Indian Perspective for Sustainable Development Agenda and Functional IPR and ABS Domains in Agriculture

Sudhir Kochhar†
144, Millennium Apartments, Sector 18, Block C, Rohini, New Delhi – 110 089, India

Received: 27 November 2015; accepted: 30 January 2016

The institutional arrangement for International agriculture trade and trans-boundary access to Indian biodiversity and genetic resources is broadly supportive of both development and sustainability. However, some researchers have questioned the effectiveness of such implementation. The country with regard to sustainable development is committed to enhance farm productivity, better connect to markets, and make farmers less vulnerable to environmental vagaries through enhanced safeguards such as renewed agricultural insurance schemes. Global inter-dependence on genetic resources for food and agriculture will continue to hold the key to achieve the SDGs by 2030. The Section 3 exemptions from patentability under the Indian Patent Law affect R&D in agriculture sector as much as in the pharmaceutical sector but protection of new transgenic varieties and essentially derived varieties is a viable option for promoting exclusive seed business. Innovators in plant biotechnology will have the opportunity to innovate **de novo** business strategies to license their proprietary products in Indian market while also simultaneously safeguarding the interests of smallholder farmers. Long term interests of sustainability and development through agriculture may be better safeguarded by quickly resolving ABS related issues, for example, recognising the legitimate access to indigenous germplasm already held by private seed R&D companies in India prior to enactment of the Biological Diversity Act, 2002; demanding regular updates on the status of licensing/cross licensing of varieties protected under the Protection of Plant Varieties and Farmers’ Rights Act, 2001 to ensure their wider availability in the seed value chains as well as harmonise with ABS paradigm, and scaling up the commercial potentials of farmers’ varieties registered under the Act to benefit the farmer breeders. Development of IPR and ABS compatible agrobusiness environment would eventually contribute towards achieving the sustainable development goals.

**Keywords:** Agricultural R&D, SDGs, IPR, ABS, sustainable development goals, business strategy, institutional arrangement

The Constitution of India determines agriculture as a state subject.¹ According to its seventh schedule (Section 246), states have the authority to govern their territorial key resources related to agriculture and farming; including land, water, agriculture, animal husbandry, and fisheries. Similarly, the powers to enter into and implement the relevant international treaties and agreements² are vested in the Union. Thus, international agriculture trade and trans-boundary access to Indian biodiversity are addressed as national prerogatives irrespective of the constitution determining agriculture as the state subject. This is in harmony with the international agreements in trade (governed by the World Trade Organization; WTO) and biodiversity (determined by the Convention on Biological Diversity; CBD), which require member countries to take suitable legislative, policy and administrative measures for governing intellectual property rights (IPR) and access and benefit sharing (ABS) mechanisms, respectively, to facilitate a level international agricultural trade as well as diligent genetic resource conservation for sustainable use. It is imperative that the obligatory measures taken at the national level are functional, effective and uniformly applicable to all Indian states and persons.

However, conflicts and litigation have been observed in pharma and agriculture sectors in the product patent regime, jeopardising the constitutional rights of people of India to Health (Novartis beta crystalline form of imatinib case) and Food and Livelihoods (Monsanto Bt Brinjal case).³ Such a situation may not be favourable for timely achieving the global sustainable development goals (SDGs)⁴ (Table 1). Similarly, emphasis on institutionalized petty benefit sharing on food crops germplasm accessed⁵ is aggravating the grey areas of ABS. Apparently direct intervention by some states in the biodiversity access matters falling under section 3 of the Biological Diversity Act, 2002 calls for stronger institutional mechanism and also pro-active sensitization of public at large in the IPR and biodiversity matters.

