

Threats analysis and possible actions for mitigating Farmers' Suicide phenomena in India

Report

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Introduction

The study of the problem of Indian Farmers' Suicides by the association 'Engineering without Borders' – Milano and 'Parivartan'-Milano has brought to a framework that, though incomplete, may give some hint for actions to focus on. This framework could appear, sometimes, contradictory. In fact, it is based on information obtained from different sources review: researchers, journalists and activists with different background, local stakeholders, national and companies' reports. As for all complex problems, it is easy to end up with very different interpretations. This study does not claim to say who is right and who is wrong, but aims to collect several variables influencing the problem of farmers' suicides.

Context Analysis

Generally speaking (but with probably local exceptions), the causes of farmers' suicides can be linked to cultural and socio-economic aspects. The report focuses in particular in the State of Maharashtra, in the south east of India. More specifically, they are related to the loss of reputation following indebtedment and the recourse to local money lenders, called middle men. Farmers are also encouraged to commit suicide by a measure that was taken by the government to alleviate the social impact of this phenomenon. The measure consists of a financial help provided to the family of the dead land owner. Some farmers see the perspective of this financial help as a solution for their families.

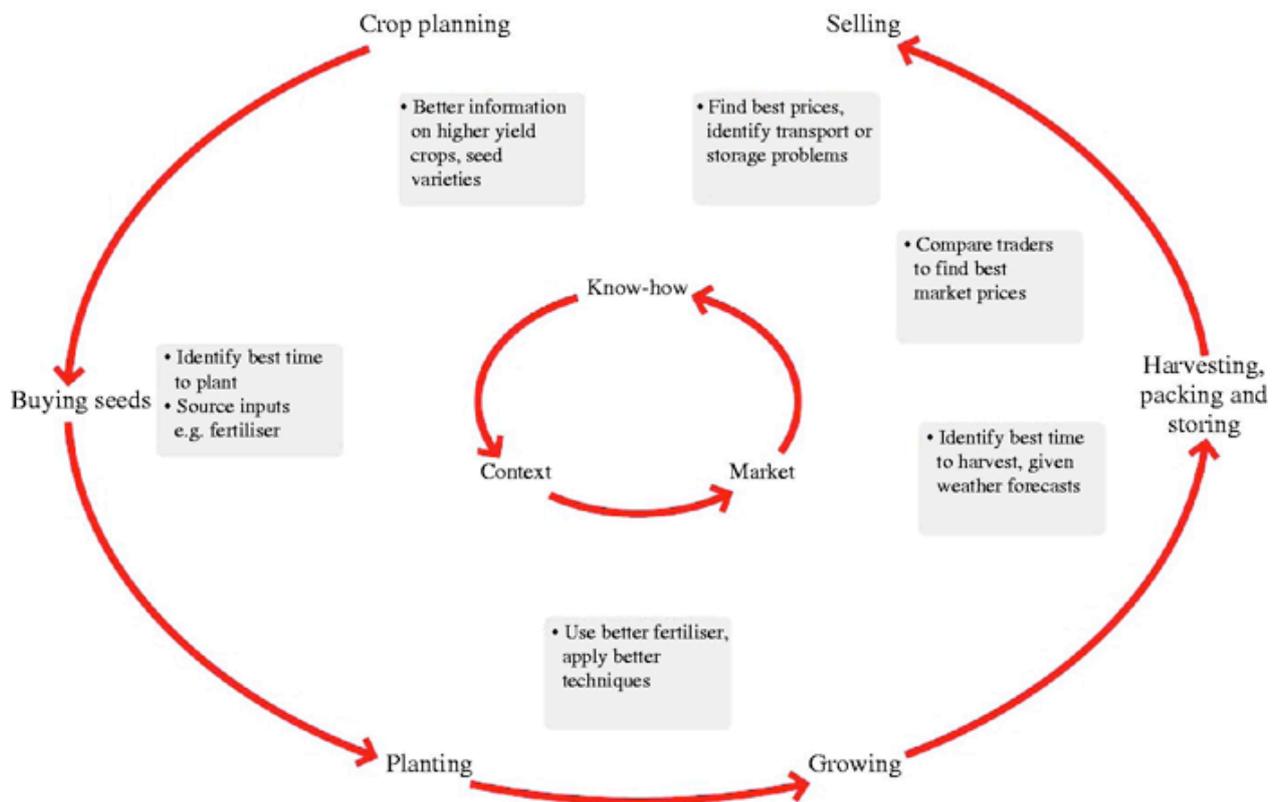
Debts are usually the result of many different causes. Primarily they are related to high expenses for health care, since it seems that farmers lack good healthcare services and have to bear huge costs for hospitalization. Insurances from government do not cover the poorest part of population. There are many insurance companies in India, but they do not have any interest in working in the rural areas. Other sources of debts include the expenses for children education and the costs for daughter's marriage. The expenses incurred to host the ceremony and mainly the dowry that they need to pay to the groom's family). These issues represent a relevant burden on the family's resources, as farmers have no other income but agriculture products. Generally, farmers take loan from private money lenders ("Saukar") for this activities and the interest rate is very high, so high that it normally cannot be paid on time by the farmer.

