would result in private corporations displacing farmers as the country's major seed producer. In countries like India where the farming population is considerable, accounting for eighty-seven percent of Indian seed production, it is important to make welfare exceptions to maintain the balance between trade and welfare. See Suman Sahai, India's Plant Variety Protection and Farmers' Rights Act, 2001, CURRENT SCI., Feb. 10, 2003, at 409.
f. Right to Compensation for Spurious Seeds

The statute requires breeders to disclose the expected performance of the seeds to enable farmers to be compensated should marketing claims fail. The objective is to ensure that quality is not compromised in the zeal to market new varieties.

g. Right to Compulsorily License

In order to protect public interest at large, the PPVFA imposes on the breeder the obligation to provide an adequate supply of seeds or material of the variety to the public at a reasonable price. Otherwise, the statute allows the government to compulsorily license the exclusive right given to the breeder and enable third parties to produce, distribute, or sell the registered variety for reasons of public interest.

Professor Anita Ramanna highlights three other rights of farmers’ in the PPVFA. These are: first, the right to compensation for undisclosed use of traditional varieties provided a claim is filed and proof of lack of disclosure is established; second, a right to free registration, opposition, and renewal of varieties; third, protection from innocent infringement.

II. ARE INDIA’S ACTIONS ADEQUATE?

India’s unique regime to protect farmers’ rights is a commendable step in the right direction. It ensures that farmers’ rights are not trampled in promoting breeders’ rights. The bigger question for India is whether the steps taken in the form of the PPVFA and other statutes, like the Biological Diversity Act, are adequate to alleviate the current crisis in agriculture. As an overall policy to promote agriculture, the immediate concern for developing nations like India is to look at the agricultural trade in entirety as opposed to treating farm-

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92 See The Protection of Plant Varieties and Farmers’ Rights Act, 2001 § 39(2); see also RAMANNA, supra note 8, at 12.
93 See The Protection of Plant Varieties and Farmers’ Rights Act §§ 47-53.
94 See RAMANNA, supra note 8, at 12-14.
95 Id.
96 Id.
97 Id.; see Ragavan & Mayer, supra note 24, at 116.
99 Several countries have addressed or faced issues relating to national food questions. See, e.g., A Different Sort of Emergency, ECONOMIST, Apr. 19, 2008, at 52, available at http://www.economist.com/opinion/displaystory.cfm?story_id=11058143 (Bangladesh); see also
ers’ rights separately. Promotion of farmers in the context of agricultural trade requires India to prioritize market issues. Consumer access to food and creating a market for the produce of local farmers are the most imminent requirements to address the existing food crisis.

Different countries have started dealing with the issue of food crisis at national levels. Some countries have responded by cutting taxes on imported food.100 The Ivory Coast, for example, halved value-added tax after its food riots. Ethiopia scrapped VAT on food.101 Indonesia lifted import controls on soybeans in January after food prices sparked the biggest protests there for years.102 India constituted a study in 2003 to assess the situation of farmers known as the Situation Assessment Survey of Farmers (SAS). The SAS examined more than 50,000 farmer households and pointed out that, among other things, the annual expenditure on cultivation in some states is higher than annual income from cultivation, which leads to the second issue of creating adequate markets for the farmers.103

Solutions to open market access for farmers from poor countries should be long term and address the problem at an international level. While promoting breeders’ rights will lead to innovative hybrid varieties,104 farmers (who embrace such hybrid varieties and harvest a higher yield) cannot benefit unless their produce can be sold in the markets. Unfortunately, the current levels of subsidies of all nations, particularly the developed nations, have closed these markets.105 The term “subsidies” refers to the financial support that governments provide to offset or balance the losses farmers or traders suffer, or are likely to suffer, in agricultural commodities.106 Generally, there are

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101 Id.

102 Id.

103 Id.

104 Keith Bradsher & Andrew Martin, World’s Poor Pay Price as Crop Research is Cut, N.Y. TIMES, May 18, 2008, at A1, available at http://www.nytimes.com/2008/05/18/business/worldbusiness/18focus.html?pagewanted=1&hp (highlighting that despite the rights regime, there are issues that relate to funding for agricultural research).

105 See generally ECONOMIST, supra note 5 (highlighting that as yet another government distortion — subsidies to biofuels in the rich world — have resulted in increase in food prices and that, moreover, governments have exaggerated the problem by imposing export quotas and trade restrictions, raising prices again); see also Ragavan, supra note 13, at 347-49 (discussing how subsidies results in dumping); Mishra, supra note 2.

106 See Ragavan, supra note 13, at 347-49.
several forms of government financial contributions — governments may support the income of the farmers or make up for shortfalls in commodity prices. Subsidies promise a certain percentage of profit or income to the farmers, and thus largely protect the farmers by eliminating the risks associated with the marketability of the commodity. As for poor countries, subsidies of the rich world prevent their products reaching the market on one hand and encourage dumping on the other.