---

¹Email: kochhar.sudhir@gmail.com
Broad Institutional Arrangement

The processes of enactment of new internationally compatible IPR and ABS laws in the country as per the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS), and CBD, respectively, particularly for regulating the protection of plant varieties and sovereign biological diversity, involved various states and stakeholders to arrive at a nationwide consensus. Implementation of the new legislations namely the Protection of Plant Varieties and Farmers’ Rights (PPV&FR) Act, 2001 and the Biological Diversity Act, 2002 (BDA) is governed by the PPV&FR Authority (http://plantauthority.gov.in) and the National Biodiversity Authority (NBA) (http://nbaindia.org), respectively. Whereas, registration and protection of geographical indications of goods, including agricultural goods, is administered by the Geographical Indications Registry located at the Intellectual Property India (IP India) Office, Chennai (http://ipindia.nic.in/girindia/), which is under overall control of the Controller General of Patents, Designs and Trademarks (http://www.ipindia.nic.in/). Further, to administer biodiversity, biosafety and ABS matters under the CBD and its protocols, and multilateral access and benefit sharing including the farmers’ rights under the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), National Focal Points (NFP) are notified in the Union Ministries of Environment, Forest and Climate Change (MoEF; http://www.moef.gov.in/), and Agriculture and Farmers’ Welfare (MAFW), Department of Agriculture, Cooperation and Farmers’ Welfare (DAC; http://agricoop.nic.in/). In addition, the environmental issues related to natural resources as well as genetically modified organisms (GMOs) are determined under the Environment (Protection) Act, 1986, and these are regulated by Approval and Review Committees for Genetic Manipulation constituted by MoEF and Ministry of Science and Technology’s Department of Biotechnology (DBT; http://www.dbtindia.nic.in/), respectively.

Thus, in India the sovereign rights on genetic, biological and natural resources affecting agriculture are centrally governed. Further, regulatory institutions at the states and local levels under BDA chapters VI and X, respectively, provide safeguards their respective interests in biodiversity/ABS matters.

Sustainable Development and Food & Agriculture

The country, with regard to sustainable development, is committed to enhance farm productivity, better connect to markets, and make farmers less vulnerable to environmental vagaries. The new set of global sustainable development goals (SDGs) (Table 1) also cover some food and agriculture related targets, which are aimed to be met by 2030. These include, for example, ending poverty and hunger, achieving food security and improved nutrition, and promoting sustainable agriculture by the target year.

<table>
<thead>
<tr>
<th>Goal</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal 1</td>
<td>End poverty in all its forms everywhere</td>
</tr>
<tr>
<td>Goal 2</td>
<td>End hunger, achieve food security and improved nutrition and promote sustainable agriculture</td>
</tr>
<tr>
<td>Goal 3</td>
<td>Ensure healthy lives and promote well-being for all at all ages</td>
</tr>
<tr>
<td>Goal 4</td>
<td>Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all</td>
</tr>
<tr>
<td>Goal 5</td>
<td>Achieve gender equality and empower all women and girls</td>
</tr>
<tr>
<td>Goal 6</td>
<td>Ensure availability and sustainable management of water and sanitation for all</td>
</tr>
<tr>
<td>Goal 7</td>
<td>Ensure access to affordable, reliable, sustainable and modern energy for all</td>
</tr>
<tr>
<td>Goal 8</td>
<td>Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</td>
</tr>
<tr>
<td>Goal 9</td>
<td>Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation</td>
</tr>
<tr>
<td>Goal 10</td>
<td>Reduce inequality within and among countries</td>
</tr>
<tr>
<td>Goal 11</td>
<td>Make cities and human settlements inclusive, safe, resilient and sustainable</td>
</tr>
<tr>
<td>Goal 12</td>
<td>Ensure sustainable consumption and production patterns</td>
</tr>
<tr>
<td>Goal 13*</td>
<td>Take urgent action to combat climate change and its impacts</td>
</tr>
<tr>
<td>Goal 14</td>
<td>Conserve and sustainably use the oceans, seas and marine resources for sustainable development</td>
</tr>
<tr>
<td>Goal 15</td>
<td>Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss</td>
</tr>
<tr>
<td>Goal 16</td>
<td>Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels</td>
</tr>
<tr>
<td>Goal 17</td>
<td>Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development</td>
</tr>
</tbody>
</table>

*Acknowledging that the United Nations Framework Convention on Climate Change is the primary international, intergovernmental forum for negotiating the global response to climate change.

climate change would also influence future mitigation and adaptation strategies in agriculture.

Sustainable development agenda of the United Nations since the Earth Summit in 1992 has been instrumental in reducing poverty and hunger in various countries and regions of the world. In the Asia Pacific region, the proportion of undernourished people fell from 20 per cent of the population in 1990-1992 to 11.8 per cent in 2011-2013. The reduction in the number of undernourished people in the region implies that the achievement of Millennium Development Goal 1 (MDG 1) of eradicating extreme poverty and hunger was on track although not fully met with. The MDGs were targeted to be met by 2015 but looking into the partial success met and also the sustained urgency, the United Nations have revised the goals and set the target of another 15 years (Table 1). The commercialization of innovations in the meanwhile has been increasingly influenced by the implicit easement protocols under the IPR and ABS regimes compared to free-flow regime in the past. Thus SDGs in future context could have higher and more complex socio-economic stakes in context of global inter-dependence and international trade. Shrinking land resources and degradation of soil and water quality besides climate may have serious impact on agricultural productivity and food production. Therefore, in order to catalyse efficient achievement of the new SDGs, the IPR and ABS mechanisms would need to be simplified and made more effective.

