REVIEW PAPER

New Seed Bill 2004 – Issues and Analysis

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This paper focuses on the new Indian Seeds Bill 2004 which aims to regulate the seed market and ensure seeds of quality. It discusses the proposed changes in this new bill, i.e., making the registration of cultivars obligatory, creating a National Register of seeds, regulating the import and export of seeds, accommodating new regulations on genetically modified crops, and improving market conditions for private seed companies, as well as its effects on both farmers and seed producers. Various issues related to the bill has been thoroughly discussed, discrepancies sorted out and changes suggested. In addition, the history of Indian seed regulation and seed laws in selected Asian countries are enumerated.

Key words: New Seed Bill, Seed Act, PPV & FR, WTO, IPR

The question arises as to what was the need for such a bill to come into existence. For this, it is essential that the history of Indian seed regulation be briefly looked into. Two decades after India's independence, during the 1960s, the formal seed sector in India was dominated by the Public sector. It was in 1961 that the National Seeds Corporation (NSC) was established under the Ministry of Agriculture and was at the centre of seed production of breeders, foundation and certified seeds and their quality control. In furtherance of their control in the seeds sector, the National Seeds Project (NSP) was undertaken by the Indian Government in 1967 with the assistance of the World Bank. The National Seeds Project set up seed processing plants in 17 states to provide 'certified' seeds of food crops, mainly self-pollinating crops, to farmers but they have not proved to be efficient. The private sector also has not proved much more efficient for the cultivator or for the consumer. This led to the National Seed Policy of 1988, which involved a US $ 150m loan from the World Bank to help privatize the Indian Seed Industry. At this time, the import of seeds was still restricted but this sector was gradually opened up, to allow more private participation. Further, after India signed the GATT agreement and joined the WTO, these agreements required that India should make some changes to its law, especially regarding Intellectual Property Rights. These requirements were met through the Protection for Plant Variety and Farmers' Rights Act, 2001. In 2002, a new National Seed Policy was released, and as mentioned above, to meet the goals of this policy the new Seed Bill was drafted and tabled in the Parliament in 2004. The objective of the new seed policy seems to be to reduce the direct involvement of government in seed production and marketing, and to actively encourage the private sector to engage in research and development of new varieties. One of the stated aims of the National Seed Policy, 2002 was to encourage more private participation in agriculture and seed production, specifically, to complement the existing structures and to replace them, when necessary. Liberalization has been targeted towards certain components of national seed policies, retaining regulation of some components to safeguard national interests. Public and private sectors need to complement each other, perhaps on the basis of a division between cash crops and essential food crops. It is a fact that neither the private nor the public sector can fulfill India's agricultural requirements by itself. Only effective cooperation and coordination will allow farmers to have access to quality seed and thus contribute to sustainable agriculture and food security. Based on the changes that have taken place in the seed sector since 1966, the existing Seeds Act, 1966 is proposed to be replaced by a suitable legislation. Over the years, the following deficiencies have been noted in the existing Seeds Act:

- registration of seed variety not compulsory
- non-notified varieties are not covered
- commercial crops and plantation crops are not covered
- certification only through State Seed Certification Agencies and
- no provision for regulation of transgenic materials.

The National Seed Policy, 2002 clearly identifies the twin aims of encouraging the seed industry, especially the domestic industry and of ensuring maximum prosperity

and security for farmers. A number of the National Seed Policy's recommendations have been addressed in the Protection of Plant Varieties and Farmers' Rights Act, 2002, including the establishment of a National Gene Fund and a Plant Varieties' authority to regulate the quality of seeds in the country. Meanwhile the World Bank continued to fund other seed projects intended to increase the production of green revolution varieties, to coordinate the efforts of the State Farms Corporation of India (SFCI) and emerging private companies and in addition to create and modify the infrastructure for seed testing, research and certification. At this time, there were relatively few private companies involved with seeds (mainly small enterprises confined to the production of some vegetable and ornamental flower seeds) and government policies focused on the public sector with limited private-sector participation. The further aims of the National Seed Policy that include building up infrastructure, ensuring good quality of seeds and facilitating international trade in seeds, are sought to be addressed through the proposed Seeds Bill, 2004.

The Seed Bill, 2004

The revision of existing Seeds Act is proposed to:

- overcome its present deficiencies,
- create facilitative climate for growth of seed industry,
- enhance seed replacement rates for various crops,
- boost the export of seeds and encourage import of useful germplasm, and
- create conducive atmosphere for application of frontier sciences in varietal development and for enhanced investment in research and development.

The preamble of the bill makes clear its intention. The Bill states that it is to "provide for regulating the quality of seeds for sale, import and export and to facilitate production and supply of seeds of quality and for matters connected therewith or incidental thereto". The New Seeds Bill makes an attempt to regulate the Indian seed trade in tune with current realities. This Bill is notable for the following major differences with the old Seed Act. The Bill stipulates compulsory registration of all seeds traded in India; this is not required under the old Act, which allows sale of Government notified and `truthfully labelled' varieties with voluntary seed certification. Truthfully labelled means the seed is guaranteed by the seller for the prescribed minimum standards. The Bill requires compulsory State level registration of seed producer, processing unit and trader; the old Act insists only on a license for trading. The Bill will introduce compulsory registration of nurseries selling horticultural plants. The duration of registration is 15 or 18 years, with provision to double this term. Under the old Act it is 15 years for notified varieties and open-ended for `truthfully labelled' varieties. Only the Central and State seed testing laboratories could offer seed certification under the old Act; accredited individuals or institutions will be allowed to under the new Bill. Seed certification is mandatory in the new Bill and it allows self-certification. It also introduces a National Register of Seeds and seeks to centralize registration by abrogating the authority of States to approve regional varieties. Enforcement is largely left to the old administrative set-up, which earned notoriety for inefficiency and corruption (Bala Ravi, 2005).