Reduction of subsidies was a commitment negotiated by developing countries to allow market access to their agricultural commodities as part of their trade agenda. Developing nations have been disappointed that developed countries have reneged on the subsidies commitment creating two important trade impediments: first, lack of market access to export agricultural commodities of the developing nations and second, depression of the world commodity market prices resulting in dumping into the less developed parts of the world, affecting the livelihoods of local farmers.

In 1997, the loss to developing countries from agricultural subsidies of the developed nations amounted to $24 billion U.S. A study conducted in 2002 by the OECD estimated that “world welfare cost of distortions in high income countries amounts to $82 billion annually determined using 1997 prices, while the developing world would gain about $26 billion per year based on 1997 prices from the removal of distortions.” Several studies address the relationship between subsidies and their effect on developing nations. It is time for emerging economies like India to prioritize agricultural negotiations.

The current pent-up frustration of the developing world on the economically unreasonable stance of the developed world with regard to agriculture has not yet translated into viable agricultural negotiations. At an international level, the agricultural subsidies negotiations, first launched in the WTO in 2000, became part of the Doha

107 Id.
108 Id.
109 Id.
112 See Beghin, Holst & van der Mensbrugge, supra note 110, at 40.
113 See generally Ragavan, supra note 13.
agenda in 2001. The negotiations meant to “establish a fair and market-oriented trading system through fundamental reform.” The objective was to correct and prevent restrictions and distortions in world agricultural markets. The Doha Ministerial Declaration mandate for agriculture targeted three important areas: reduction of domestic support, phasing out of export subsidies, and improvements in market access. Meanwhile, a group of developing countries, including India, circulated the G20 proposal emphasizing subsidy and tariff reduction for developed countries with fewer demands on developing countries. The differences between the developed and the developing world on the issue resulted in the failure of the Cancun Ministerial Meeting. Further negotiations attempts in 2004 and 2005 failed although the Hong Kong Ministerial Declaration reaffirmed the Doha Commitments. Meanwhile, despite the prevailing world-wide issues relating to agricultural commodities, the United States Congress is furiously working to pass yet another disastrous bill that will aid American farmers and dole money out for items like land conservation, rural development, and even racehorse breeding, which promises to further close markets to poorer farmers across the globe. Emerging economies, particularly India, have repeatedly stressed the need to eliminate export subsidies and reduce the domestic support of rich nations. But developing countries have failed to reach an agreement on agriculture issues despite the immi-

115 Id.
116 Id.
118 Id.
119 Id.
India along with other developing countries, particularly Brazil, took a leadership position in the negotiations that resulted in creating exceptions to pharmaceutical patents under conditions of a public health emergency. 124 It is time for developing nations, particularly an emerging economy like India, to take a tough stand against trade distorting agricultural subsidies. The following discussion merely focuses on what India should do as part of its strategy to push its agenda forward.

A. Solicit Consolidated Support of a Large Number of Developing and Developed Countries

In the Cancun Ministerial Conference in 2003 developing countries took a united stand against the moves of the major developed countries and rejected negotiations on any of the “Singapore issues” (investment, competition, government procurement, and trade facilitation, issues which were introduced in the WTO process in the Singapore Ministerial Conference in 1996) until agriculture issues were fully addressed. 125 Similarly, during the course of the negotiation process in agriculture, various developing-country groups like the G20, G33, ACP countries, and the Least Developed Countries (LDCs) have come together to issue statements. 126 Developing economies should work to consolidate support of a large number of WTO members.

B. Establish Clear Policies

India and other emerging economies should promote research that ultimately creates a package of proposals that would alleviate the clogging in international agricultural trade. There are very limited studies focusing on the kind of policy options in agricultural trade that will help developing nations. 127 Lal Das points out that sometimes developing countries have specific interests. 128 Most of the time, Das adds, they do not contradict with the existing agenda of other developing nations. For instance, Das points out that

the G33 developing-country grouping lays stress on Special Products (SP) and Special Safeguard Mechanism (SSM) in

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125 Id.
126 Id.
127 Id.
128 Id.
agriculture, the G20 on reduction of agricultural tariffs and subsidies in the developed countries, the NAMA 11 on rational reduction of industrial tariffs so that the developing countries’ development process is not hampered, the Small and Vulnerable Economies (SVEs) on special consideration to them on reduction of industrial tariffs, some developing countries with fairly open industrial sectors want reduction of industrial tariffs all around, etc.\textsuperscript{129}

More studies are required to highlight the differences between the developed and the developing nations as well as between the policy goals of various developing nations. Emerging nations should use the awareness of such differences to step up and negotiate towards achieving clear policy agendas. Leaders in the group like India and Brazil should promote more research on agricultural trade, privatization, and creation of private rights in food related innovations, which will be critical to evolve appropriate policies.

