

# Action Research on the Process of Change Management in Indian National Agricultural R&D Organizations

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*The paper evaluates the change management process initiated in the research institutes of the Indian national agricultural R&D system. This study in action research mode consisted of a workshop on transience management wherein the participant directors were required to develop road maps for change with respect to change in structure, technology, physical setting, task, and people in their respective institutes. They were then given a time frame of two years for implementing the same and reporting the status of the implementation. Five criteria—size of the plan, its structure, details, extent of completion and listing of the number of issues—were used to measure the change management process in these organizations. The results indicate that of the 19 participants, 14 (74 percent) of the institutions prepared above average vision plans while the rest were below average in terms of transience planning. In terms of plan implementation, only six (32 percent) of the participating institutions submitted the implementation reports all of which were above average and out of them one was excellent, two very good, and three good. The study shows that change management is a difficult process and the monitoring of implementation process needs to be more intense. There seems to be a requirement of hand holding of the change agents (i.e., directors) by the workshop resource persons who may act as formal consultants to the change management process.*

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## Introduction

Management research has clearly established that those organizations, which have learnt to effectively manage change, have survived and progressed faster than others. There is a need for the research managers to understand the areas that can be changed and also to learn about the sources of individual and organizational resistance to change so that managing change can be successfully planned and practiced. Such a change will lead to organizational development and team building. This will ultimately change the organization into a learning organization, which is the hallmark of the 21<sup>st</sup> century. A study was conducted in which Directors of Indian National Agricultural R&D organizations were required

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to attend a management workshop on transience in organization, and in this workshop they prepared a road map for change in their institutions and implemented back home. This implementation program was monitored and evaluated to study its effectiveness.

Change is necessitated in organizations because of changes that occur in the environment and also because certain forces, within or outside the organization require change as a reaction. Robbins (2001) has enumerated six specific forces that act as stimulants for change. These are: changing nature of the workforce, technology, economic shocks, competition, social trends and world politics. All these forces are relevant in the context of agricultural R&D organizations. The workforce in the Indian national agricultural R&D has great cultural diversity as it is drawn from all parts of the country. Recently, there is an increase in professionalism because of the changed recruitment policy which encouraged people with Ph.D. through additional increments at the time of joining. Interestingly, there is also a problem attached to it, as new entrants to the workforce sometimes enter with inadequate skills. The technology in the agricultural R&D sector is undergoing a change as never before with the advent of new technologies such as information and communication technology including e-extension, biotechnology, environmental concerns, and a rapid increase in the availability of sophisticated equipment for conducting research. Agricultural R&D is also facing the economic shocks as a result of changes in oil prices and high cost of energy, phenomenal increase in the price of farm lands near urban agglomerations, newer practices such as contract farming, processing of agricultural products and the establishment of cold chain. Competition is also increasing for agricultural R&D by the advent of multinational seed companies and other such organizations and increased global competition as a result of liberalization and the new economic policy being pursued in the country. The social trends also impact upon agricultural R&D where the personnel involved may exhibit different attitudes towards smokers, families having double income and those who have married late in their lives. The world politics has also had an impact on agricultural R&D through the formulation of intellectual property regime and the advent of outsourcing of technical services.

As a response to these forces of change, organizations need to and shall change. Sometimes, such change may be unplanned and may take place on the spur of the movement to solve problems caused by the forces that dictate change. However, it is better if change is planned and implemented in order to respond to the forces of change in an effective and efficient manner. Any planned change, usually, has two goals. First, it seeks to improve the ability of the organization to adapt to changes in its environment, and second, it seeks to change employee behavior. Levy (1986) classifies change into first-order change and second-order change. The first-order change is linear and continuous. It implies no fundamental shifts in the assumptions that organizational members hold about the world or how the organization can improve its functioning. In contrast, the second-order change is a multidimensional, multilevel, discontinuous, radical change involving reframing of assumptions about the organization and the world in which it operates.

Leavitt (1964) and Robertson *et al.* (1993) have suggested that change agents can essentially bring about change in four categories—structure, technology,

physical setting and people. Changing structure involves making an alteration in authority relations, coordination mechanisms, job redesign, or similar structural variables. Changing technology encompasses modifications in the way work is processed and in the methods and equipment used. Changing the physical settings covers altering the space and layout arrangements in the workplace. Changing people refers to changes in employees' attitudes, skills, expectations, perceptions and/or behavior. The authors opine that in the R&D setting, the change agents are also required to change the task that is undertaken in the laboratories.