Rationale for the Seed Bill

The new seed bill is a tool to address the grievances and the concerns which the Seed Bill of 1966 does not cover. Even though a large majority of our population depends on agriculture for their livelihood, agriculture in India remains relatively unproductive. A need was felt for using new techniques and methods to increase the productivity of Indian agriculture. At the same time the Biotechnology sector came up with promises of extremely productive Genetically Modified (GM) Crops. These new scientifically manipulated crops caught the imagination of the Indian Government, and to some extent, that of farmers as well. It is believed that this new technology has the potential to improve living standards by the commercialization of such GM crops. The major rationale behind the policy is the hope that these developments would provide Indian farmers multiple choices and increased access to improved seeds. As such, the Seed Bill 2004 also seeks to address the concerns of the Seed Industry. The Seed Association of India and the Association of Seed Industries raised certain demands at the National Seeds seminar organized by them in 2005. They demanded a level playing field for the private sector, for subsidies and support to the private sector for R&D. Another major demand was that seeds be taken out from the purview of the Consumer Protection Act, 1986 and that a scientific system of scrutinizing claims, along with a system of crop insurance, should be developed to study the causes of crop failure. While the Seeds Bill, 2004 does take care of the infra-structural demands but it retained the right of the farmer to go to the Consumer Courts under the Consumer

Protection Act, 1986. One cannot be sure if, in the present situation in India, where a majority of farmers are not only small landholders, but they are also illiterate and/or uneducated, a system of crop insurance can work to their advantage. It was in this atmosphere that the National Seed Policy was formulated in 2002 with the National Seed Bill being drafted in 2004 (Saggi Naiyya, 2006).

Highlights of the Bill

Agricultural growth in India averaged just 2.8% per annum during the period of 1991-2005, much lower than the average annual GDP growth of 6.2% during this period. Given that about two-thirds of the country's population is dependent on farm related income, increasing agricultural growth rate will be beneficial not just for the country's food security but also for improving the livelihood of a large proportion of the population. Availability of good quality seeds to farmers is a necessary condition for boosting agricultural output. Currently, the seed sector is governed by the Seeds Act, 1966, the Seeds Control Order, 1983 (under the Essential Commodities Act, 1955), and the Protection of Plant Varieties and Farmers' Rights Act, 2001 (PPV & FR Act). The Seeds Act, 1966 regulates the quality of certified seeds; the Seeds Control Order, 1983 regulates and licenses the sale of seeds; and the PPV & FR Act protects the intellectual property rights of plant breeders (Madhavan and Sanyal, 2006). The highlights of the proposed Seeds Act are as under:

- The Seeds Bill, 2004 aims to regulate the quality of seeds sold, and replaces the Seeds Act, 1966.
- The Bill does not restrict the farmer's right to use or sell his farm seeds and planting material, provided he does not sell them under a brand name. All seeds and planting material sold by farmers will have to conform to the minimum standards applicable to registered seeds.
- If a registered variety of seed fails to perform to expected standards, the farmer can claim compensation from the producer or dealer under the Consumer Protection Act, 1986.
- Accreditation of ICAR centers, State Agricultural Universities and Private Organizations to conduct agronomic trials.
- Every seed producer and dealer, and horticulture nursery has to be registered with the state government. All varieties of seeds for sale have to be registered. The seeds are required to meet certain prescribed minimum standards.
- Maintenance of National Register of varieties.
- To regulate the export and import of seeds.
- Enhancement of penalty for major and minor infringement.
- Inclusion of provisions to regulate GM crops and ban on terminator seed.

Issues and Analysis

The Seeds Bill 2004 may be seen in the context of the Seeds Act, 1966 which it replaces, and the PPV & FR Act, 2001. The main objective of the Seeds Bill is to ensure availability of quality seeds to farmers. The proposed Bill seeks to update the existing Act in order to address changes in technology and the structure of the seeds sector. The PPV & FR Act sets up a framework to protect the intellectual property rights of breeders, while safeguarding the rights of farmers (Madhavan and Sanyal, 2006). Main changes in the Seeds Bill 2004 from the Seeds Act, 1966 are:

- Some provisions of the Seeds Bill, 2004 contradict and overlap with the Protection of Plant Varieties and Farmers' Rights Act, 2001 (PPV & FR Act).
- Although farmers are exempt from registering their seed varieties, the seeds have to conform to standards prescribed for commercial seeds. Farmers may find it difficult to adhere to the standards required of commercially sold seeds.
- Compensation for underperformance of seeds will be governed by consumer courts. This provision is unlike the PPV & FR Act, which allows compensation to be decided by the Authority established under that Act.
- Seed inspectors can take samples from anyone selling purchasing or transporting seed. They have the power of search and seizure without a warrant.
- It is not clear whether the Bill bans certain genetic engineering technologies such as 'genetic use restriction technology' and 'terminator technology.' These technologies preserve intellectual property rights by either requiring specific additives, or by making the next generation seeds sterile

A comparison between Seed Bill 2004 and Seed Act 1966 is given in Table 1 (Madhavan and Sanyal, 2006). There are several contradictions and overlaps occur between the PPV & FR Act and the Seeds Bill, 2004 (Table 2).

Protection of Farmers' Rights

This Bill exempts a farmer from compulsory registration of seed varieties in order to use, exchange, share or sell his farm seeds or planting material. However, it stipulates that he cannot sell any seed under a brand name. Also, any seed sold by a farmer has to conform to the minimum limits of germination, and physical and genetic purity as applicable to commercially sold seeds. This last proviso (minimum standards of germination and purity) could be difficult to implement. It is estimated that seeds saved and exchanged by farmers constitute above 80% of the seeds planted, and there would be a need to establish the physical infrastructure required to test these. Such testing would also lead to an increase in the cost of seeds (Madhavan and Sanyal, 2006).