Global inter-dependence will continue to hold the key for achieving the SDGs by 2030. Africa is likely to bring more land under agriculture whereas China and India could lay more emphasis on intensification, diversification, land and water use efficiency, etc. Customized (genetically modified) crop varieties with greater input use efficiency and higher sink ratio may become the optimal requirement to increase productivity and production of foodgrains and other economic agricultural produce. The agriculture trade underlies the success in achieving the SDGs. It has multiple dimensions covering various commodities and goods (Table 2), all of which would be increasingly affected by IPR and ABS regimes. This would be particularly applicable with regard to international trade and trans-boundary movement of goods related to food and nutrition.

### Patenting in Agriculture and SDGs

The Section 3 exemptions from patentability under the Indian Patent Act affect R&D in agriculture sector as much as in the pharmaceutical sector. Conventionally, the methods of agriculture and horticulture were not accepted as inventions as per Section 3(h) of the Patents Act, 1970. Despite three major amendments in the Act during 1995-2004 this exception continues to remain as such. However, a first glance of some published applications do not rule out that qualifying inventions related to processes/products underlying the methods of agriculture and horticulture may lead to grant of Indian patents. To cite a few examples, these include International applications under Patent Cooperation Treaty (PCT) filed in National Phase in India (6857/DELNP/2015 (Methods of weed control in pineapple); 10630/DELNP/2014 (Plant micro-propagation); 4580/DELNP/2014 (Plant growth promoting microbes [biofertilizers/manures] and uses therefor)), and direct filing by Indian nationals (1550/DEL/2014 (Method for prescribing site-specific fertilizer application in agricultural fields); 7130/CHE/2015 (An innovative method employing geo-specific polybioinoculants

---

**Table 2— Multiple dimensions of agricultural trade affected by IPR and/or ABS**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Dimension</th>
<th>Commodities and goods covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Agricultural and farm inputs</td>
<td>Seeds &amp; Planting Material; Farm Power &amp; Machinery; Tools &amp; Implements; Agricultural chemicals (Fertilizers, growth promoters, pesticides; weedicides); Bio agents (Biofertilizers and Nutrients; Bioposts; Pollinators); Hi-Tech nursery; Sprinkler/Drip irrigation equipment</td>
</tr>
<tr>
<td>2.</td>
<td>Primary produce</td>
<td>Grains; Fruits &amp; Vegetables; Mushrooms; Condiments &amp; Spices; Flowers &amp; Ornamentals; Fodder; Eggs; Milk; Poultry; Meat; Fish and Aquaculture</td>
</tr>
<tr>
<td>3.</td>
<td>Industrial derivatives</td>
<td>Oils, Cake &amp; Meal; Sugar, Tea, Coffee, Tobacco; Fibre: Cotton, Jute, Coir; Food products/Value added Food products; Breakfast/processed/canned foods; Baby foods; Aromatic oils; Flavours; Feed Mix; Nutraceuticals; Plant based medicines</td>
</tr>
<tr>
<td>4.</td>
<td>Post harvest processing</td>
<td>Cold Chain (transportation &amp; storage); Processing &amp; Value addition; Packaging, storage, transportation, other secondary operations &amp; delivery</td>
</tr>
<tr>
<td>5.</td>
<td>Research tools and protocols</td>
<td>Particularly relevant for innovations in frontier R&amp;D areas – biotechnology, nanotechnology, information and communication technology, geographical indication systems, application of sensors in agriculture; diagnostic and validation tools</td>
</tr>
</tbody>
</table>

Source: Compiled
[Biofertilizer/Plant Growth Promoting Rhizobacteria] for sustainable agriculture). This clearly endorses the view expressed by Kochhar (2011). This exception under Section 3(b) provides a safety net to smallholder farmers against any exploitation by way of patented input technologies involving the methods of agriculture and horticulture. However, a patent grant in this field, where applicable, would give opportunity for adoption and application of some innovative and efficacious new methods by progressive farmers, which in turn may contribute to sustainable development.

