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Encroached Commons: Politics of Seeds

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Abstract

Seeds of all traditional varieties are owned and maintained by farming households. These are part of the common heritage of farming households. Techniques of seed preservation are developed by these households and they had full control over the seeds. Traditional varieties were low yielding and failed to meet the growing food demand of farming households. Gradually traditional seeds are captured by Multinational Companies (MNCs) and used for producing hybrid and GM seeds having higher yield potentiality. Farmers were attracted by these and they were given governmental support to grow these seeds. As a result, farmers stopped growing traditional varieties and lose their seeds. The basic seed right of a farmer has been victim of politics of Government and MNC nexus to the loss of farmer. Those who still grow traditional varieties, GM seeds pollute them and seriously damage their fertility. Today in India, wheat, cotton, maize are the major victim of MNCs seed politics. Rice is probably next target. Nearly 1500 rice varieties are facing extinction due to the hybrid rice. Rice is the staple food of nearly 60% Indian. The higher input and cultivation cost have pushed the farmers into debt traps. Without subsidy, growing of hybrid varieties is proving to be suicidal for farmers. As per the report, in India one farmer has committed suicide per every eight hours particularly after the harvest of cotton.

This paper will deliver into the different issues which related seed politics and seed rights, farmers initiated seed bank based on cases from India. The paper would also discuss the protest movement against GM seeds and growing practices of organic farming with indigenous varieties. The paper will also analyze the interaction among seed, soil, fertilizer and pesticides.

Key words: Commons, Seeds, MNCs, GM Seeds, India

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Seed Politics and Seed Rights

In a country of more than 550 million farmers who are largely poor and uneducated and the agriculture market rife with inefficient business practices, the Indian government sought to reform the market by eliminating subsidies and loans to the farmers. The government reform did not help the farmers. With pressure from the World Bank and International Monetary Fund (IMF), the Indian government has "forced market liberalization on India which means the elimination of government subsidies and government-backed loans to farmers."

The U.S. agri-business giants, the GM seed companies took full advantage of its entry into the Indian market. It entered into an agreement with state governments including Rajasthan and Andhra Pradesh to introduce a Memorandum of Understanding (MOU) that dictated the terms of disseminating the GM technology in Indian market. For GM seed companies, it is one thing to convince farmers to use artificial seeds for the purposes of enriching their lives, it is quite another to manipulate nature and technology to profit from them.

The irony is GM seeds have not been effective in India and the consequences are not as rosy as what GM seed companies had promised to deliver. Scathing reports of mass suicides of Indian farmers broke out as recently as three years ago when scores of farmers took their own lives in order to escape the burden of high prices and failure of GM seed companies. The seed companies offered its GM seeds to the farmers of India with hopes of reaping plentiful crops. Plain and mostly uneducated farmers thought that the companies had come to provide a "magic" formula that would transform their lives. GM seeds in India did not produce what the company had promised and farmers hoped. The expensive seeds piled up debts and destroyed farming fields. In many instances, the crops simply failed to materialize. The farmers were not aware that the GM seeds required more water than the traditional seeds. And lack of rain in many parts of India worsened the crop failure.

With no harvest, the farmers could not pay back the lenders. Burdened with debts and humiliation, the farmers simply took their own lives, some by swallowing poisonous pesticides in front of their families. An estimated 200,000 farmers have committed suicide all over India. To add to the misery, wives inherited the debts along with the fear of losing their homes and lands. With no money coming in, they also had to pull their kids from the schools. The mass suicide among the Indian farmers is known as the "GM genocide." (Ahmed 2012)

It is important to realize that we can't separate human rights from right to seeds and food as well as right to grow food for our consumption. Most people in the west have forgotten that access to food is a basic human right and they have been misled to believe that that right can only be exercised in a supermarket run by Wal Mart or Tesco. We all can exercise this human right by refusing to purchase engineered and manufactured food and by claiming our right to grow any food that nature gave us. It is important to inform our political representatives the consequences of refusing to accept that essential precondition for survival. That basic human right to food [and water, and air, and forests, and rivers, and the planet in which we were born] is a fundamental right which no living entity should be allowed to expropriate. (Shrivastava 2006)

Farmers Initiated Seed Bank Based On Cases from India

There are two types of ownership in case of seed banks, individual single household and kinship basis by more than one household and at the community level. Size of the granary directly

correlates with the landholding categories. Women usually manage the granary and use plant-based materials as storage pest repellent like pungam (*Pongamia glabera*) dried leaves.