- In contrast, the PPV & FR Act, 2001, only restricts the farmer from selling branded seed. There is no other requirement for a farmer to sell seeds. The exemption clause given in the PPV & FR Act is easier to implement.
- The farmer has to approach the Consumer Courts to claim compensation if the seeds do not perform to expected levels. There is a contradiction between this provision and the PPV & FR Act which permits farmers to claim compensation through the Authority set up under that Act. Given the number of factors (such as climate, fertilizer, water) that affect the performance of a crop, it may be difficult to prove that underperformance of a crop was on account of poor quality of seed. Indeed, there have been recent cases where the issue has not been fully resolved. Furthermore, it is not clear whether the compensation would include the value of the crop or only the cost of the seed.

Registration and Certification

- Only those varieties of seeds that are registered may be sold. The Bill does not clarify whether a seed producer may sell seed which is registered by a different producer. The absence of a non-exclusivity requirement could lead to a monopoly

Table 1. Comparison of Seed Bill 2004 and Seed Act 1966*

	Seed Bill 2004	Seed Act 1966
Definition	'Agriculture' includes horticulture, forestry, cultivation of plantation, medicinal and aromatic plants.	'Agriculture' includes horticulture.
	Definitions of "Seed" and "Variety" have been changed to make them more specific and technical.	
	Defines terms such as "Dealer", "Essentially Derived Variety", "Extant Variety", "Farmer", "Horticulture Nursery", "Misbranded", "Spurious Seed", and "Transgenic Variety".	Does not define these terms
Registration	All seeds for sale must be registered.	Only varieties notified by the government need to be registered.
Seed Committee	Constitutes Central and State Seed Committees. A Registration Sub-Committee would register seeds of all varieties.	Constitutes Central Seed Committee. The central government, after consulting with the CSC, may notify a seed in order to regulate the quality of seed.
Transgenic Varieties	Special provisions for registration of transgenic varieties of seeds.	No provision for transgenic varieties of seeds.
Compensation to Farmers	Provides for compensation to farmers under the Consumer Protection Act, 1986 in the event of under performance of seeds.	No specific provision for compensation mentioned in the Act.
Export and Import	All seed imports are regulated by the Plant Quarantine (Regulation of Import into India) Order, 2003 or any corresponding order of the Destructive Insects and Pests Act, 1914; shall conform to minimum limits of germination etc. Exports can be restricted if it adversely affects the food security of the country.	A person is restricted from exporting or importing notified variety of seed unless it conforms to minimum limits of germination etc.
Penalties	Any person who contravenes any provisions of the Act or imports, sells or stocks seeds deemed to be misbranded or not registered, can be punishable by a fine of Rs 5,000 to Rs 25,000. The penalty for giving false information is a imprisonment up to six months and/or a fine up to Rs 50,000.	Any person who contravenes any provisions of the Act, prevents a Seed Inspector from taking samples etc. shall shall be punished for the first offence with a fine which may extend to Rs 500. If the offence is repeated he may be imprisoned for a maximum term of six months and/or fined up to Rs 1,000.

* Madhavan and Sanyal (2006)

Table 2. Comparison of Seeds Bill, 2004 and PPV & FR Act, 2001*

	Seed Bill 2004	PPV & FR Act 2001
Definitions	"Farmer" means any person who cultivates crops either by cultivating the land himself or through any other person but does not include any individual, company, trader or dealer who engages in the procurement and sale of seeds on a commercial basis.	"Farmer" means any person who cultivates crops by cultivating the land himself or cultivates crops by directly supervising the cultivation or land through any other person; or conserves and preserves, severally or jointly, with any other person any wild species or traditional varieties or adds value to such wild species or traditional varieties through selection and identification of their useful properties.
Registration	Establishes a Registration Sub-Committee, which would maintain a National Register of Seeds. No specifications regarding parentage of variety. Registration is for 15 years for annual/biennial crops and 18 years for long duration perennials. On expiry, registration can be renewed for a similar period.	Establishes a Plant Varieties Registry, which would maintain a National Register of Plant Varieties. Specifies details under which a variety may be registered such as a complete passport data of the parental lines from which a variety has been derived. Registration is for 15 years for annual/biennial crops and 18 years for long duration perennials. Registration cannot be renewed.
Farmers' Rights	A farmer can save, use, exchange, share or sell his farm seeds and planting material. He cannot sell seeds under a brand name. Seeds sold have to conform to the minimum limit of germination, physical purity, genetic purity prescribed by the Act.	A farmer is entitled to save, use, sow, resow, exchange, share or sell his farm produce including seed of a variety protected under the Act in the same manner before this Act came into force. He cannot sell branded seed of a variety protected under the Act.
Compensation	The seed producer, distributor or vendor will have to disclose the expected performance of a particular variety of seed under certain given conditions. If the seed fails to perform to expected standards, the farmer can claim compensation from the dealer, distributor or vendor under the Consumer Protection Act, 1986.	If a breeder of a propagating material of a variety registered under the Act sells his product to a farmer, he has to disclose the expected performance under given conditions. If the propagating material fails to perform, the farmer can claim compensation in the prescribed manner before the Protection of Plant Varieties and Farmers' Rights Authority.
Penalties	Any person who contravenes any provisions of the Act, prevents a Seed Inspector from taking samples etc. shall be punished for the first offence with a fine up to Rs 500. If the offence is repeated he may be imprisoned up to six months and/or fined up to Rs 1,000.	Penalty for applying false denomination to a variety is imprisonment up to two years and/or a fine between rupees 50,000 and rupees five lakh. Penalty for falsely representing a variety as registered is imprisonment up to three years and/or a fine between rupees one lakh and rupees five lakh or both. Penalty for subsequent offence is imprisonment up to three years and/or a fine between rupees two lakh and rupees twenty lakh.

