CHAPTER III

PRESENT SCENARIO IN AGRICULTURAL COMMUNICATION

In the preceding chapters we have seen as to how communication techniques could be used for rural development. In this chapter, we will concentrate on agricultural development and existing communication of agricultural technologies in India which indeed form the basis of rural development.

III-1 Green Revolution

When India got freedom, there were two main difficulties before the planners of agriculture (R1):

a) To provide food for every hungry one, and
b) To provide food by keeping in mind the increasing pressure of populations.

In fact, Gandhiji had already sown the seeds and shown us the path towards self reliance in every case by indentifying the village as the unit for development. But Pandit Nehru practised industrialisation for development by indentifying the urban city as the unit for development. As far as agriculture was concerned, the planners proposed ‘Green Revolution’ - the American way of agriculture.

III-2 Non-sustainable agriculture

It was clear that our traditional agricultural techniques were insufficient to provide food for increased demands of population. Hence, under the banner of the Green Revolution, our agricultural industries began to popularise synthetic fertilisers and pesticides. Planners, instead of thinking of sustainability of agriculture, tried to imitate the American and European agricultural techniques, which were depending on petro-chemicals (R2).

III-3 Only One Criterion of Development - Productivity

Agricultural industries, research centres, planning officers and extension centres were guided by only one major criterion of development i.e., productivity. Instead of importing agricultural products, our agriculturists began to import new technologies which would promote ‘productivity’. Without thinking whether those methods were appropriate or not to our ecological and environmental conditions, we tried to imitate the foreign techniques. Hundreds of crores of rupees were invested to manufacture these chemicals. The short term objective of productivity alone, brought our agriculture far away from nature. While following foreign countries blindly, we tried to attack nature rather than to co-operate with her. While professing all the time that the teaching of Gandhiji should be followed (R2), we were going away from his doctrines which supported the idea of solving problems depending on mother nature, instead of wasting natural capital resources.

Then appropriate social change was expected to happen in order to accompany the non-sustainable material technology that was introduced. The needed social structure
did not materialise in rural areas causing migrations to cities, creating chaotic conditions there. The fault was attributed to traditional beliefs and old social values. It was assumed by the development planners that economic incentive and the profit motive are factors which stimulate widespread behavioral and social changes, required for development. It did promote development but of individuals only, and not national. In fact, it happened even at the cost of national development.

III-4 Communication of Modern Agricultural Techniques:

a) A training and visit project (R3):-

This project was introduced in several states in the country mainly for transmitting to farmers the information regarding latest imported agricultural methods of cultivation, and to motivate them to follow improved practices, thereby leading to increase in productivity and improvement in their economic conditions. Agricultural production was assumed as a function of several factors like varieties of seeds, use of fertilisers, insecticides and pesticides and proper management of the mono-crop. Planners neglected management practices of soil conservation and its present and future status of fertility. The above mentioned factors of agricultural production were functioning in only one direction of more and more production by exploiting the mother Earth.

In order to transmit new agricultural technologies in twenty one districts of Maharashtra, ninety subdivisions of farmers are working. Each subdivision includes fifteen committees of farmers, members of these committees getting the knowledge through the extension worker. There are six thousand to seven thousand extension workers in Maharashtra. Each extension worker is supposed to look after and guide one thousand to two thousand farmers, for various problems and for the modern technology of agriculture. He is supposed to hold a training class for farmers each fortnight.

i) Communication by extension worker

Like scientists and planners, an extension worker forms an important link between scientists and farmers. The rate of agricultural production is assumed to be directly proportional to his frequency of visits and efficiency in transmitting the knowledge correctly. Extension agriculturist, principal agriculturist, master trainers, and subject matter specialists are supposed to train and guide the extension workers collectively. These extension workers made contact with farmers through a contact farmer. Hence the contact farmer and the extension worker, both are supposed to be responsible for agricultural development.

ii) Some facts about extension workers (R4)

Training and visit project has ambitious objectives and it is planned really neatly to transmit the new messages upto the small farmers. The main pivot of
this whole ambitious project was the extension workers. However, only 10 to 20% extension workers are agricultural graduates and 10 to 20% have passed their matriculation. Other 60 to 80% workers hardly have any scientific knowledge of suitable agricultural technologies. Though these workers are government employees, they get very poor salaries, while they are supposed to work for many types of work simultaneously. Government declares new projects for the farmers' benefit, every now and then, and each time these same extension workers are supposed to work for these projects. Hence, their concentration is diverted.