Exceptions under Sections 3(b) and 3(j) are compatible with the TRIPS Articles 27.2 and 27.3(b), respectively. Section 3(b) provides that inventions contrary to public order/morality or prejudicial to human/animal/plant life/health/environment are not patentable in the country. Whereas Section 3(j) requires that no patents should be granted for plants in whole or in part (other than microorganisms) including seeds, varieties, species and their production and propagation by essentially biological process. It implies that transgenic plants do not underlie any inventive step and/or that GMOs could be contrary to public order and cause serious prejudice to human or animal health. Nevertheless, transgenic plant varieties may qualify for IPR protection as Essentially Derived Varieties (EDVs) under the PPV&FR Act. Thus, an innovator in plant biotechnology will have the opportunity to get dual protection; patent protection for gene (sequence) and/or inventive transgenic event, and plant variety protection certificate for the transgenic varieties. Further, they will have to adopt a de novo business strategy for licensing their IP and/or profit-making under Indian market conditions as compared to their commonly adopted strategies in any other international or foreign country markets.

Section 3(p) of the Act excludes inventions, which in effect are traditional knowledge or aggregation or duplications of known properties of traditionally known component(s) from being admitted as patentable inventions. Also, there are specific provisions in the Indian patent law to ordinarily exclude inventions based on traditional knowledge and sovereign biological/genetic resources from being granted patent protection. The law emphasizes on the sufficiency of disclosure under Section 10(4)(ii) of the Act. According to this provision, the applicant is required to deposit a sample of the material in one of the 20 notified repositories of the International Depository Authority (IDA) listed under Budapest Treaty. The Microbial Type Culture Collection and Gene Bank (MTCC) at the Institute of Microbial Technology (IMTECH), Chandigarh is one such repository notified in India, and others being located in various other countries, thus helpful to the foreign applicants. Disclosure for source and geographical origin of biological materials is mandated under Section 10(4)(ii)(D) of the Act. It is required to give particulars of deposit made in the patent application. Non disclosure or a wrongful disclosure of genetic resources and traditional knowledge could be a ground for pre-grant opposition u/s. 25(1), post-grant opposition u/s. 25(2)), and revocation u/s 64(1)(p)&(q) of the Patents Act. Thus, there can be valid opposition of application or patent or revocation of patent in cases which did not disclose or wrongly did so with regard to geographical origin of a biological material used in the invention and also in case involving anticipation of the invention through prior knowledge oral or otherwise within any local or indigenous community. The Act therefore balances ‘development’ (by patentee) and ‘sustainability’ (by genetic resource and traditional knowledge holders), which should be duly harnessed in context of achieving the SDGs.

**Indigenous Strengths as Complementary Tools for Achieving Global SDGs**

A list of ‘bad patents’ submitted to TRIPS Council by a group of developing countries including India had been a noteworthy step towards mitigating biopiracy. However, the subsequent joint initiative by CSIR (India) and WIPO in developing the Traditional Knowledge Digital Library (TKDL) of the indigenous wealth of traditional knowledge on Indian biological and genetic resources in five languages (http://www.tkdl.res.in/tkdl/lang/default/common/Hom e.asp?GL=Eng) has been an exemplary pro-active, model-setting achievement. This is a result-oriented process which led to hundreds of denials, modifications and/or revocations with regard to protection of inventions based on Indian biodiversity and traditional knowledge in national patent offices (NPOs) across the world. In the context of food and nutritional security, a few examples showing outcomes of patent examinations and grants in various foreign Patent Offices; for inventions involving nutraceutical or therapeutic properties of some crops providing food and nutrition, as influenced by the
existence of Traditional Knowledge Digital Library (TKDL) are given in Table 3.

The proactive TKDL initiative may be singled out as a pragmatic example that provided a strong basis of rationalizing patent grants on inventions based on sovereign biodiversity on one hand, and on the other hand avoiding superfluous indulgence in biopiracy matters. The time and energy thus saved needs to be further harnessed for realizing social value of innovations, and also for solution finding to minimize difficulties in IPR and ABS regimes.