Robbins (2001) has reported that resistance to change is a well-documented finding from studies of Organizational Behavior (OB). He also reports that resistance has its uses as well as problems. Resistance may be overt, implicit, immediate or deferred; resistance may stockpile and suddenly explode, sources of resistance might arise in the individual or in the organization. He recognizes five individual sources of resistance, which are: habit of individuals, their need for security, and their concern for changes in their economic status and their fear of the unknown in addition to selective processing of information, which causes perceptual distortion. Hall (1987) has expressed that organizations, by their very nature, are conservative and actively resist change. Katz and Kahn (1978) have identified six major sources of organizational resistance. These are: structural inertia, limited focus of change, group inertia, threat to expertise of specialized groups, threat to established power relationships, and threat to established resource allocations.

It is important to overcome resistance to change in order to facilitate it. Kotter and Schlesinger (1979) have suggested six tactics that can be used by change agents in dealing with resistance to change. These are: education and communication with the employees, ensuring participation of the stakeholders, facilitation and support at the time of change, negotiations, manipulation and co-optation and finally coercion. The last two of these tactics are risky and could backfire.

Change always threatens *status quo* and is, thus, an inherently political activity. Buchanan and Badham (1999) state that this is so because any change threatens individuals and the usefulness of their skills in the new scenario. This spells threat to the status and position of the people who would like to indulge in politics to thwart change. Ocasio (1994) observed that to control such politics, organizations frequently turn to outside candidates for new leadership when they recognize the imperative for rapid introduction of the second-order change, and fear that the current entrenched top functionaries may politick to maintain *status quo* to stop change.

There are three popular approaches to managing organizational change. These are: action research model, Lewin's classic three-step change process model, and organizational development model.

The action research model described by Shani and Pasmore (1985) refers to change process based on systematic collection of data and then selection of a change action based on what the analyzed data indicate. The process of action



research consists of five steps—diagnosis, analysis, feedback, action, and evaluation. The action research is most often done by a change agent who is an outside consultant. Action research is problem-focused and also involves employees in the process, thus reducing resistance to change.

Lewin (1951) in his model elucidated that change in organizations follows a three-step process for unfreezing the *status quo*, movement to a new state and refreezing the new state to make it permanent. Unfreezing consists of change efforts to overcome the pressures of both individual resistance and group conformity. Movement to a new state is done by increasing the driving forces i.e., all those forces that direct behavior away from *status quo*, and also decreasing the restraining forces i.e., forces that hinder movement away from the *status quo*. Finally, after movement to the new phase, refreezing is done which is stabilizing a change intervention by balancing driving and restraining forces.

Organizational Development (OD) model is not a single concept that can be easily defined. Porras and Robertson (1992) have defined OD as a collection of planned change interventions, built on humanistic-democratic values, that seek to improve organizational effectiveness and employee well-being. Pasmore and Fagans (1992), and Cummings and Worley (1993) and Burke (1994) have stated that human and organizational growth, collaborative and participative processes, and a spirit of enquiry are all valued in the OD paradigm. The underlined values in most OD efforts include respect for people, trust and support, power equalization, confrontation and participation. Five of the most commonly used OD techniques are: sensitivity training, survey feedback, process consultation, team building and inter group development. Golembiewski and Blumberg (1973) have described sensitivity training in great detail. This type of training is also called as laboratory training or encounter groups or T-groups (Training groups). Training groups are those that seek to change their behavior through unstructured group interaction. Edwards and Thomas (1993) have described the survey feedback approach as a tool for assessing attitudes of organizational members, identifying discrepancies among the members' perceptions, and solving these differences. Questionnaires are used to identify the discrepancies among members' perceptions followed by discussions and finally, remedies are suggested. Schein (1988) has described that the purpose of process consultation for an outside consultant is to assist a client, usually a manager, "to perceive, understand, and act upon processed events" with which he/she must deal. Process consultation is done when managers sense that there is scope for improving the organization's performance but are unable to identify the areas of improvement and how these can be implemented. Consultants in process consultation are there to "give the client 'insight' into what is going on around him, within him, and between him and other people." They do not solve the organization's problems. Rather, the consultant is a guide or coach who advises on the process to help the client solve problems. Dyer (1994) has described that team building utilizes high-interaction, group activities to increase trust and openness among team members. The activities considered in team building



typically include goal setting, development of interpersonal relations among the team members, role analysis to clarify each member's role and responsibilities and team process analysis. Intergroup development is an OD effort to change the attitudes, stereotypes, and perceptions that groups have of each other. Intergroup development is required because often dysfunctional conflict exists between groups in an organization. Neilsen (1972) has listed several approaches for improving intergroup relations. Blake *et al.* (1965) have stated that problem-solving is a popular method for inter group development. They have described that in this method, each group needs independently to develop lists of its perception of itself, the other group, and how it believes the other group perceives it. The groups then share their lists, after which similarities and differences are discussed. Differences are clearly articulated, and the groups look for the causes of the disparities. Possible alternative actions are sought that will improve relations.