Selection of workers is done locally. Hence, many factors, such as party politics, are involved in it. Though he is the pivot of this project, there is no direct control from upper agricultural officials. As a result, the Director of agriculture or principal agriculturist or any subject matter specialist cannot control or direct the true development of agriculture of the nation.

b) There is one wing in agriculture section to monitor and evaluate the working of the training and visit project. Its findings about the method are as follows (R5):

1) Frequency of visits:

Current survey indicated that 17% contact farmers (CF) and 46% other farmers (OF) had received no visits at all during the reference period of one month. Percentage of village extension worker not visiting the contact farmers has increased from 60% to 65% from 1987-88 to 1988-89.

2) Field visits:

An extension worker must visit the farmers at their fields to solve their actual field problems. However, only 44% contact farmers and 12% other farmers had been contacted in the field by the village extension workers.

3) Diffusion of technology:

It is reported that only 74% contact farmers and 34% other farmers discussed the advice with other farmers. Unless all contact farmers discuss messages with other farmers, the technology will not spread with desired success. A large majority of contact farmers depended on extension agency as the main source of improved technology. Other farmers are expected to get the knowledge about improved practice from contact farmer and extension worker. However, it is seen that in case of most crops, most other farmers got this knowledge from sources other than contact farmers. It is therefore, necessary to ensure that the role expected of contact farmer is performed by them (Table No. 1) efficiently.
Table 1
Percentage of CF & OF according to main source of information regarding improved agricultural practices.

<table>
<thead>
<tr>
<th>Crop</th>
<th>Extension agency CF</th>
<th>Extension agency OF</th>
<th>Other Farmers CF</th>
<th>Other Farmers OF</th>
<th>T. V. Radio CF</th>
<th>T. V. Radio OF</th>
<th>Radio CF</th>
<th>Radio OF</th>
<th>Shetkari Magazine CF</th>
<th>Shetkari Magazine OF</th>
<th>Other Sources CF</th>
<th>Other Sources OF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Irrigated Rabi Jowar</td>
<td>78</td>
<td>51</td>
<td>11</td>
<td>15</td>
<td>—</td>
<td>—</td>
<td>3</td>
<td>14</td>
<td>8</td>
<td>20</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>2. Unirrigated Rabi Jowar</td>
<td>57</td>
<td>33</td>
<td>22</td>
<td>19</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>11</td>
<td>16</td>
<td>36</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>3. Irrigated Wheat</td>
<td>78</td>
<td>49</td>
<td>11</td>
<td>19</td>
<td>—</td>
<td>1</td>
<td>3</td>
<td>9</td>
<td>8</td>
<td>22</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>4. Unirrigated Wheat</td>
<td>54</td>
<td>22</td>
<td>30</td>
<td>26</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>15</td>
<td>15</td>
<td>51</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>5. Irrigated Gram</td>
<td>82</td>
<td>53</td>
<td>13</td>
<td>22</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>19</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>6. Unirrigated Gram</td>
<td>61</td>
<td>31</td>
<td>22</td>
<td>23</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>14</td>
<td>41</td>
<td>—</td>
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</tr>
</tbody>
</table>

Comparison with figures of 1987-88 reveals that in the case of all crops, percentage of contact farmers reporting to the extension agency as the main source has gone down during 1988-89. This indicates that the performance of village extension worker during 1988-89 was not satisfactory.

### III-5 Communication of Agricultural Techniques and Their Commercialisation:

Development oriented communication is such a dynamic process (R6) which, while educating the masses, helps them to think over about the messages, makes up their minds for easy adoption of that particular technique and helps them to make decisions, themselves in an appropriate manner. Hence, it is necessary to do research about the message to be communicated, otherwise the communicator can’t solve the local problems.

### III-6 Communication Through Short Term Commercialisation:

In order to get the particular technique adopted easily, it should be commercially viable. However, there is one major difference between communication and commercialisation. Communication for development is not a one way medium. It essentially considers the reactions, difficulties about the message and then the message or technique is altered properly after the feedback (R7).

