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Possible Roles of Extension Divisions of ICAR Institutes

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ICAR institutes do research in order to develop new knowledge which helps to improve the management of a large number of farms. NDRI research for example can contribute to improve the results obtained by some 60 million farm families keeping dairy animals. For all agricultural research institutes in the world it is important to organise a good communication between their researchers and the farmers for whom they are working and often also with other users of their research findings such as policy makers. At Indian ICAR institutes it is more difficult than at other research institutes to organise this communication well, because of the very large number of farmers they are serving. For this purpose each institute has a group of extension scientists usually working in an extension division.

However, many of the researchers at these institutes are not happy with the way the Extension Division performs its role and many of the extension scientists feel that their work is not properly recognised by the other scientists in their institute. The major reason for this situation is that different people have different perceptions of the roles the Extension Division should perform. There are many different roles it could perform, but with the limited number of staff members it can perform only few of these roles properly. Clear decisions should be taken which roles the division should perform and which not. It is not necessary that all ICAR institutes take the same decision.

The ICAR Review Committee (1988) specified the objectives of the first line extension system of ICAR as follows:

1. To promptly demonstrate the latest agricultural technologies to the farmers as well the extension workers of the State Departments of Agriculture and Non-Governmental Organizations with a view of reducing the time-lag between technology generation and its adoption;
2. To test and verify the technologies in the socio-economic conditions of the farmers and identify the constraints;
3. To get a first-hand feedback of farming problems so that scientists

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can reorient their research, education and training programmes;

4. To provide training and communication support to the State Departments of Agriculture and Non-Governmental Organizations; and

5. To promote extension research and studies, including comparative studies of extension systems in different parts of the world.

In addition the Committee recognises the importance of a strong linkage between the research and development systems.

It seems likely that at this moment the Committee would have preferred to mention objective 1 only after objective 3, because it is now widely recognised that the objectives 2 and 3 indicate important causes of the time-lag mentioned in objective 1. Realising objectives 2 and 3 can prevent that research is done which contributes little to solving many problems of farmers, especially of resource poor farmers.

At present one would also attach more importance to learning from the indigenous knowledge of the farmers and from the insights they have gained from their experience and experiments and the modifications they have made in recommended technologies (Scoones and Thompson, 1994).

Major possible roles for the Extension Division

1. Organising the communication between researchers and the (potential) users of research findings. The major user groups are researchers at State Agricultural Universities, policy makers on agricultural development, extension agents, NGOs and farmers. It is possible to decide that the Extension Division should not organise the communication with all of these groups, but e.g. only with the farmers, and the communication with other groups of users is organized by other divisions of the institute.

2. Research to develop extension strategies which are suitable for solving extension problems which are specific for the field in which this research institute works.

ORGANISING COMMUNICATION

Analysing the Agricultural Knowledge and Information System

Organising the communication between researchers and the different users of our research findings requires careful planning of these communication processes. A first step is to analyse the Knowledge and Information System on the subject on which this institute does research.

Knowledge relevant for solving problems in the area in which the ICAR institute works, are not only developed by this Institute, but fortunately also by many other actors. In the field of CSSRI this is also done by:

- several departments of State Agricultural Universities,

- WALMIs,
- research institutes and universities on engineering,
- agricultural development organizations working in saline areas,
- irrigation and drainage departments,
- government policy makers,
- NABARD officers,
- farmers,
- private companies producing drainage and irrigation equipment,
- researchers and other actors outside India.

The kind of knowledge each group can contribute to this system can be quite different. Some have knowledge from research, others from farmer's experience or on government policies. Problem solving requires an integration of knowledge developed by these different actors. A possible role of the extension division is to facilitate this process of integration. This makes it important to analyse who develops which kind of knowledge, how the communication flows between the different actors and what are bottlenecks preventing an effective flow of knowledge and information.

The official way through which information should flow from CSSRI researchers to farmers and from farmers to these researchers is through:

1. SAU researchers
2. SAU Subject Matter Specialists (SMSs)
3. Agricultural Department SMSs
4. Village Extension Workers
5. Contact farmers
6. Other farmers

Suppose that at each of these steps 20% of the information is lost, what would be a rather low loss, than in total 74% would be lost. If 50% is lost in each step than at the end 98.5% is lost. One can think of several possibilities CSSRI can use to reduce these losses:

- training researchers in communication with users of their research findings. This requires capable trainers,
- preparing publications and audio-visual aids at the ICAR institute or in cooperation with the State Agricultural Universities or the Agricultural Departments which can be used to improve the communication in some or all of these steps.
- cutting out some of these steps, e.g. ICAR researchers could participate as trainers in the bi-annual workshop the SAU organises with the Department of Agricultural SMSs and the Sub-divisional Agricultural Officers.

Clearly not all ICAR research findings should reach farmers. Rather often these findings should first be modified by SAU researchers and others to make them more location specific. This is only possible if these researchers understand the work done by ICAR researchers quite well.

Publications

An important way to disseminate research findings are publications, but we have to take into account that different target groups have different information needs. Researchers working on similar problems as the author have quite different needs from Village Extension

Agents. Therefore different publications have to be written for different target groups, often using a different language as well. It is likely that some of these publications can better be written by others than ICAR staff, e.g. good extension officers know the information needs and the language of their farmers better than staff members of ICAR institutes. The task of ICAR staff regarding publications for farmers could be to assist extension officers in writing these publications by helping them to decide what is the most important information for their farmers and assuring that the information they present is correct.