In India, resource poor farmers face the dilemma of procuring expensive modern seeds with potentially higher yields or keeping traditional varieties that are less vulnerable to pest and disease and better adapted to varying climatic conditions. If the crop is lost, it is difficult for them to pay back the loans often obtained when buying modern varieties. To overcome this various NGOs have come forward to take up this issue. For e.g. Green Foundation is one such organization which focuses on strengthening community based biodiversity conservation. Green Foundation motivated members of local Krushi self-help groups to establish community seed banks in a selected cluster of villages. Each community seed bank has members from four to seven neighbouring villages. Self-help group members who are interested in conservation take active part in managing the seed banks. Green Foundation, on its part, trains farmers in seed selection, storage by traditional methods and record keeping and manages disbursals of seeds. Farmers receive seeds from the bank in return for double the quantity after the harvest. In times of crop failure, farmers compensate with other varieties which they hold and return the seed the next season. Community sharing of information on seed varieties, storing capacity, germination, crop yields and disease resistance are crucial to enhance local knowledge of seed production. Female members are showing particular deep interest in saving and exchanging seeds, as well as in practicing traditional pest control measures. Farmers contribute to conservation of the traditional varieties by increasing the area under which the traditional varieties are grown. Even there is a back-up gene bank in case a particular variety of seed is lost in the community.

Seeds Festival

Group of women run social organization called "Sangham" near town of Zaheerabad, about 110 kms north-west of the high-tech city of Hyderabad. They have formed groups in 72 villages and organize an annual seeds' festival lasting about a month to mid-February. Small groups of villagers visit each of the 72 villages. The host village takes care of their shelter, food and water needs. These groups inspect how each village is managing its seed bank. The village with best managed seed bank gets an award and the award is never given to an individual; it is given only to a community.

Uniqueness of Sangham

The *Sangham* portends shape of things to come. Unless, local communities work to preserve local seeds, especially indigenous seeds of crops that are highly nutritious and tasty and can be grown at low or no cost, and no energy input, we shall cease to exist as a viable society. Also to bring into focus that low and no cost and no energy input also implies that there will be minimal or no CO2 emission from such farming activities. That is the emerging concept of Dream Farm [See Dream Farm, Institute of Science in Society, UK], but these women have created their own Dream Farms at virtually no cost. All they need now is to produce their own energy for lighting.

The second unique thing is the social organization. Every member of the community has access to food and is assured of some work even if landless. (Shrivastava 2006)

Storage of food grains by the farmers in India is mainly traditional. The traditional methods have been used for many years with little or no modification and are successful because of the application of scientific principles, though unawares. The selection of a traditional storage

system by an ethnic group is often related to climate, but local natural resources and customs also influence the choice of the storage methods (Hall 1970).

Traditional Methods of Seed Storage

Thombai (Bamboo Bin)

It is a traditional grain strorage structure; size varies from small compartment within a house to a separate hut-like structure near the home. The craft is practiced all over India, particularly in Tamil Nadu, Orissa, Punjab, Rajasthan and Andhra Pradesh. The designs differ from State to State. Thombai is a chief storage structure made from *Bambusa arundinacea* (Retzius) Roxburg (Bamboo) splits which are closely intertwined in such a way that a bamboo skeletal structure is formed with a narrow opening at the top. This structure is placed over a foun- dation of boulders and covered over on all sides by clay and allowed to dry. The interior of the structure is lime washed while the exterior is fortified with cow dung. When the structure is fully dried the major grain to be stored is put in to the interior. Any additional material to be stored is taken in separate gunny bags or pots. A large *Thombai* can hold about 30 tons of grains. A small pothole alone is left at the top and this too is closed by a large roof of *Cymbopogan* sp. Hackel (Ginger grass).

Kulukkai (Earthen bin)

This is another popular storage structure for storing lesser quantities of grains (< 200 Kg). The structure has a unique shape with a smaller base and a broader top with a constricted mouth for pouring in grains (figure 2). The base of the structure is trenched in the soil, normally in- side a protected house and there is a basal vent for re- moving the stored grains closed by coconut shell (*Cocos nusifera* L.). When grains are stored for longer periods, the door or vent is sealed with clay. The mouth at the top is covered over by an earthen plate that exactly fits into the opening and the lip is sealed with mud. This earthen structure provides a storage time of about two years and it has proved to be very successful in storing paddy, black gram and millet. It is a common practice to top up the *Kulukkai* with dried leaves of *Pongamia pin- nata* (L.) Pierre and *Azadirachta indica* A. Jussieu.