Incomes essentially generate from the sale of agricultural products, in many cases only one product (*mono cropping* is well diffused). Mono cropping, and in particular the production of solely cash crops as cotton, may be related to the introduction of *genetically modified seeds* for improving the production rate of the agricultural sector. Genetically modified seeds indeed are only available for cotton and few other products, like soy. For this reason farmers are induced to produce crops that can sell, the cash crops as cotton, and reduce the amount of food crops. In cotton production sector there is no insurance for the yield. If the yield is less than expected due, for example, to unfavorable atmospheric conditions, the producer does not get the expected production and do not receive any revenue from insurance. For this reason, farmers fight with government by making strikes ("Andolen"). In the sugarcane sector, farmers get good rates after strikes because the sugar lobby is in politics and has more power on government. In areas where cotton grows, such as Maharastra, areas there is not any strong lobby like in sugarcane growing areas. The income of farmers is therefore based on one single opportunity related to the success of the annual production, and this represents a relevant risk since they are subject to many threads during the production, i.e., the Indian environmental and weather conditions are very unstable (it is sufficient to think, for example, of the variability of monsoon season).

It is hence very important for farmers to succeed in the production and to be able to meet the financial requirements of the family. However, there are many threats to the successful closure of this cycle. These threats are present all along the production chain from the procurement of seeds and pesticides to the sale of the final product.

Threats analysis

Threats have been identified for each step of the agricultural cycle steps (Figure 1):



Source: Surabhi *et al.* (2009)

Figure 1 Agricultural cycle. Source: Surabhi *et al.* (2009)

1. Crop planning

Adequate crop planning is the first step for a correct cultivation. A usual criticality is that farmers could fail in the initial stage of planning the best pattern for cultivation, which includes the choice of the right seeds and pesticides, and taking into account the water availability. This is due to **lack of information and training for farmers**. In the choice of the types of seeds to grow it has to be considered also the fact that **not all the types of crops are insured**. In fact crop insurance could help farmers to protect themselves against either the loss of their crops due to natural disasters, such as hail, drought, and floods, or the loss of revenue due to declines in the prices of agricultural products. In this stage, the farmer has to decide what to buy for the agricultural cycle, and understand how much money he will need. In asking for loans, he finds an additional threat because institutional credit is available for medium or large landowners, while small farmers lack economic support. An obstacle to obtain institutional credit is often represented by **bureaucratic procedures**. Currently farmers depend on local money lenders that charge huge interest rates and put stringent conditions. For example, if farmers are not able to pay back the debt, the money lender can take over their land, and this could have dramatic consequences, because land has not only a commercial, but also an emotional value (it is considered a mother). Small farmers need to have better access to credit with low interest rates. The creation of self help groups is a strategy that has already been applied, but it has to be empowered, since it could provide valuable economic support. Also, the **size of the lands is usually a critical issue**, since they are too small to benefit from scale economies and to be more competitive on the market. Forms of **cooperation between farmers** could help to solve this problem, but they seem not to be very diffused in Maharashtra. Moreover, as mentioned, farmers are mainly practicing **monocropping**, because there is a higher demand and margin of profit in selling cash crops. For this reason local varieties are disappearing.

Support and consultancy in the selection of the best pattern of cultivation according to the climate conditions and the risks of failure may represent a possible action to mitigate the problem. Planting two or three crops on the same time may reduce the risk of failure of the harvest or market crises. Indian Council of Agricultural Research works towards imparting training and awareness programs of integrated cultivation. There is evident lack of awareness and training in the farmers' community, but it is actually highly important to understand the amount and type of the seeds and relative pesticides that cultivation requires, considering the weather conditions and the type of the land.