Kim (1993) has stated, "all organizations learn, whether they consciously choose to or not—it is a fundamental requirement for their sustained existence." A learning organization is an organization that has developed the continuous capacity to adapt and change. Developing such an organization is important as a new way to successfully respond to a world of interdependence and change. Argyris and Schon (1978) have observed that most organizations engage in what they have called single-loop learning. This is when errors are detected; correction process relies on past routines and present policies. They have described that learning organizations, in contrast use double-loop learning where when an error is detected, it is corrected in ways that involve the modification or the organization's objectives, policies, and standard routines.

## **Methodology**

### **Objectives of the Study**

To sensitize the directors on the concept and process of transience management and to synthesize their experiences on change management at institute levels. Also to identify the causes of change in research institutes and to evolve an action plan for institutional change management and to monitor and evaluate it. It was also envisaged to suggest measures for managing change and to formulate recommendations for change management in research organizations and also to improve basic change management tactics in research organizations.

### **Materials and Methods**

Twenty-seven directors of constituent institutes of the Indian Council of Agricultural Research—The Indian National Agricultural R&D organization, listed in Table 1, were invited to participate in the study on change management. Of these, directors of only 19 institutes could participate in the study. The study consisted of action research wherein the participating Directors were invited to a four-day workshop in which eminent faculty members on change management provided them resource inputs. After sensitizing them on the subject, they were taken on

a field visit to a 'state of the art' R&D learning organization. Subsequent to this, the participants were placed in syndicate sessions to exchange views, crystallize their experience and work on one of the five assigned areas of change management in the process of preparing the road map for change. The five areas for envisioning change were: (1) change in structure and organization, (2) change in physical infrastructure, (3) change in technology, (4) change in task, and (5) change in people and work culture. After this exercise, each of the participants was required to prepare a road map for change of his/her organization. The participants were then given a two years time to implement this road map for change.

It was informed to the change agents, i.e., the directors of the institutes, that the strategy for effectively implementing the road map for change will pass through different stages of awareness, interest, trial and adoption. At each of these different stages, different types of tactics have to be adopted by the change agent in order to motivate the people to accept and implement the change. The various tactics for each of these stages are as follows. In order to make the people aware of the road map for change, the change managers may meet/invite different people to appraise them of the plan and also give them a copy of the document. To develop further interest in people, to adopt the agenda for change the directors as change agents may make a presentation of the road map for change in an in-house workshop and/or a seminar wherein they may ask for help from the other participants in the implementation of the change. They may also conduct a sample survey to gauge people's reaction to the change document. In order to ensure the implementation of change, some selected people may also be sent for executive development programs. To motivate the people to try out the change agenda, and the directors as change agents may hold departmental meetings and encourage them to do a pilot test. In order to be successful in implementing change, it is essential that the directors as change agents should know the background of all the people working in their institutes, the relationships among them and the groups that they form in committees, as lunchmates and for various social reasons. It is important that in implementing the road map for change, the directors would use the tactics of compulsion and confrontation very cautiously and in a sparing manner since these are very risky methods and could easily backfire frustrating any efforts to successfully implement the change.

The change process was monitored half yearly by telephones, letters and emails. After the stipulated two years, the participants were required to submit a report on the success of the change management in their organizations. The road maps for change and the report of change management were evaluated on the basis of five criteria. These five criteria were: (1) the size of the plan, (2) it's being structured, (3) having details, (4) being complete and (5) listing of the number of issues. These were evaluated on a scale of 1-5 based on the comparison between the documents. The best document was awarded a score of 5 and the least was awarded a score of 1. All the 19 participating institutes have submitted the action plan/road map for change while only six institutes have submitted the final implementation report.