C. Fund for Integrated Research

Any research that is promoted by developing countries should take careful cognizance of international treaties and efforts that promote conflicting ideologies. The burden is on developing countries to promote an agenda that balances international trade and intellectual property initiatives with appropriate measures to restore traditional farming rights and practices. For instance, the CBD promotes sharing of genetic resources while UPOV, 1991 lowers the threshold for protection new varieties, thus creating a loophole which can enable minor developments in plants to enjoy intellectual property protection. Similarly, the objectives of both the CBD and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)\textsuperscript{130} is yet to be reconciled with the objectives of World Trade Organization’s efforts to protect innovative plant breeding. The status of innovative plants that result directly from either information or effort using the benefits of provisions in the CBD or ITPGRFA remains unclear. The rights of non-bred actors that help in plant innovation are yet undefined. The presence of Material Transfer Agreements (MTAs) further complicates the situation. For instance, discussions on material transfer agreements from the developed world tend to focus on the importance of intellectual property rights protection over the final innovation. As such, there are no compliance

\textsuperscript{129} Id.

guidelines that ensures that use of genetic resources or general knowledge are adequately documented as prior-art to prevent private rights on minor innovations in the future. The zest to protect the intellectual property rights of the end product ignores any traditional rights (usually unrecognized in the West) of farmers or indigenous communities who may sometimes serve as important contributors to the end-innovation. The concerns outlined by the Director of PPVFA, India, outlines the developing country sentiments succinctly:

The MTAs brings in the intellectual rights on the genes mined from extant varieties to develop a super crop variety by large seed companies. These super crop varieties are sold back to the farmers of developing countries by multinational corporations at a higher price under the pretext of “Technology fee.” The useful genes in the extant varieties that accord resistance to various stresses are prospected, and parked in good agronomic background as new super crop varieties. The technology rich nations use these gene resources to frame the super varieties, conveniently ignoring the need to pay compensation to those farmer(s)/communities who supplied these genes along with the traditional knowledge on the features of these useful traits.

Delineating the rights between genetic and innovative materials will be critical for generating a workable model to promote agriculture and protect the environment. Amidst issues of delineating rights between genetic and innovative materials lies the third spectrum of trade issues (outlined below) that cannot be ignored. Importantly, the adverse effects of the unresolved questions substantially affect developing countries because of the nature of agricultural practices and their in-built variations from western agricultural practices. Consequently, the onus is squarely posited on developing countries to study and develop appropriate policies that address their concerns effectively.

D. Co-Relating Agriculture with IP Rights

Emerging economies should tie the agriculture agenda to issues relating to intellectual property rights; after all, the trade regime is a negotiated contract between the various members. Members signed on to the multilateral system with clear expectations of some benefits and to fulfill certain obligations for the larger good. Such benefits formed the consideration of the agreement especially when viewed in the context of the objectives of the WTO agreement. Viewed from that angle, at the Uruguay agreement developing nations agreed to estab-
lish minimum standards of IPRs provided developed nations reduced barriers to agricultural trade. The breach of obligations relating to reduction of subsidies by the developed nations is tantamount to the failure of the trade regime. Hence, emerging economies should threaten to suspend intellectual property obligations until agricultural negotiations are concluded. Brazil, when faced with the AIDS crisis, successfully negotiated cost reduction of medication after threatening to compulsorily license the patent.\footnote{131} Similarly, in the Upland Cotton Dispute, Brazil threatened to suspend its patent obligations unless the United States implemented the decision of the appellate body.\footnote{132} The advantage in taking such a stance is that it would bring in the other lobbies within the developed nations, pharmaceutical industry in this case, and will pit them against the agricultural lobbies. It will also force the developed nations to negotiate considering all of the other issues that affect trade instead of dealing with each issue singularly.

E. Implementing Existing Rulings

Developed nations have been slow or even refused to implement rulings of the WTO Dispute Settlement Body (DSB) that adversely affects them like the Upland Cotton Dispute and the EC Sugar Dispute,\footnote{133} which found the existing levels of subsidies for cotton and sugar to be in violation of trade rules and/or prior agreement of the members. Developing nations should use the DSB to force retaliation. Developing countries should point out how the WTO works to pressurize developing countries into trade sanctions using the DSB, but the same body refuses to allow retaliation when a weaker member is economically affected because a richer nation refuses to comply with its ruling. For example, in the Upland Cotton Dispute, the DSB refused to either authorize Brazil’s retaliation or to take action itself to penalize the U.S. for not implementing the appellate body’s decision. Brazil had to resort to pressurizing the U.S. government to at least


modify its programs, but to no effect. Instead, developed countries including the United States have continued to renege on their agricultural commitments, while continuing to seek greater concessions from WTO members to increase its market access throughout the world.

F. Bilateral Negotiations

Developing nations should call on bilateral agreements of developed nations that go against their prior commitments at the WTO. Shifting focus to bilateral or regional deals as an alternative to the multilateral regime has allowed the developed nations to bypass obligations that they undertook voluntarily by nullifying the WTO obligations. Meanwhile, the central loss for developing and least-developed nations lies in having to face the entire electorate to explain why none of the Uruguay promises have materialized after expending time, investment, and resources.

III. Conclusion

The current food crisis provides the best time for developing countries to step up and correct the inherent defects in the trading system and help farmers find a market. Farmers’ rights are not just theoretical rights on paper — those rights should translate into market access. Emerging economies like India should work towards gaining a leadership position to secure market access for their deserving farmers.

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134 See World Trade Org., supra note 132.