Mankattai (Mud house)

This is the variant of *Thombai*, and it is normally kept indoors. Here, there is no bamboo skeleton and the walls are made of mud bricks and plastered over with a primary layer of mud. There is no spire, and the top is covered over with wooden planks after storing the grains inside. The whole structure along with the wooden planks, is plastered over with clay and cow dung, al- lowed to dry and then it is lime-washed (figure 3).

The size of the *Mankattai* is determined by the farmer based on his need. Mostly it is used to store larger quantities of the same commodity.

Vattappetti (Palmyra leaf bin)

This storage structure is normally used for short term storage of grains and exclusively designed to suit stor- age needs of an individual household (figure 4). The normal size (2.5-3 m height, 1 m width, 2 m length, ca- pacity > 500 Kg) is mainly used as maize storage. Sea- soned Palmyra leaf (*Borassus flabellifer* L.) is carefully woven to form a type of cylindrical basket. Usually double weaving is done to make the storage system more durable. The storage system is provided with a top cover made up of the same material and in traditional storage practices,

leaves of plants like *Psidium guajava* L., *Vitex negundo* L., *A. indica*, and *P. pinnata* are used as the optional inner lining of the palm leaf bin.

Fig. 1: *Thombai* (Bamboo bin), 3 m height, 1 m radius, Capacity > 500 Kg.

Fig 2: *Kulukkai* (Earthen bin), 2 m height, 0.5 m radius
(at the broadest place).

Fig 3: *Mankattai* (Mud house), 1.5 m height, 1.5 m width, 2 m length, capacity > 500 Kg.

Fig 4: *Vattappetti* (Palmyra leaf bin) (small sized), 0.5 m height, 0.25 length, 0.25 width, capacity 10 Kg.

The protest movement against GM seeds

In **Andhra Pradesh**, more than 250 people took part in a protest meeting in Hyderabad organized by the Coalition for GM-Free Andhra Pradesh and around 15 mothers with their children put out a "NO GM IN OUR FOOD" message. Farmers and consumers from nine districts of Andhra Pradesh attended the meeting, including those who suffered losses with Bt cotton, those who have experienced allergies while working in Bt cotton fields and others who

have lost their livestock that grazed on Bt cotton. Scores of farmers who practice ecological farming also joined in, urging the AP government to ban GM crop trials in the state.

In **Madhya Pradesh**, around one thousand farmers took out a "death procession" of Bt Brinjal in Jhabua. In this symbolic protest, four pall-bearers joined by hundreds of farmers carried a large GM brinjal in a solemn Hindu cremation ritual; the protest was organized by Beej Swaraj Abhiyan (Seed Freedom Movement).

Fig. 5 Death procession of Bt Brinjal in Jhabua, Madhya Pradesh

In **Kerala**, during a seminar organized by Thana (an environmental organization), the state Agriculture Minister reiterated his stand against allowing any GM crop trials in the state of Kerala, which is a mega-biodiversity hotspot. He also signed an anti-GM banner to be displayed in Delhi on 6 May. The seminar noted that foods containing soy, canola, corn and cottonseed ingredients, imported from the US, were being sold in many supermarkets, posing health threats. Speakers in the seminar called upon the people to boycott soybeans, corn (maize) products and other GM foods.

In **Orissa**, the Coalition for GM-Free Orissa submitted a petition signed by more than 30,000 farmers, intellectuals and activists in the state to the Minister for Agriculture. And rallies were held at Kendrapara, Bargarh, Bolangir, Rayagada, Sundargarh, Ganjam, Nayagarh and Sambalpur districts. Letters from 50 sarpanches (elected heads of local governance councils at the village level) were also submitted to the Minister asking him to ensure that Orissa remains free from genetically modified seeds.

Fig. 6 Nari Samaj rally in Bhubaneswar, Orissa

The largest protest took place in Bhubaneswar, the state capital of Orissa, organized by Orissa Nari Samaj, a tribal women's collective. More than 5,000 tribal women from 54 blocks, along with hundreds of farmers from Dhenkanal and over 300 students from Bhubaneswar joined a large protest rally against GM crops. They exhibited 500 indigenous paddy varieties that they have collected in front of State Assembly to send their message to the state government that it will put the rich diversity of rice species at risk if GMOs entered the region.