But commercialisation of a technique does not allow one to consider the needs, constraints, reactions etc. Its major objective is to make profits as early as possible. Before commercialisation of new agricultural techniques, their long term results should have been tested by our agricultural pundits. But unfortunately, the tendency of
imitation, lack of attitude of free thinking, and short term vision of more and more profits did not allow the planners to assess the long term results.

III-7 Communication by Extension Workers and Communication by Marketing Officers:
Like scientists and planners, the extension workers form an important link between scientists and farmers. In India, these so called new techniques were popularized by marketing officers of multinational or semigovernment companies. Through attractive advertisements, guarantees of heavy debts, and subsidies by government these officers convinced the farmers to use synthetic fertilizers and pesticides. These successful officers, getting attractive salaries were working for the companies' profits rather than that of the farmers. They stressed on today's needs of technologies and their short term fantastic results. Farmers, brainwashed by the hammering of these officers, used fertilizers and pesticides with no hesitation at all.
The extension workers of government were untrained and lacked proper knowledge of the technology. They did not seem to be very much influential in communicating these techniques. Because of these facts, communication was mixed with commercialisation of agriculture, and many times commercialisation won over communication.

III-8 Competition for More Gains and Profits
At first, the results of these inorganic products were really fantastic. Our farmers had never seen such a tremendous amount of production. Hence, within a decade or so, the farmers began to actually pour the fertilizers and pesticides with the lust of profits, without thinking of their long term effects.
At this stage, concept of communication ended, and that of only commercialisation remained. Once few companies were successful, thousand of new companies of fertilizers and pesticides were started. Every day new products came in the market. Farmers were harassed and had to face many marketing agents everyday. Unfortunately, both farmers and marketing agents did not have the will to consider, if the product was harmful or helpful for their soil, plants, and environment. There remained only the competition for more gains and profits. Profits of farmers or success of the product on the farm, seemed to have remained on paper. Successful product was that product which was successful in making huge profits for the company. In this way the race for profits polluted the whole atmosphere and sealed the farmers' doom in their own farms (R8).

III-9 Other Communication Techniques Used by Government
a) The decade 1975-85 has seen abundant rhetoric studies, and plans on how communication satellites could solve the information and communication needs of rural India. For a number of reasons, however, the gap between what is possible for education and what is actually economically and politically within reach has not been bridged. Rather, the gap is widened by converting television media into a cinema theater in every house or village providing cheap entertainment.
b) Agricultural communication for masses is done through TV programmes e.g. Marathi programme ‘Amachi Mati Amachi Manase’ is broadcast by Bombay Doordarshan. Many farmers do see this program, this being in Marathi. However, many times they found it to be lacking in enthusiasm. Mainly television is a one way medium, there is little possibility of discussion between masses. Hence, educating the farmers using this medium is impossible in the narrow manner followed in India. It can be used only for giving information and not for education.

i) Outdated knowledge

Other serious opinion given by many farmers is that the media are broadcasting outdated technologies e.g. it is advocating indiscriminate use of chemicals, at the face of hazardous aftereffects of these chemicals. Very few points of information are given about experiments on natural farming and biological pest control. Farmers at least expect the review of comparative study of non-sustainable and sustainable agricultural techniques.

c) Non-broadcast technology (R 9)

Real discussion and education in agriculture may be possible by using non-broadcast technologies. Non-broadcast is the transmission intended for reception by a specific audience rather than for direct reception by general public. Its positive and negative aspects have been already discussed in chapter II.

III-10 Desparate Picture of Indian Agriculture:

As we have seen, chemical control of agriculture was the policy of our agricultural planning. This planning gave rise to non-sustainable agriculture in many ways. The other reasons of instability and non-sustainability of agriculture were improper planning of debts, electric supply, water supply, fertiliser and seed supply, guarantees of rates to be given to the farmers. The planning was done in ‘general’ without considering vast differences in bio-physical, agro-climatic conditions.

Indian government seems to be unsuccessful in helping the farmers due to:

a) Lack of will: to make proper planning of agricultural development,
b) Lack of third eye of perception to quantify the long term results of the so-called Green Revolution,
c) Lack of education of farmers at the village level,
d) Lack of effective and efficient communication techniques having a proper development of a useful message on sustainable agriculture, and
e) Lack of will to work for farmers’ profits rather than its own profits as observed today.