No.	Division/Institution	No.	Division/Institution
<b>A</b>	<b>Crops Division</b>	<b>C</b>	<b>Engineering Division</b>
01	National Bureau of Plant Genetic Resources, New Delhi.*	16	Central Institute of Post Harvest Engineering and Technology, Ludhiana.*
02	Indian Institute of Sugarcane Research, Lucknow.	17	Central Institute of Agricultural Engineering, Bhopal.
03	Directorate of Oilseeds Research, Hyderabad.	18	Central Institute of Research for Cotton Technology, Mumbai.*
04	Directorate of Rice Research, Hyderabad.	19	Central Research Institute for Jute and Allied Fibers, Barrackpore.
05	National Research Center for Weed Science, Jabalpur.*	<b>D</b>	<b>Animal Sciences Division</b>
06	National Research Center for Medicinal and Aromatic Plants, Anand.	20	National Research Center for Equines, Hissar.
07	Vivekananda Parvathiya Krishi Anusandhan Shala, Almora.	21	National Research Center on Yak, Dirang.
08	National Bureau of Agriculturally Important Microorganisms, New Delhi.	<b>E</b>	<b>Fisheries Division</b>
<b>B</b>	<b>Horticulture Division</b>	22	Central Marine Fisheries Research Institute, Cochin.
09	Indian Institute of Vegetable Research, Varanasi.*	<b>F</b>	<b>Extension Division</b>
10	Indian Institute of Horticultural Research, Bangalore.	23	National Research Center for Women in Agriculture, Bhubaneshwar.
11	Indian Institute of Spices Research, Kozhikode.*	<b>G</b>	<b>Natural Resource Management Division</b>
12	Central Institute of Temperate Horticulture, Srinagar.*	24	ICAR Research Complex for Eastern Region, Patna.*
13	National Research Center for Mushrooms, Solan.	25	ICAR Research Complex for NEH Region, Barapani.
14	Central Agricultural Research Institute, Port Blair.	26	ICAR Research Complex for Goa, Goa.
15	National Research Center for Orchids, Gangtok.	<b>H</b>	<b>Management and Statistics Division</b>
		27	National Center for Agricultural Economics and Policy Research, New Delhi.
<b>Note:</b> * Institutions that did not participate in the study.			



## Results and Discussion

### Evaluation of Road Maps for Change at Institute Level

The action plans for transience management or road maps for change at institute level that were prepared by the 19 participating directors were first examined for relevance and then evaluated on a five-point Likert scale under five different criteria of size, structure, details, completeness and number of issues listed. The results are presented in Table 2.

Institute Code	Size	Structure	Details	Completeness	Number of Issues	Total
1	5	5	5	5	5	25
2	1	2	1	1	1	6
3	5	5	5	5	4	24
4	2	3	3	3	2	13
5	2	5	3	4	1	15
6	2	2	2	2	1	9
7	5	5	5	5	2	22
8	2	5	4	4	2	17
9	2	4	3	3	2	14
10	2	4	3	3	2	14
11	2	5	3	3	1	14
12	1	1	1	1	1	5
13	3	3	3	3	2	14
14	2	5	4	4	1	16
15	2	5	4	4	2	17
16	2	5	4	3	2	16
17	2	3	2	2	1	10
18	4	5	4	4	2	19
19	1	3	2	2	1	9

It can be observed from Table 2 that there is a lot of variation in the quality of vision development or planning for change management among the various institutes. The total score of evaluating the road maps for change ranged from 5-25 on a scale of 0-25. The institutes have been classified into five groups based on their total scores. This is shown in Table 3.

Evaluation	Number	Percentage (%)	Code Numbers of Institutes
Excellent (21-25)	3	16	1, 3, 7
Very Good (17-20)	3	16	8, 15, 18
Good (13-16)	8	42	4, 5, 9, 10, 11, 13, 14, 16
Fair (9-12)	3	16	6, 17, 19
Poor (5-8)	2	10	2, 12

It can be observed from Table 3 that the planning of three (16 percent) institutes was excellent and another three (16 percent) showed very good planning. Eight (42 percent) institutes prepared good plans while the planning in three (16 percent) was fair and two (10 percent) institutes showed poor planning. Thus, it can be stated that fourteen (74 percent) institutes showed average or above average planning while five (26 percent) institutes were below average in preparing their road maps for change. In order to be effective for change it is very important that planning should be fairly adequate with reference to the size of plans, their structure, the details therein showing all the components and listing the various number of issues proposed to be tackled in the management of transience. Only with standard planning the implementation of change management would be effective. Once the plans are ready, then the strategies of implementation will have to be put in place in order to effectively manage transience. The Directors were equipped with the tools and techniques of change management when they attended the workshop on transience management by sensitizing through the presentations of resource persons and the syndicate sessions of experience sharing among themselves.