* Madhavan and Sanyal (2006)

on existing and common varieties by the first mover on any registration. Issues regarding intellectual property rights may be addressed through the provisions of the PPV & FR Act.

- The Bill leaves it to regulations to specify the information that an applicant has to furnish, such as data about the source and geographical origin, in order to register a seed variety. It might lead to a situation where seeds could be registered without disclosing the parentage or origin of the seed. Although the PPV & FR Act, 2001, makes it mandatory for the applicant to issue specific details about the parental lines of a variety, it is not clear which legislation would take precedence in case of conflict. In such a case, an applicant might be able to register a variety of seed which has traditionally been used by a farmer (i.e., farmers' variety). The Bill also does not have the provision of benefit-sharing as mentioned in the Convention on Biological Diversity and the PPV & FR Act, in which case any applicant can register and use a farmer's variety of seed without compensating the farmer.
- The Bill does not provide for a mechanism to trace back a packet of seed to the dealer, processor and producer. Also, there is no specification of quality assurance systems. This would make it difficult to trace back a defective lot, and rectify any deficiencies in the supply chain.
- The Bill forbids the use of any technology that may be harmful or potentially harmful, and includes 'genetic use restriction technology' and 'terminator technology' in the definition of 'technology'. It is

not clear whether both these technologies are explicitly banned in this Bill. A farmer planting seeds containing terminator technology cannot use the seed from his crop for the next generation, and has to purchase new seed every season. The PPV & FR Act, 2001 does not permit registration of any variety containing terminator technology.

- Seed producers would be permitted to self-certify the performance of their seeds under certain conditions. The seed companies need to provide the results of multi-locational trials before registration. This opens up the possibility of false declaration by seed companies. To prevent this, there could be a case for allowing only government agencies to conduct these trials and grant certification.

Horticulture Nurseries

- Every horticultural nursery has to be registered with the state government and has to maintain records of layout plan, source of every planting material etc. The argument is that performance of horticultural planting material (such as mango) is known only after a number of years, and these trees are harvested for a number of years. The investment and risk for the farmer is significantly higher than in the case of one-season grain, and this justifies stricter norms. That said, nurseries in the unorganized sector may find it difficult to adhere to these conditions.

Role of Seed Inspectors

- The Seed Inspector has the power to enter and search as well as break open container or break open doors, without a warrant. This is different from the provisions under the Code of Criminal Procedure, 1973 under which a warrant signed by the district magistrate, sub-divisional magistrate or first class magistrate is necessary for search and seizure.

Penalties

The penalty for selling substandard seeds is between Rs. 5,000 and Rs. 25,000. This may not prove to be a deterrent for a large seed company but which may be significant for a farmer or a small dealer.

Bill is Facing Controversy

The National Seeds Bill 2004 has provoked great controversy. It was referred to the Standing Parliamentary Committee on Agriculture, after being introduced in the Rajya Sabha in December 2004 which sought responses from all stakeholders. A modified version is expected to get back to the Rajya Sabha. The current draft describes the bill as one *"to provide for regulating the quality of seeds for sale, import and export and to facilitate production and supply of seeds of quality and for matters connected therewith or incidental thereto"*. The draft bill also appears to have an express objective of increasing private participation in the seed trade in the country and to liberalize imports of seed and other planting material into the country, ostensibly to meet WTO commitments. The bill then goes on to propose various mechanisms and modalities by which regulation of seed would happen – compulsory registration of all seed varieties; certification not just by State Seed Certification agencies but by accredited agencies outside the government too; inclusion of commercial crops and plantation crops too into the purview of the Bill; provisions for regulation of transgenic material; slight increase in penalties for contravening the law and so on.

Control from Farmers to Seed Companies

Indian agriculture is mainly run by seed saved from farmers' own fields, very often by women in farming communities who use their traditional knowledge and skills in selecting and saving seed. Nearly 75 per cent of the seed required for Indian farming is estimated to be created by farmers themselves in this manner. When it comes to seeds, Indian agriculture has seen and continues to witness a variety of roles that farmers perform. While some farmers and farming communities have been breeders of seed varieties, most farmers are seed producers in that they save seeds from their own crop to be re-used. Many farmers also engage in seed exchange and thereby meet their varied needs. Farmers are also consumers as they buy seeds from companies and traders. Activists have been fighting for the apriori rights for indigenous communities and their seed resources, especially outside an IPR framework. A few such rights were recognized in the Convention on Biological Diversity (CBD) and laws flowing from it. Farmers' rights as breeders in particular accrue from the CBD and the Indian legislation based on that - the Biological Diversity Act. These are also enshrined in the Protection of Plant Varieties and Farmers' Rights Act (PPV & FR), which was evolved using the *sui generis* clause of TRIPS, the WTO instrument. It is this legislation which also recognizes the rights of farmers as seed users and seed buyers. However, this is a scenario that is fast changing. Governments are urging farmers to increase seed replacement rates 'for higher productivity', with seed

corporations using technological, institutional and legal means to increase their markets. The objective seems to be to make farmers seed consumers wherein they depend on external sources for their seed. Within the formal seed sector, the role of the public sector in seed development, production and supply is rapidly decreasing with the private sector taking over (Sahai, 2002).

Why this Bill now?