During this initial stage, it is also important to plan **water management**. Very often Indian agriculture depends on nature because irrigation facilities don't cover the entire land. There are canals and storage facilities (lakes, dams...)

under construction by the government, but it is not sufficient to solve the current situation. In Maharashtra there is the 40 % of dams built by the government in India. But from some interviews to local community, it emerged that this 40 % has not been built in the right locations: often they are situated where there is no necessity. There are indeed regions affected by floods for half of the year, and completely dry for the rest of the agricultural cycle. This represents a huge expense for the government of Maharashtra.

Knowledge the quantity of available water is very important to understand which crops could be cultivated and to do a correct plan for the use of water during the agricultural cycle. Local businessmen interviewed sees drip irrigation as a good solution for Indian conditions but it has to be considered that **every crop needs a different dripping irrigation** system and it represents a costly affair.

A better knowledge about water management should be instilled among farmers. In this respect, the already existing self-help groups could be a possible vehicle. Training could represent a possible proposal for effective local projects. In conclusion, there should be an expert guidance for innovative farming, as well as for available water and selection of crop. The control of inputs should be technically done according to the requirement of each crop.

1.1. Considerations on GM seeds

Since the opening of the market and the decline of local trust-based commercial relations, farmers are unable to understand the quality of seeds (well-working or poor-quality seeds). In India seeds companies license is issued by the commissioner of Agriculture. There is a very strict control of all the varieties by governmental agencies. The samples are collected at all locations by the Agriculture officers and checked in germination and genetic purity in governmental labs. In spite of this, there are some companies selling the seeds without label and name on packet. The activist Vandana Shiva is interested in traditional seeds production by the farmers themselves, but its usefulness is sometimes under debate for being not helpful to get good yield. Seeds companies have their own R&D projects and thousands of trial plots are taken at various locations; this plots are shown to the farmers and after data submission by the company to commissioner of Agriculture, the variety is released with the appropriate label.

There are some companies however, that purchase seeds without labeling, but this is just a 5 % in the market. Nevertheless farmers are well educated and they are aware of procedures, so they do not purchase seeds without tag and label. At the same time, Indian activists as Vandana Shiva argue that these agro companies are making an aggressive advertising campaign to promote GM seeds and the related pesticides, promising high yields and profits. Information reported by companies is accused to be partial and deceptive because it seems to be true only under certain environmental conditions. But farmers lack of this critical insight and expose themselves to the risk of failure.

The GM seeds introduced in India are modified in order to prevent pests' attacks to the crop (modification called Bt, different from Ht not introduced in India). GM seeds have been strongly criticized for being not productive and have been accused to be a cheat by multinational companies, but international reports (European Commission) state the real improvement of production if seeds were correctly used. GM seeds need indeed a correct dosage of water and pesticides. In case of incorrect use or in presence of a pest not sensible to the genetic modification, GM seeds fail in the production. Moreover, GM seeds are in general more expensive than non GM seeds, but their higher cost is supposed to be positively balanced by lower costs of pesticides.

2. Buying seeds

The GM seeds are in cotton, mainly available from Monsanto company, that owns the patent and thereby controls the market. The name of the seed is Ball Guard I and Ball Guard II. These seeds are purchased by the farmers from an agro service center called "Krishi seva Kendra". In purchasing the seeds, farmers are very likely to be cheated by taking too high price for the seeds. Moreover, Krishi Seva Kendra has very high commercial visibility, but there are doubts on the real skill and knowledge of personnel on issues related to agriculture. **Procurement of seeds and pesticides** represents one of the main expenses for farmers. Another issue raised by Indian activists against big agro companies concerns the fact that GM seeds are not reproducible: **farmers cannot save the seeds** for the next season and he has to buy them again every year. Farmers cooperation might be an opportunity for small farmers to organize common production which may reduce individual overheads and help them gain purchasing power.

3. Planting

Planting is the most important part in any crop. Farmers still operate traditional activities in planting and there is **no specific guideline on modern techniques of cultivation** (like Row To Row, Plant To Plant, Mulching, Placement of Drip Laterals). Technical guidance is therefore strongly required. Moreover, small farmers usually do not own the tools required for the land preparation and plantation, so they are obliged to **rent the necessary facilities**, like tractors or

bulls or manpower. Land preparation includes indeed **extensive labor costs**. This problem could be partly solved with an increased cooperation between farmers.

4. Growing

The main concern about plant growing is the **variability of atmospheric conditions**. There is no water management like water harvesting, storing or infiltration in proper way, although the variety of conditions is very relevant due to monsoons and some water management appears necessary. Farmers' crop also suffers from various pests, crop diseases and insects. This all happens because of poor management or lack of knowledge for new varieties of seeds launched by the companies. The impact of this phenomenon is increased by monoculture, because large extensions of the same variety involve the proliferation of a pest. Cases in which farmers invest a lot of money on pesticides, but often they don't use them properly, have been reported.