#### **Evaluation of the Change Management Process**

Periodic contact was maintained with the participating Directors through letters, telephones, and emails to monitor the implementation of change and after the stipulated two years a report was sought on the measure of success in implementation of the road map for change. Seven directors submitted the implementation reports. These reports were first examined for relevance in terms of reporting on the change process. Of these, one report was totally irrelevant since a copy of the road map itself was sought to be passed off as a implementation report. This effort was treated as non-submission and was awarded a score of zero as the unsubmitted reports in evaluating the implementation of the change plans. The accepted relevant reports were then evaluated on a five-point Likert scale under five different criteria of size, structure, details, completeness and number of issues reported upon. The evaluation scores of the implementation of road maps of the different institutes are shown in Table 4.

<b>Institute Code</b>	<b>Size</b>	<b>Structure</b>	<b>Details</b>	<b>Completeness</b>	<b>Number of Issues</b>	<b>Total</b>
1	5	5	5	4	5	24
5	2	5	3	3	1	14
8	2	5	4	4	2	17
9	1	4	3	3	2	13
11	2	5	3	3	1	14
18	2	5	3	3	2	15

It can be observed from Table 4 that there is a lot of variation in the quality of vision implementation for change management among the various institutes. The total score of evaluating the implementation of the road maps for change ranged from 13-24 on a scale of 0-25. The institutes have been classified into five groups based on their total scores. This is shown in Table 5.

Evaluation	Number	Percentage (%)	Code Numbers of Institutes
Excellent (21-25)	1	5	1
Very Good (17-20)	2	11	8, 18
Good (13-16)	3	16	5, 9, 11
Fair (9-12)	0		
Poor (5-8)	0		
Not Submitted	13	68	2, 3, 4, 6, 7, 10, 12, 13, 14, 15, 16, 17, 19
Total	19		19

It can be observed from Table 5 that the implementation of one (5 percent) institute was excellent and another two (11 percent) showed very good implementation. Three (16 percent) institutes were good in implementing their plans while the plan implementation in 13 (68 percent) institutes was not reported at all. It is assumed that the institutes have not submitted their reports because either they did/could not implement their plans successfully or implemented them with only partial success. Thus, it can be interpreted that six institutes showed average or above average implementation while the rest did not submit a report on change implementation. Out of 93 ICAR R&D institutions, 27 (29 percent) were invited to participate in the study and 19 (70 percent of the invited and 20 percent of the total) institutes participated in road map preparation and 6 (32 percent of the participating, 22 percent of the invited and 6 percent of the total) institutes

Evaluation		Number		Code Numbers of Institutes which Submitted	
Description	Range	Plan	Implementation Report	Plan	Implementation Report
Excellent	(21-25)	3	1	1,3,7	1
Very Good	(17-20)	3	2	8,15,18	8,18
Good	(13-16)	8	3	4,5,9,10,11,13,14,16	5,9,11
Fair	(9-12)	3	0	6,17,19	-
Poor	(5-8)	2	0	2,12	-
Not Submitted		0	13	0	13
Total		19	19	19	19



submitted the transience report. Thus, it can be observed that at every stage there is a drop out and finally only 6 percent of the population could be studied. Of this, half is very good to excellent and the other half is good while none has reported fair or poor implementation.

The data shown in Tables 4 and 5 has been consolidated and shown together in Table 6 to observe the relationship between the planning and implementation of the change process.

It is evident that before change management can be successfully implemented, it must be planned well. It can be observed from Table 6 that successful implementation of the plans was achieved only by those institutes which had prepared their plans well. Those institutes which showed below average performance in change management planning did not report their implementations at all. It is assumed that they had nothing to report as they may have taken poor interest in implementing whatever little they had planned showing inadequate effort in planning as well. Only institutes which were above average in planning could submit implementation reports and even in those there were causalities. It is also observed that the quality of implementation is limited by the quality of the planning. Only if a plan is excellent can its implementation be so. Excellent implementation was not reported from very good and good plans. Similarly, very good implementation took place only when there were very good plans and good implementation followed good planning. It can, thus, be concluded that before any effective change can be implemented in the organizations, it is essential that good vision documents/road maps for change should be developed, however, development of a good vision document is not a guarantee that it will be effectively implemented.

## **Conclusion**

The study concludes that change management is a difficult process. In order to make it successful, greater efforts would be required to sensitize the directors in the need for transience management through more resource inputs in training/workshop modes. In the workshop for preparation of vision document, the road maps for change, which are not good enough, should not be accepted and the directors may be required to repeat the preparation of the vision documents till they reach the standard of at least 'good'. 'Fair' and 'poor' documents should be rejected. Monitoring of the implementation process needs to be more intense and the change management plans may include two additional workshops at the interim and final level. The workshop resource persons and/or other management experts may also personally monitor implementation. There seems to be a requirement of hand holding of the change agents (i.e., directors) by the workshop resource persons who may act as formal consultants to the entire exercise.✕

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