Further, in this context, India has recently demonstrated yet another time to the world that plant (agriculture) based medicines are potent to mitigate panic-like situations through symptomatic treatment and home remedies as temporary measures. Vulnerability to dengue fever because of sudden dip in platelets count was, for example, effectively challenged in its 2015 season, using remedies such as papaya leaf (increases white blood cells and platelet count), orange juice (improve digestion and replace fluid loss of the body or dehydration), basil leaves (improve immunity and fight dengue fever), black grape juice (increase blood count), coconut water (replace body fluid loss and improve immunity), fenugreek (cuts down fever and relief from joint and muscle pain), coriander (reduce fever and help in digestion). Similarly, mixed juice of giloy, aloe, papaya leaf and pomegranate is yet another home remedy used effectively for combating the dengue virus by significant increase the platelets count.\(^\text{18}\)

Lakhs of Indians successfully practised such remedies against the dengue menace in the National Capital Territory of Delhi and adjoining states during its 2015 season, leading to increased demand and thereby intervention of market forces.

A recent study on Indian plant germplasm\(^\text{19}\) showed that over 1 lakh Indian materials are already available on the global platter for sustainable use. Among these nearly one-third are conserved for posterity in Svalbard Global Seed Vault. This strategic, Doomsday Seed Vault is located in the Arctic zone, built on the mountainside in a permafrost area between Norway and the North Pole, situated near Longyearbyen in the remote Svalbard archipelago, east of Greenland sea and south of Arctic Ocean. Further, nearly 63 thousand Indian origin germplasm are stored in 11 Consultative Group (CG) genebanks, which are accessible to the global research community for utilization in their respective crop improvement programmes. The study also revealed that about half of the Indian-origin accessions deposited for posterity are traditional varieties or landraces with defined traits, which form the backbone of any crop gene pool. There has been considerable progress in plant variety protection in the country in terms of both; receipt of applications and grant of certificates. The PPV&FR Authority has received 5842 applications for registration of farmer varieties in 67 crops, including 4143 applications for

Table 3— Examples of Patent Examination/Grant for inventions involving some food and horticultural crop species influenced in various Patent Offices by Traditional Knowledge Digital Library (TKDL)

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Outcome Parameters</th>
<th>Crops involved</th>
<th>Publication Numbers</th>
<th>Jurisdictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Refusal/Setting aside of Intention to grant patent/ Applications declared ‘Dead’</td>
<td>Rice, Mustard/ Brassica species, Tomato, Spinach, Banana, Tea</td>
<td>EP2464363, CA 2625433, CA 2467664, CA 2641950</td>
<td>European Union, Canada</td>
</tr>
<tr>
<td>4</td>
<td>Claims Rejected by the Examiner due to TKDL Prior Art Evidence</td>
<td>Linseed</td>
<td>20100239696 (USA)</td>
<td>USA</td>
</tr>
</tbody>
</table>

Source: Compiled from TKDL Database (http://www.tkdl.res.in/)
Certificates of entitlement have been already issued to over 605 farmer varieties. However, licensing of the protected crop varieties for commercial use is yet to gain momentum. An innovator in plant biotechnology will have the opportunity to innovate *de novo* business strategy to license its proprietary products prevailing under Indian market while also safeguarding the interests of smallholder farming.

India has been a key beneficiary of the dwarfing genes in wheat and rice in the Green Revolution era that paved way for self sufficiency in major foodgrains. At the same time, country also maintained ‘give and take’ equilibrium with regard to germplasm use broadly.\(^8,19\) There are few classical examples of crop gene pool enhancement with beneficial traits drawn from their wild relatives of Indian origin in the post green revolution period, during which there was unrestricted international flow of germplasm through collection expeditions and exchange by gene banks (Fig. 1).

To elaborate for instance, the *Oryza nivara* gene for resistance to grassy stunt (GS) from an Indian origin germplasm available at the International Rice Research Institute (IRRI) gene bank was incorporated in cultivated rice through conventional rice breeding at IRRI, in 1977, to combat this obnoxious virus menace in rice crop. As a result, many varieties bred for this trait were released in rice growing countries in Asia.\(^21\) To date rice crop has the largest number and greatest extent of commercially grown cultivars possessing gene(s) for resistance derived from wild relatives, including *Oryza nivara*. This resistance is now routinely incorporated in new rice cultivars grown across more than 1 million square kilometers of rice production area.\(^22\) Similarly, in USA, germplasm screening studies in North Carolina in 2008 had revealed that the most resistant cultigens of cucumbers were primarily elite cultivars and breeding lines with resistance drawn from an Indian accession (PI 197087).\(^23\) In this regard, *Cucumis hardwickii* is yet another Indian origin germplasm available in crop genetic cooperatives in North Carolina State\(^24\) since 1970’s that saved the billion dollars cucumber delicacies industry in the US from downy mildews menace.