While observing this desparate picture it was investigated that if our government would have visualised sustainability of development, our agriculture would have been at the peak of development, even using the limited capabilities of communication techniques. Hence, the research in the direction of sustainable development was done and further it
was communicated mainly through the video media. At first, the ill-effects of these chemicals abroad and in India were surveyed.

III-11 Ill-effects of the So-called Modern technology with Reference to Western Countries.

After years of industrialisation of agriculture, the profits of even big farming enterprises are lessening and even these small profits are leading to the greatest environmental and health hazards. This is because these are connected with the destruction of natural ecosystem creating very high social costs causing population concentration in urban areas and loss of healthy atmospheric condition. Our study shows that today, the soil, the basic source on which agriculture is sustained is tired, overworked, depleted, sick and poisoned by synthetic chemicals. Soils are facing severe strains from the hazardous process like erosion, waterlogging, salinisation, desertification as well as excessive floods.

a) Soil erosion hazard (R10)

Soil erosion, waterlogging and salinisation are the most serious threats to agriculture today and hence, to all mankind. On the soil that is cleared and cropped by man, erosion often accelerates. When the rate of erosion exceeds the natural rate of top-soil formation, the land productivity starts falling. It is estimated that one fifth and perhaps as much as 1/3 of the world’s cropland is losing top-soil at a rate that is becoming hazardous to long term productivity of agriculture. Erosion is intimately tied to wood shortage. Recycling of crop residues is essential for soil maintenance. However, wood is scarce because of deforestation and desertification, agricultural residues are diverted for fuel. Erosion also depletes the soil water holding and water drainage conditions by selectively removing organic matter and fine particles and exposing to atmosphere the rocks below the surface. Erosion also depletes the soil nutrients like organic nitrogen, phosphorous etc. It also leads to offsite effects of silting up of water reservoirs behind dams as also rivers and lakes.

b) Desertification

Soil degradation is also tied to another frightening phenomenon - desertification, accelerated by human abuse of land - overgrazing, deforestation, over-ploughing, and industrialisation, the world’s major deserts are all expanding (R11).

c) Salinisation

Irrigated lands are threatened by twin ecological disasters - waterlogging and salinisation. When surface water from dams is diverted to irrigate land that has inadequate underground water drainage and reduced water holding capacity, then water remaining on a few inches of the surface is called waterlogging. This begins to evaporate, thereby concentrating dissolved salts and minerals, near the surface, eventually hampering plant growth. Worldwide data compiled in UN1977 report
indicates that some 21 million hectares of irrigated land is waterlogged. An equal amount of land is rendered less productive by salinisation.

d) Non-sustainable agriculture started with chemical fertilisers:
According to many scientists, the root cause of soil deterioration is the addition of chemical fertilisers, although these fertilisers were supposed to be the key to the Green Revolution.
Chemical fertilisers cannot restore soil fertility. They do not work on the soil, but are forcibly imbibed by plants, poisoning both plants and soil. Plants are the great intermediaries by which the elements in rock, converted by microorganisms into humus can be made available to animal and man to be built into flesh, bone and blood. Chemical fertilisers, on the contrary, can neither add to the humus contents of soil nor replace it. They destroy its physical properties and therefore, its life. When chemical fertilisers are put into the soil, they dissolve and seek natural combination with minerals already present. New combinations glut or overload the plants causing it to become unbalanced. Others remain in the soil, usually in the form of poisons (R12).
Plants that are chemically fertilized may look lush, but lush growth produces watery tissues, which become more susceptible to disease and the protein quality suffers. Chemical fertilisers by increasing the abundance of crops without replacing all the elements exhausted from soil, have contributed to changing the nutritive value of our cereals, fruits, vegetables and other products (R13).
Due to chemical fertilisers and pesticides, soil, water, and air are everywhere polluted, a pollution that is transmitted via plant and animal to man. There is virtually no clean soil or water left. Toxins exist in all the food we eat, the water we drink and the air we breath (R14).