In **Maharashtra**, district level anti-GMO meetings were organized by the Sashwat Sheti Kriti Parishad to build farmer- and consumer awareness. The districts covered were Buldana, Amravati, Akola, Washim and Wardha (*Kavitha Kurunganti 2008).*

The only alternative to assure the stability and sustainable development in agriculture is to promote traditional methods of agriculture like adoption of organic farming, promotion of indigenous seeds to avoid use of hybrids. Indigenous knowledge has two powerful advantages over scientific knowledge like it has little or no cost, and is readily available. Indigenous knowledge is the accumulated knowledge, skills and technology of the local people, derived from the direct interaction of human beings and their environment.

Growing practices of organic farming with indigenous technology and varieties

Jharkhand is one of the eastern states in India, where bulk of tribals live, constituting about 28% of total population. It is a homeland of 30 tribes including 8 primitive tribes. The tribes happened to be primarily rural and their economy is predominantly agricultural, based on natural seasons comprising and exploited on primitive methods. These tribes have rich knowledge about the indigenous practices especially in soil management, seed protection and post-harvest aspect on paddy. This traditional knowledge has been derived from the tribe's farming experience through trial and error method and handed down from previous generation to present generations. A study was conducted in 3 districts of Jharkhand upon indigenous technology of tribal farmers in Jharkhand state by Directorate of Extension Education, Birsa Agricultural University, Ranchi and the results were published in Indian Journal of Traditional Knowledge, Vol. 9 (2), April 2010, pp 261-263. To summarize the results they were as follows;

Indigenous agricultural practices

Practices	No of respondents (n= 225)	
Soil management	No	%
Ploughing the field 3 to 5 times before sowing	225	100
Braking the clods by wooden cylindrical shaped implements	225	100
FYM is kept in the field basket full of heaps for direct seeded/ transplanted	225	100
Use farm yard manure only	101	45
Practice crop rotation	225	100
Practice mixed cropping	225	100
One summer ploughing	35	15
Ploughing the field after every shower during summer	190	84
Trees planted on the ridges of the fields in upland	173	77
Bunding and terracing of land according to slope	225	100
Weed management		
Bushening		
Mixed cropping	225	100
Crop rotation	225	100
Plant protection measures Use of *Parsa* leaf	173	77
Use of *Sindwar* leaf	27	12
Seed management		
Harvested rice is left in the field for sun drying	225	100
Drying of paddy before storage	225	100
Rice is stored in *mora* (Straw made)	209	93
Neem leaves are mixed with pulses and stored	29	13
Different seeds (*urd* and millet) are mixed and stored together	29	13
Soaking of seeds in water before sowing	7	3
Post – harvest activities		
Rice is threshed by bullock	225	100
Pulses and millet are threshed by hand beating	225	100
Winnowing by *soop*	225	100
Parboiling of paddy	225	100
Dehusking by *Dhenki*	47	21

Source: INDIAN J TRADITIONAL KNOWLEDGE, VOL 9, NO 2, APRIL 2010

Interaction among seed, soil, fertilizer and pesticides

Intensive use of chemical fertilizers makes HYV seeds highly susceptible to insect pests. The increase in use of chemical pesticides causes illness and death in humans, animals, and other beneficial insects. It also requires large (and steadily increasing) amounts of chemical fertilizers. This intensive use of pesticides and chemical fertilizers eliminates much of the

organic matter from the soil, compromising the soil fertility. Pesticide and fertilizer runoff into waterways is also linked to the contamination of water and the harming of aquatic life.

The majority of GM seeds are produced by Multinational Corporations who also make chemicals and thus are patented. A patent prevents the producer from saving and exchanging seeds, therefore undermining the farmers' right on seeds. The producer has to buy fresh seeds for every cultivation season. In effect, the producer loses seed sovereignty and becomes dependent on Multinational Corporations. GM seeds also increase the cost of production, as patented seeds carry a considerable amount in the form of royalty fees which increases their market price.

The production of pesticides started in India in 1952 with the establishment of a plant for the production of BHC near Calcutta, and India is now the second largest manufacturer of pesticides in Asia after China and ranks twelfth globally (Mathur, 1999). The pattern of pesticide usage in India is different from that for the world in general. In India 76% of the pesticide used is insecticide, as against 44% globally (Mathur, 1999). The use of herbicides and fungicides is correspondingly less heavy. The main use of pesticides in India is for cotton crops (45%), followed by paddy and wheat.

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