However, sustainability of ‘interdependence’ paradigm relies on how well countries are able to balance the implementation of the private rights (IPR) and community/farmers’ rights (ABS) obligated under the international agreements. In India, the private sector emergence in seed sector has been phenomenal in the recent past and at the same time government is keen to provide additional avenues to safeguard the...
rights, privileges and interests of farmers. On farm conservation of indigenous genetic resources for their dynamic evolution would be necessary for achieving sustainable development goals. However, to ensure this process, preferably in a participatory mode, the custodian small holders in agrobiodiversity rich areas would require due incentives as a matter of state policy. In this context, mechanisms such as (i) farmers’ and young entrepreneurs’ skill development for micro-management of their resources, (ii) use of farming systems approach rather than the crop commodity approach, (iii) availing the recently launched new bank account (Jan Dhan Yojna) and crop insurance schemes, etc. would be effective. To reaffirm the country’s commitment to involve greater sectoral partnerships for achieving the SDGs, Indian Prime Minister while addressing the Heads of State at the United Nations Sustainable Development Summit in New York in September 2015, mentioned that ‘The world speaks of private sector and public sector. In India, we have defined a new personal sector of individual enterprise, micro enterprises and micro finance, drawing also on the strength of digital and mobile applications’. Hence, in order to create win-win situations, including those in IPR and ABS matters, government is providing enhanced public private partnership opportunities, encouraging innovations and skill development, and facilitating information and communication technology (ICT) applications at all levels.

Responding to Criticism and Challenges

The institutional arrangement for International agriculture trade and trans-boundary access to Indian biodiversity and genetic resources is broadly supportive of both development and sustainability but some researchers have questioned the effectiveness of such implementation. It is necessary to facilitate and provide incubation, scale up and scale out opportunities for all new innovations aimed at achieving the SDGs. Also, a steady implementation of sui generis mechanisms institutionalized in the country could although potentially balance the IPR and ABS paradigms yet it is highly challenging to achieve such balance. A pre-mature idea or ill publicity can do more harm than the material losses incurred by natural disasters.

In the open economy era under the WTO-TRIPS regime, international collaborators and interested business partners who intend to invest in agri-biotechnological business in the country, apparently have more curiosity than certainly about the regulatory processes involved to promote their business. Also, India’s commitment for the realization of farmers’ rights appears to have been broadly misunderstood by some law researchers. For example, Karine Peschard, 2014, in her article on Farmers’ rights and food sovereignty: critical insights from India, has argued that the politics of biodiversity and IPRs in the country in recent years has been characteristic of the ‘cunning state’, which has seriously compromised a meaningful implementation of farmers’ rights. The author explained in her research paper that the concept of the cunning state was proposed in 2003 and further elaborated till 2010 to suggest that the role of some states in the new architecture of global governance is neither weak nor strong, but able to ‘capitalize on their perceived weakness in order to render themselves unaccountable both to their citizens and to international institutions’. Peschard, 2014 (pp.1087-1088) has put forward her criticism as follows:

“... The ambivalent politics of cunning states is evidenced in the case of farmers’ rights in India by the government’s controversial decision to join UPOV shortly after the PPV&FR Act was passed, the fact that several pieces of legislation introduced since 2001 seem to undo the farmers’ rights provisions of the PPV&FR Act and, more recently, the government’s stance in the first national case of biopiracy involving the use of local varieties of eggplant in the development of Bt brinjal. The lack of a clear political will on the part of the Indian state to effectively enforce the legislation and protect farmers’ rights has led to a break of trust between the state on one hand, and farmers and civil society on the other.”

Author claimed to have based her opinion upon extensive interaction (18 interviews) with stakeholders (NGOs, researchers, government officials, farmers, and industry representatives) in 5 States/Union Territories (New Delhi, Chandigarh, Telangana, Andhra Pradesh and Maharashtra) besides participation in some events related to biodiversity/farmers’ interaction. However, limitation of design of study, sampling, and interpretation is clearly evident, which may portray it to be an altogether inconclusive research. On the other hand, the protection of Plant Varieties and Farmers’ Rights Authority has given due momentum (Pers. Comm.) to (i) creating awareness among farmers about the Act,
in collaboration with District level Farm Science Centres (*Krishi Vigyan Kendras*), (ii) effectively motivating and facilitating the process of making applications for the registration of farmer varieties through state agricultural universities and line departments, and (iii) awarding the genome saviours (farmer conservers) for having conserved the potential germplasm resources.