e) Silent Spring (R15)
It is revealed in the book 'Silent Spring' that toxic farm chemicals are mimetic in that they ape the character of radiation. The damage resulting from the use of toxic genetic chemicals, and use of fungicides of organic syntheses annually caused the same damage to present and future generations as atomic fallout of 14,500 atomic bombs of Hiroshima type. It was computed that due to use of toxic genetic chemicals, mentally retarded babies had reached the stunning statistics of 15% of live births. It is concluded that damage to plants, crops and soil fertility coupled with water pollution, was practically incalculable.

f) Hazards of modern chemical agriculture with reference to India:
Ill-effects of these chemicals are not different in India, from those in Western Countries. At some places, farmers could not afford to use chemicals for farming, hence still they are preserving their soil. But at many places, the amount of these poisons has increased. In general in 1961 (R16), farmers were using 2 kg/ha
chemical fertilisers. While in 1986 it is increased to 41 kg/ha. Crop production in 1960-61 was 82 million tons while in 1983-84 it is 150 million tons. On the face of increased use of fertilisers and increased production of pesticides (8100 tons to 72,000 tons from 1960-61 to 1986) the rate of production is same i.e. 2.4% only. Hence, the trend is very common at every place in India, that the rate of chemical input increases being much higher than the rate of increase in crop productivity. It is a well known fact now that relying primarily on chemical fertilisers can be self defeating in the long term. The more one relies on chemical fertilisers instead of manure, compost, crop rotation, and green manure, the more the organic matter decreases, less the plants are able to absorb even the inorganic nitrogen in chemical fertilisers.

In this way producers have widely adopted new programmes of high yield varieties irrespective of farm size, soil quality, access to water, and other bio-physical, agro-climatic conditions and have come across new difficulties of high pay off input/low payoff output, thereby increasing the slum populations, as the typical small farmer could not himself sustain on agriculture alone (R17). Monocropping was followed for high productivity causing the incidence of pests, disease and weed problems.

Today Indians are spraying nearly 166 times more than what they did, 28 years ago. As a result the problems of pollution have greatly risen in volume and quality. Such pesticides when used in large quantities can produce the opposite effect. Sometimes the pest population increases by 1000 times (R18). New types of pests are found.

The level of accumulating DDT in an Indian, on an average, is the highest in the world (0.27 mg) (R19). Another most harmful, practice called ‘clean-field syndrome’ i.e. eradicating all the insects from the farm, including the beneficial ones, which help good agriculture is becoming prevalent. Most farmers spray toxic pesticides every week. Overdosing reduces the yields of crops simultaneously. Further, the soil is deteriorated in structure and fertility, thereby increasing water runoffs instead of ground percolation and drainage for better storage.

III-12 Alternative to Chemical Agriculture

That chemicals were pointlessly poisoning the soil, killing microorganisms and earthworms, stunning plants, and proliferating degenerative disease in man and animals was perfectly clear to many sensitive minds. They were speaking up and propagating for variable, alternative sustainable methods of agriculture.

Sir Albert Howard, Lady Eve Balfour, Dr. William, A. Albrecht, J. I. Rodale, Louis Bromfield, and Masanobu Fukuoka were engaged in evolving a viable method of organic and natural farming at their own place of work (R20).

Their main premise was that, in soil properly nourished with adequate supplies of
humus, crops do not suffer from disease and do not require poisonous sprays to keep off parasites. That animals, fed on these plants, develop a high degree of disease resistance and that man, nurtured with such plants and animals, can reach an extraordinary standard of health, able to resist disease and infection from whatever cause it may derive.

They pointed out that the action of compost and humus is not due to the plant nutrients it contains, but to its biological reaction, which has the effect of fundamentally modifying the soil microflora.

In India, very few and half hearted efforts have been done by few scientists. Some efforts have been done on natural farming. The experiments, though successful are lacking in development of appropriate technology, which can be adopted by small farmers easily. A communication gap between scientists, extension worker, and farmers has existed. Hence, these scattered efforts of sustainable organic agriculture could not reach the farmers easily. This research was, therefore, undertaken eight years ago to develop a technology for sustainable agricultural development and to communicate it to farmers effectively.

The next chapter describes the results of the new technology for developing sustainable agriculture practices, in a decentralised manner at extremely low cost to the farmer, promising a high output/input ratio, yet maintaining and improving the soil fertility, structure and properties.
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Chapter III :-


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ii) Lady Eve Balfour : The Living Soil.