- Seeds in Indian agriculture are governed by nearly thirty legislations – the Seeds Act 1966; the Essential Commodities Act, 1955; the Biological Diversity Act, 2002; Plant Varieties Protection and Farmers' Rights Act, 2001; Patents Amendment Act, 2005; Environment Protection Act, 1986; Consumer Protection Act, 1986; Geographical Indication of Goods Act, 1999; The Plants, Fruits and Seeds (Regulation of Import into India) Order, 1989 and so on. While some of these legislations are meant to regulate the formal seed sector and ensure that adequate and good quality of seed is supplied to farmers, others are related to ownership rights over seed resources. These are rights which seek to recognize the parentage of certain varieties and based on that, bestow certain exclusive marketing rights to the 'developers' of the seed (breeders' rights).
- The Plant Varieties Protection and Farmers' Rights Act expressly talks about farmers' rights in connection with seed even as it talks about breeders' rights. A legislation like the Consumer Protection Act 1986 is supposed to uphold the rights of farmers as consumers of inputs like seed, fertilizers, pesticides.
- The seed industry itself has grown rapidly and changed its profile substantially after the articulation of the National Seeds Policy of 2002 and prior to that, the New Policy on Seed Development in 1988. Legislations which have been enacted in recent times only work within an IPR framework to the advantage of seed companies, including the PPV & FR Act. Farmers' rights are more and more defined only in terms of residual rights, after rights to seed corporations are ensured.
- Private capital, including that of foreign seed companies, began to flow in even as mushrooming of several small Indian seed companies happened since the late 1980s. As the seed production and supply chain lengthened in terms of distance as well as number of players in the chain, the need for regulating the seed trade became more urgent and important. In this context, the existing Seed Act 1966 as well as the Seeds Control Order 1983 were found to be inadequate in regulating seed trade and ensuring provision of high quality seed. There are many reasons for this.
- The Seeds Act of 1966 is a legislation meant 'to provide for regulating the quality of certain kind of seeds for sale' and for matters connected therewith. The Act seeks to regulate quality of seed by first laying down minimum standards and then requiring all seed marketers to conform to such standards. The mark or label of the seed should indicate that the seed conforms to such minimum limits. No person can sell, offer for sale, keep for sale, barter or otherwise sell any seed of any notified variety unless the seed is identifiable to its kind or variety, that the seed conforms to the minimum standards and that the container of the seed bears in the prescribed manner the mark or label indicating the standards of the contents inside.
- The implement this law, there is an elaborate institutional set up (apart from the Central Seeds Committee and the Seed Certification Agencies) in the form of Central and State Seed Testing Laboratories, Seed Analysts and Seed Inspectors through which regulation towards good quality seed is sought to be achieved. A person upon conviction for contravention of the provisions of the Act could be punished for the first offence with fine which may extend to five hundred rupees and for subsequent offences with imprisonment for a term which may be up to six months or with fine which may extend to one thousand rupees or with both.
- While the Seeds Act 1966 might have met the regulation requirements in the situation that existed during that period, in the current situation, this legislation and its provisions are grossly inadequate. Today, the Indian seed industry has an annual turnover of about forty billion rupees. As the seed sector grew, the scope for more and more unscrupulous elements to enter the picture increased.

Incompatibility with other legislations and impact on Farmers' Rights

- The "registration" of plant varieties under the Seeds Bill is likely to create a parallel system to the PPV & FR registrations and create much confusion,

because the PPV & FR Act also allows for rights through "registration".

- The Seeds Bill has to resolve both contradictions in concepts and objectives as well as operationalisation conflicts with other laws.
- The Seeds Bill allows for "Registration" of seed varieties without first resolving issues related to parentage/origin of seed while granting rights of commercialization. The Bill could lead to a situation where plant varieties could be registered by anyone without the obligation of disclosure of origin or without prior informed consent. Ownership/parentage in the context of IPRs could then be claimed by the legitimization provided by the Seeds Bill. This would lead to biopiracy and would constitute a clear infringement of farmers' rights as breeders since all varieties that exist now have their origin in farmers' varieties. Once *de facto* breeder rights are appropriated, private interests could obtain exclusive marketing rights. In fact, exclusive marketing rights could be extended endlessly, given the provisions in the Bill.
- Unlike in the PPV & FR Act, this Bill also has no provision for regulating seed supply or seed pricing. These are two important requirements if the formal seed sector has to be regulated in a manner that farmers' interests are upheld.
- Furthermore, the Seeds Bill is also incompatible with the Environment Protection Act (EPA), the Biological Diversity Act (BDA) and so on. For example, it is the EPA which lays down the procedure for approvals and permissions related to genetically modified organisms. But the current bill seeks to circumvent those rules by talking about provisional registration for GM varieties.
- How the Seeds Bill could impact farmers' rights as breeders? The Seeds Bill asks farmers to compulsorily register themselves as "Seed Dealers" if they are engaged in saving and exchanging seeds. Secondly, the Bill says that farmers have to conform to the minimum standards laid down through this Bill. Both are clear infringements on the traditional rights of farmers who have always engaged in seed production and exchange with accountability systems that work out at the local level within the social structures of the community.
- In the first instance, the traditional seed saving and exchange system is not based on commercial interests and is usually a non-magnetized system. Farmers who seek seed select their choice of seed from other farmers after first seeing it perform in their fields. Certain farmers and even landless women are known for their seed selection and seed keeping skills and the others in the community trust their resource and knowledge. It is rare that such seeds fail due to deficient quality. Farmers do not knowingly supply deficient seed to other farmers. However, farmers engaged in seed exchange show that when such an instance of failure does happen, farmers who have borrowed the seeds pretty often assume that it is their management failure rather than the seed failure, especially if they see the same seed performing in other fields. Forcing the seed giver to pay compensation is somewhat rare given that it is perceived that the seed giver is actually doing a favour by lending her/his seed in the first instance. Still, in this traditional system, if a crop fails, the borrower could return any other variety to the seed giver.
- Coming to farmers as consumers of seed supplied by the formal seed sector, the Bill has no satisfactory clauses with regard to the institutional set up that will regulate and ensure the quality of seed produced and supplied nor satisfactory punitive clauses that will act as deterrents on unscrupulous seed traders. It also does not uphold the rights of farmers when it comes to compensation in case of seed failure. The Bill proclaims that farmers can claim compensation through Consumer Forums under the Consumer Protection Act 1986. If that was the case, there is no need to draft this legislation again.
- As is well known, it is not easy for the farmers of this country who are mostly illiterate to access and successfully obtain redressal through these Consumer Forums. A simplified and farmer-friendly redressal mechanism is needed to be provided in this Bill.
- As mentioned earlier, the Seeds Bill is also silent when it comes to seed pricing and seed supply regulations. With the Patents Act coming into force and monopolies being legitimized in the form of IPRs, seed prices are bound to spiral upwards increasing the overall cost of cultivation for farmers. In the case of transgenic varieties, the Seeds Bill has a confusing and unclear proposal called 'Special