Further, with regard to the case of biopiracy involving the use of local varieties of eggplant in the development of *Bt* brinjal mentioned in Peschard’s paper (q.v.) some other research reports were found to have expressed different views. For example, Walid 2012, a law academician, concluded in his research that for the first time NBA, by adopting a decision against Monsanto and Mahyco, has issued a firm message to foreign agencies and their Indian collaborators that the practice of biopiracy in India might be prosecuted legally. Nevertheless, the author was also curious to understand what to expect from this new public policy of India. So far, the matter is sub-judice and thus not presentable as a Case Law. Thus, the apprehension expressed by Peschard (q.v.) or the National Law School, New Delhi where this study has been conducted, is unbecoming.

The issue of determining legitimate access by private seed R&D companies to Indian germplasm was considered by NBA’s Expert Committee on Agrobiodiversity but one of the crucial recommendations of its sub-committee is awaiting terminal action by NBA. In this context, two separate sub-committees were constituted for examining various flagged issues at NBA (Pers. Comm.). One recommendation related to implementation of ITPGRFA in the country has been already implemented. The Central Government, Ministry of Environment and Forests in consultation with NBA, vide Gazette Notification dated December 17, 2014 has already notified that the germplasm of crops covered under ITPGRFA may be accessed for use in research, breeding and training for food and agriculture without taking prior approval of NBA. The Department of Agriculture and Cooperation, Ministry of Agriculture is the national focal point for the implementation of this treaty.

The other recommendation by a separate sub-committee suggested that NBA should seek a onetime declaration of the germplasm holdings, including old varieties and other accessions, available with the private seed companies in the country before the enactment of BDA. As a consequence of such declarations, seed companies would justify having the legitimate custody of the materials declared. The NBA, therefore, will have the prerogative to intervene and/or turn down undue complaints of biopiracy in any future cases similar to that of *Bt* brinjal, if the material under complaint was already declared by the respondent company. This would make the agricultural R&D environment in India congenial and full of confidence for enterprises in seed R&D. Thus, a simple step taken in national interest like this one may become a real game changer by absolving India from the alleged accusation of being the ‘cunning state’ as interpreted in the above cited Peschard’s study. The country with regard to sustainable development is committed to enhance farm productivity, better connect to markets, and make farmers less vulnerable to environmental vagaries.

The *Amicus curiae* appointed in various committees constituted by PPV&FRA and NBA need to anticipate and assess such situations of apprehensions and criticism and make need based recommendations for proactive actions by the respective authorities under the plant varieties and biodiversity laws. In particular, the issue of recognising the legitimate access to indigenous germplasm already held by private seed R&D companies in India prior to enactment of the Biological Diversity Act, 2002 needs to be quickly resolved and harmonized with ABS mechanisms in larger interest. Besides, long term interests of sustainability and development through agriculture may be better safeguarded by providing simplified and more effective mechanisms for quick resolution of ABS related issues, demanding regular updates on the licensing/cross licensing of varieties protected under the Act to ensure their wider availability in the seed value chains, and scaling up the commercial potentials of farmers’ varieties registered under the PPV&FR Act. This would help in evolving a dynamic, IPR and ABS compatible agro-business environment which may equally contribute towards the achievement of sustainable development goals.

**Acknowledgments**

A substantial improvement was brought in the scientific content of the paper by adding facts and logic through revision. Therefore, author is thankful to Dr. Kanika Malik, Editor JIPR and also acknowledges the Reviewer for appreciation and motivation.
References

2 Constitution of India, Seventh Schedule (Section 246), List I-Union List, page 314, Entry 14. Ibid.
25 Pradhan Mantri Jan-Dhan Yojana (PMJDY), Department of Financial Services, Ministry of Finance, Govt. of India, http://www.pmjdy.gov.in/.
26 Department of Agriculture & Cooperation, Ministry of Agriculture and Farmers Welfare, Govt. of India, Pradhan Mantri Fasal Bima Yojana (PMFBY), http://agricoop.nic.in/imagedefault/whatsnew/sch_eng.pdf.