5. Harvesting, packaging and storing

In villages there are all the traditional activities conducted for harvesting. Mainly crops are harvested by **farm labors**, by paying huge charges. Generally small farmers only conduct the harvesting for the local area and to keep the tradition. Storage facilities represent an additional critical point: there is **diffused lack of proper storage facilities** to save the crops and perishables. For cold storage facilities also energy has to be provided. To prevent the loss of seeds biodiversity, seed banks may represent a possible solution. With the arrival of GM seeds in India, many useful plants that were developed over centuries are now no longer used for commercial agricultural production and are becoming rare. These seeds need to be preserved to prevent farmers from becoming completely dependent on agro-companies for the procurement of seeds. With respect to packing, there is **no standard norm**, farmers only harvest and collect the products in gunny bags of 50 kg or 100 kg, without any antiparasitic technique like fumigation.

6. Selling

There is no Government Collection Centre available at village level. There are agricultural committees, but governmental rates are less than the private collection centers. Private centers move to rural areas and by paying instant cash they purchase the products directly from the farmers. Farmers are pushed to receive instant cash, consequently there is **no controlling authority for the purchase of farmers' products**. Nor there is **any government activity to control the prices**. The government knows about the situation of yield and availability of products, but the price of purchase proposed is too low, and not sustainable for farmers. If government decided to purchase all farmers products by offering them good price, the problem of farmers' suicides would be probably strongly reduced.

6.1. The case of middlemen

Due to an absence of a direct sales channel, farmers sell their products to a commercial intermediary, the middle man, at a price that is significantly lower than the effective market price. This means that the intermediary has a consistent margin of profit. An effective action to reduce the relevancy of middlemen phenomenon might be the creation of farmer groups dealing with export houses.

PEST analysis

The PEST (Political-Economic-Social-Technological) analysis is a tool for Project and Program Management and assesses a market, including competitors, from the standpoint of a particular proposition or a business. PEST analysis can be useful before SWOT analysis because PEST helps to identify SWOT factors. PEST and SWOT are two different perspectives but can contain common factors. Here it is performed on the case of Farmers' Suicides. For each phase, political, economic, social and technological concerns have been summarized in Table 1

Table 1. PEST analysis of Farmers' Suicides

PHASES	Political	Economic	Social	Technological
Crop Planning	Seeds are controlled by government Possible use of GM seeds Corruption in irrigation projects	Different seeds have different insurances Irrigation facilities do not cover the entire land	Limited size of farms Monocropping	Lack of knowledge (training) on weather forecast and type of land has influence on water availability, fertilizer purchase, selection of best pattern

				Irrigation facilities are scarce
Buying seeds	Private companies sell seeds without label (5%)	Lack of economic support to farmers GM seeds are not reproducible	40 % illiteracy in farmers community Farmers are pushed to buy GM seeds from aggressive advertising campaign	Farmers are unable to understand the quality of seeds GM require correct dosage of water and pesticides GM are resistant only to certain pests
Planting		Farmers are forced to rent tractors and bulls or manpower	Cooperatives of farmers are not very diffused in Maharashtra	Modern techniques of cultivation are unknown Small farmers do not own the tool for land preparation and plantation No water management
Growing				No water management and storing Fluctuation of atmospheric conditions Crop diseases and pests due improper use of pesticides
Harvesting, packaging and storing		Crops are harvested by third labors with charge		Lack of proper storage facilities Need energy for cold storage No antiparasitic techniques (like fumigation) Possible loss of variety of seeds from GM diffusion (genetic flux)
Selling	No government collection centre at village level No control of prices Government maintains low prices	Private centres and intermediaries buy at lower prices than market price		

Draft proposals of action for mitigating farmers' suicides

From this first analysis of the problem, some draft proposals for local projects to improve the situation might be the object of further study.

For threats identified in points:

- 1: Training: farmers need to be advised and guided on best cultivation patterns.
- 2: Construction of seed houses. Microcredit for supporting farmers in purchasing seeds.
- 3: Training on appropriate methods of cultivation. Microcredit for renting facilities.
- 4,5: Training and know how transfer: technological advances in water management, weather forecasting and irrigation systems.
- 5. Construction of storage systems for products and perishables.
- 6: Microcredit: Promoting microcredit, mainly through self help groups of women, for selling the produce. Training on definition of proper price.
- In addition: scholarships and sponsorship for farmer's children so that farmers do not need to sell the land to pay education.

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