Provision for Regulation of Transgenic Varieties' - it proposes a provisional registration for two years, subject to clearance under the Environment Protection Act. It is unclear why this provisional registration is being proposed and what the operationalisation implications are. While some have interpreted it as a violation of the EPA, others feel that it is probably a cautious approach to GMOs where only provisional registrations are provided. Genetic engineering is an irreversible and uncontrollable technology. Once released into the environment even for one season in a small scale, the potential for environmental damage and human health impacts could be tremendous. Transgenic contamination of seed stocks would become inevitable and irreversible in this country. The threat to original seed stock from where other varieties could be evolved is immense from GE and should be recognized for what it is.

- The development of Biotechnology has opened many vistas in the field of agriculture. The Department of Agriculture & Cooperation has appointed a Task Force on Application of Biotechnology in Agriculture under Dr. MS Swaminathan, the inter-ministerial consultations on the recommendations of the Task Force has been completed and the report has been examined for final decision. The Department of Agriculture and Cooperation is also placing its emphasis on the following subjects.

- The focus of strengthening capability till now has been on bio-safety and environmental safety infrastructure before commercial release of GM crops. With genetically modified cotton already released for commercial cultivation in the country and more crops being in pipeline and the fact that trade in genetically modified food grains will be increasing in future it is required to deal with GM seeds/crops on a much larger scale. This, *inter-alia*, calls for upgradation of the post-release monitoring infrastructure which is the responsibility of Department of Agriculture & Cooperation. In particular, there is a need for capacity building for training of manpower in advance techniques of risk assessment and management of GM crops particularly detection and analysis of LMOs, inspection, monitoring handling of GMO material, quarantine, issues relating to segregation, identity preservation and strengthening of institutions addressing issues of certification.

- The present Seed Act does not deal with the quality control of GM seeds as they are generally not notified. It is hoped that the new Seeds Bill will take care of this issue however, action against spurious GM seeds can always be taken under the Seeds Control Order and the EPA rules. As the GM seeds are very costly and sometimes farmers have been cheated, there is a strong urgency to develop protocol for determining the presence or absence of genes incorporated in the cultivars. Similarly, the procedure for testing of GM Seeds in the laboratories as well as in the fields is to be developed, strengthened and established with the State Government infrastructure. Strengthening of Seed Testing Laboratories will be undertaken in this context.

- The penalty clauses provided for offences are very mild and not deterrent enough. The bill proposes that the offender who sells sub-standard seed, upon conviction, be punishable with fine which shall not be less than five thousand rupees which may extend to twenty five thousand rupees. Offenders who sell spurious, misbranded or non-registered seeds are punishable with imprisonment for a term which may extend to six months or with fine which may extend to fifty thousand rupees or with both, according to the bill. Given that the spurious seed trade is worth crores of rupees, the small penalties being proposed are not likely to deter offenders.

- There should be a formula specified in the law itself for calculating the penalty applicable. For instance, the penalty should be based on the quantity of seed supplied or stocked with malicious/negligent intent and therefore, X-times the real loss or potential loss incurred by farmers and not a fixed amount irrespective of the magnitude of the offence. Each time a seed trader/company commits an offence under this law, there should be pro-active publicized data in front of farmers about the erring companies, warning them not to deal with such companies.

- The bill is completely inadequate when it comes to compensation to farmers in the case of seed failure. This Bill should take the opportunity to provide a mechanism for providing compensation to farmers in case of seed failure. Such compensation should be linked to a Seed Insurance system the premium for which is paid by the seed trader. Compensation should also be calculated based on a formula that

should be specified in the Legislation itself which should include the magnetized value of the expected performance as well as coverage of costs of cultivation incurred and not just the seed cost. Panchayats should have a role in certifying failures or losses since agricultural officials are not always available on time to verify the field level situation. Further, maximum time period for payment of compensation failing which more punitive clauses would apply should be specified in the legislation itself.

- Punitive and compensatory clauses should apply to misbranding, selling at prices higher than specified prices/MRP, failure of germination, lack of genetic purity etc. Misbranding should be defined to include failure to keep up promises made during marketing/ propaganda by the company and should include failure to reveal or keep up promises on expectable performance under different conditions as per the multi-locational agronomic trials as part of the packaging of seed.

Discrepancies

- The registration of all the seed varieties is not compulsory. Commercial and plantation crops and non-notified varieties are not covered. But why it is so important to "cover" all varieties is not explained. "This new Seed Bill emphasizes the use of only registered seeds. Why? Who registers their varieties? Who gets certification as producers? The seed companies, of course. Not the farmer." PPV & FR Act, 2001 described as one of its kind in the world as few countries have laws of this kind that protect farmers, has not yet been notified though the Act has been passed by both Houses of Parliament.
- Some critics allege that the notification of the PPV & FR Act is prevented primarily because of intense lobbying by the seed companies.
- The PPV & FR Act, for instance, mentions that based on the parentage of seeds, there will be benefit-sharing. It also mentions that farmers can claim compensation from breeders. It makes it mandatory upon the PPV & FR Authority to undertake "documentation, indexing and cataloguing of farmers' varieties".
- Most important, Section 39 of the Act states that the farmer 'shall be deemed to be entitled to save, use, sow, re-sow, 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'. Also, in the PPV & FR Act, Section 43 specifies that the farmer cannot be prosecuted for infringement of the law if he can prove in court that he was unaware of the existence of such a right. The new Bill does not make such allowances to protect the farmers.
- Some portions of the Bill seem completely non-contextual. For instance, in Section 16, one of the grounds on which a sub-committee may cancel registration is the need to protect 'public order or public morality'. But which registrations will affect the 'public order or public morality' and how are not explained.
- It was also criticized that there is a fundamental flaw in the process and philosophy of this new Bill. Legislation relating to agriculture should ensure that farmers get access to seeds at reasonable cost; the needs of the seed industry should be subservient. But the new Seeds Bill questions the whole issue of ownership of seeds. The parentage of seed varieties is not required during registration which means that the seed companies could be using farmers' varieties and not giving credit, nor sharing profits.
- According to the existing provisions, it is necessary to make the registration of all seed varieties compulsory, especially given the need to enforce patent laws as specified by the World Trade Organization (WTO). Some critics have pointed out that India has already amended the Patent Act of 1970 to comply with the TRIPS agreement and PPV & FR Authority is in place. Thus, there is no further obligation to the WTO.
- India has a Genetic Engineering Approval Committee to regulate genetically modified (GM) crops. According to the Bill, provisional permission could be granted to transgenic varieties. This may violate biosafety principles.
- One of the demands of critics of the new Bill is that it be harmonized with the PPV & FR Act, 2001, and the Biodiversity Act, 2002, so that none of the rights already granted to farmers can be diluted. Also, stringent penalties should be imposed on seed manufacturers when spurious or under-

performing seeds are sold. Ironically, one of the stated objectives of the Bill is to impose harsher penalties - up to six months in prison or a fine of Rs. 50,000, or both. It has taken great care to protect itself, through a clause which says that 'no suit, prosecution or other legal proceeding shall lie against the government or any person for anything which is in good faith done or intended to be done'.

Seeds Bill should incorporate the following:

- Regulation should include seed pricing, seed supply and decentralized seed planning/production in addition to regulation of quality.
- Multi-locational agronomic trials undertaken in a scientific manner in all those locations where the seed is sought to be commercialized. The definition of "Agronomic Performance" should be included in the Act itself to cover many parameters like yield, growth, pest/disease/drought/other resistance. etc
- Each such licensing should be reviewed after 3-5 years and renewal should be allowed based on actual performance. The ICAR establishment should be used to conduct/ supervise the initial trials as well as the review of performance.
- Public access to information related to the grant of licenses for varieties as well as provisions for opposition to licenses granted to certain varieties if there is reason to believe that the variety is not what is claimed; information on revoking of licenses to be public too.
- Strong punitive clauses which act as deterrents, based on standard formulae to calculate penalties.
- Appropriate compensation clauses for speedy redressal to farmers who have incurred losses due to seed failure – this should be linked to an insurance system and should be based on calculations that consider loss in yields as well as cost of cultivation.
- Most importantly, the Seeds Bill should exclude traditional practices of farmers of seed production, sale and exchange from its purview.
- A role for panchayats in determining seed failure under various conditions – misbranding, spurious seed, sub-standard seed, seed sold above MRP etc.

Any legislation related to seeds must uphold and support the following:

- Farmers' rights of breeding, selecting, saving, using, exchanging/bartering, distributing and selling seeds. These should be seen as *inalienable primary rights* and not be given as residual rights. Equally importantly, such rights should not be denied or violated by any method. In other words, ownership and control should be in the hands of farmers over their seed resources.
- Farmer-level self sufficiency in the form of community seed banks and seed networks.
- Most importantly, the Seeds Bill should exclude traditional practices of farmers of seed production, sale and exchange from its purview.
- The right of access to good quality, affordable, desired seeds primarily from the public sector if not the informal sector.
- A role for panchayats in determining seed failure under various conditions – misbranding, spurious seed, sub-standard seed, seed sold above MRP etc.
- Increase in agro-biodiversity in particular and biodiversity in general; it should not seek to promote or end up promoting mono-cropping nor contribute to erosion of diversity.

Points to be Considered for Changes in the Seed Bill

- The Seed Bill should be harmonized with the Protection of Plant Variety and Farmers Rights Act (PPV & FR), 2001 and the Biodiversity Act, 2002.
- Nothing in the Seed Bill shall dilute the rights and protections granted to farmers under the PPV & FR.
- Registration of varieties under the Seed Bill shall require a sworn declaration of the parentage of the variety and make provisions for benefit sharing in harmony with the PPV & FR and the Biodiversity Act, when farmer varieties and public sector varieties are used.
- Registration for sale should be required only for new varieties as in the Seed Act 1966 which limits the requirement to notified varieties. No registration should be required for extant varieties and landraces.
- Wherever registration provides for marketing rights, there should be explicit provisions for ensuring adequate seed supply at a reasonable price.
- The compensation for non-performance of seed supplied by agencies must be regulated through the National Plant Variety Authority, not the District Consumer Courts.

- The duration of protection granted to registered varieties in the Seed Bill should be commensurate with what is granted under the PPV & FR. An extension of five years may be considered for those varieties that are very popular with farmers, provided the decision is taken transparently.
- The provisional permission granted to transgenic varieties is dangerous and violates principles of biosafety, it must be rescinded.
- Multilocation testing of varieties bred by the private sector may be done by the ICAR. It is proposed that industry contributes to a fund to pay for multi location testing but the testing itself should be done by the ICAR.
- The small token penalties for violations contained in the Seed Bill must be revised.
- When the declared source of registered material has been accessed illegally, registration would be cancelled and criminal and civil liability will be determined.
- To ensure transparency, a process for pre-grant opposition to registration of a seed variety must be included in the Seed Bill, like it is in the PPV & FR.
- A consultative process of governance should be established where the communities that will be affected are part of the decision making process.
- The Seed Bill contains several provisions biased in favor of a specific stakeholder; it is against the interest of farmers and in that sense, against the larger national interest.

Seed Laws in Selected Asian Countries

Afghanistan: The National Law on "Seed and Plant Quality" is in the process of being finalized by the Afghan Ministry of Agriculture, Animal Husbandry and Food. The government has been asked by FAO & ICARDA to set up a system for Seed Certification, Seed Testing, and Plant Quarantine in addition to setting standards of seed quality. According to the ICARDA draft law, for the formal sector registration and certification are mandatory for all crops. However, seeds from the informal sector are exempted as long as they are not sold.

Bangladesh: Bangladesh's first seed law was passed in 1977. Like India's existing law, Nepal, Pakistan, Sri Lanka and Thailand, only varieties notified by government are subject to regulation. Five notified crops (rice, wheat, sugarcane, potato and jute) were mainly handled by public institutions. Since an "Agriculture Sector Review" by FAO, UNDP, DANIDA & World Bank, greater participation of the private sector is planned. Under the Structural Adjustment Programmes agricultural input markets were substantially liberalised. By the 1997 amendment act and the 1998 Seed Rules the private sector can import and market any non-notified seeds, while seeds of notified crops may be brought in for trials, tested for suitability and then multiplied and sold.

Bhutan: Under the Seeds Act of Bhutan, 2000 the Royal Government of Bhutan regulates the seeds of notified kinds and varieties and certification is optional. The system is voluntary and there is no DUS criterion.

China: Under the Seed Law of 2000: all commercial seed production has to be registered and certified for sale. Though there is a blanket exception for peasants to exchange and sell their seeds and they do not require a seed operation license to do so. Also asserts State sovereignty over seed resources. The seed law was modified on 28 August 2004, it provides better market access to foreign seed companies in China.

India: The Seed Act of 1966, which only regulated notified varieties, is proposed to be replaced by the Seed Bill, 2004; according to the Bill all seed for sale must be registered on VCU criteria. Certification is optional. GM varieties may be registered subject to environmental clearance but there is a ban on Terminator GMOs. Express mention is made for the farmer's option to invoke consumer protection laws for liability on non-performance of seeds.

Nepal: The Seeds Act of 1988 & Seed Rules, 1996 deals with the registration and release of 153 varieties of plants. The government can require minimum procedures for the barter, sale and exchange of seeds of specific varieties and species, just like Pakistan. Otherwise, people are free to do what they want. Amendments to the seed law are under discussion.

Sri Lanka: The Seed Act of 2003 requires anyone "causing a seed to be placed in the market in Sri Lanka" to be registered with the Director of Seed Certification in the Department of Agriculture. Any locally produced seed has to conform to the rules of production of certified seed before its description and sale as "certified seed". Even though there is a blanket exception for farmer-to-farmer seed exchange and sale, if the farmer wishes

to sell seed in the open market they have to produce and sell certified seed. The FAO's post-tsunami rehabilitation project focuses on certified seed production and upgrade of seed testing and certification procedures.

Thailand : The Plant Act, 1992 regulates notified varieties through a licensing system for "controlled seeds". All other varieties are free from government control.

Pakistan: Under the Seeds Act of 1976, notified varieties of crops have to be registered and their sale, exchange & barter is subject to regulation. For all other varieties certification is optional. Over 350 crop varieties have been registered. The seed law is currently under revision.

Philippines: Republic Act No. 7308 *Seed Industry Development Act, 1992* was enacted to provide for the development of the domestic seed industry. Farmers can exchange and sell their varieties without certification.

The Republic Act No.7607 *Magna Carta of Small Farmers*, defines "good seeds" as "seeds that are the progeny of certified seeds so handled as to maintain a minimum acceptable level of genetic purity and identity and which is selected at the farm level". The High-Value Crops Development Act of 1995 encourages farmers to use non-traditional crops for which it gives several incentives including low-cost credit, tax exemptions & market linkages. The recommended (similar to 'notified' in South Asian countries) varieties must be registered and certified.

Conclusion

The New Seed Bill should not be looked at in isolation, but should be looked at in conjunction with other legislations and policies that India has, related to Seeds and Agriculture, like the Plant Varieties Protection and Farmers' Rights Act, 2001; Biological Diversity Act 2002; Environment Protection Act 1986 with its 1989 Rules pertaining to Genetically Modified Organisms and Patents Amendment Act, 2005. It should also be seen in the context of policies like National Biotechnology Development Strategy to understand the full implications of what lies ahead for Indian farmers in terms of their seed resources. Any new policy and legislation should first and foremost try and uphold the rights of farmers over Seed in terms of its ownership as well as its use and management. Such policies and legislation should also uphold the central and special role that women have always had when it comes to seeds.

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