The Extension Division could help to plan and organise this publication process. Publications are not useful, unless they reach the target group. This requires a good distribution system for the publications of the ICAR Institute. Often they are not available to SMSs and other who could work more effectively if they had these publications. The costs of printing and distributing some more copies of these publications is low compared to the costs of the research project.

At present researchers in many ICAR institutes publish mainly for other researchers contrary to their colleagues at many other agricultural research institutes in the world, who publish also for their various user groups. In writing for these groups they might need journalistic assistance which could be provided by the Extension Division.

Leaflets, audiovisual aids, such as films and slide shows can, play an important role in extension programmes. Not all organizations, who act as an intermediairy between ICAR researchers and the farmers will be able to produce these AV aids. If the problem is not very situation specific, it can be cheaper if the ICAR institute produces them for use by different organizations. NDRI could e.g. produce a video to teach farmers to recognize when their cow is in heat. These materials could also be used in a process of self-directed learning by extension agents and others through which they acquire new competences for which they feel a need in a changing environment. Preparing these materials could be another task of the Extension Division.

Demonstrations and field days

It is not likely that research recommendations will be widely accepted unless it can be demonstrated that they help decision makers to achieve their goals, e.g. help farmers to increase their income. If the ICAR institute shows that this is the result of the technologies they have developed, their training programmes for SAU scientists and for SMSs become more convincing than when only research findings are presented. The Extension Division could organise these demonstrations and field days. It is more likely that other agencies are willing to use the results of these demonstrations, when they have been involved themselves in conducting these demonstrations than when they only visit them once and a while and read reports about them. Cooperation with other agencies can make it more difficult to organise these demonstrations, but often the extra time and effort invested will give a good rate of return.

Training

Another important way to communicate research findings is training. This training is not only provided by ICAR institutes, but also by SAUs, various government departments and some NGOs. It should be decided who will provide which training for which target group. Cooperation between these organization could be quite useful. Training at a SAU requires much less travel costs than training at a national ICAR institute and the university staff members may be better able to make this training location specific. At the same time an ICAR researcher may have valuable specialised knowledge which the staff of this SAU lacks. So he could play a useful role as one of the trainers in a SAU course.

Often staff training is one of the instruments the managementof an organization uses to realize a process of change in their organization. In this case the planning of the training course should be well coordinated with the other instruments used in this process of change. This can be for example a change towards a more participatory approach in agricultural development. This goal can not be realised through a training course which is taught in an authoritarian way.

Training is more effective when it starts with the problems the trainees consider important than when it starts with the problems the trainers consider important. However, all over the world researchers are inclined to start with the problems on which they have done research. The Extension Division could help researchers to become more effective trainers. Afterall they have been trained to be good researchers and usually not to be good trainers. This Division can also play an important role in choosing the best combination of different training methodologies. It will only be possible to realise the goals of many courses, if lectures are combined with individual and group exercises in which the trainees learn to apply their new knowledge for solving practical problems, which they face in their work. This training and advice by the Extension Division should be coordinated with similar training NAARM gives to a limited number of scientists.

Providing information on farmers' problems and situations for planning the research programme

It is increasingly recognised that planning a research programme requires a sound knowledge and understanding of farmers' problems and situation.In the past too often research has been done based on the implicit assumption that most farmers are resource rich farmers, who can afford to pay for all recommended inputs, whereas in fact most Indian farmers are resource poor. In recent years Farming Systems Research and Rapid Rural Appraisal has made it better possible for researchers to develop research findings which help most farmers to make better decisions (Singh & Schiere, 1995). It is possible that the Extension Division takes the lead in providing this kind of information for research planning, although in some institutes it has been done by the Economics Division or by biological scientists,who visit farmers frequently. Some scientists, who feel a need for this information from farmers are

of the opinion that the extension scientists can not be of much help for this purpose, because they are not really interested to learn from farmers.

Formulating extension recommendations

In India it is often expected that researchers from SAUs and ICAR Institutes play jointly a major role in developing extension recommendations. In many other countries this is mainly the task of the extension SMSs who gather information from farmers and Village Extension Agents on farmers problems and from all relevant sources, including researchers, on possible solutions for these problems. The Extension Division could assist researchers in playing their proper role in developing extension recommendations.

In several situations there is not so much a need for recommendations, but more for providing farmers and policy makers the information they need to make their own decisions or for options from which they can make their own choice according their situation and their goals. If they are well informed, they are better able to make good decisions themselves than extension agents and researchers can make for them. One reason is that these decisions often require an integration of knowledge from different sources, including the decision maker himself.

On-farm trials play an important role in developing extension recommendations. Often these trials are conducted by the Farming Systems Research Division of the research institute in cooperation with the extension SMSs, but the Extension Division could also play a role in this process.

Oftendifferent recommendations have to be formulated for different target groups. For farmers as a target group these recommendations could depend on:

- their agro-ecological situation, - the infrastructure, e.g. the availibility of irrigation water,
- the access to markets; -the managerial capabilities of the farmers, which influence e.g. their yield level and cropping pattern,
- the resource level of the farmers,- government policies, e.g. subsidies.

Also the situation of the individual farmer should influence which recommendation is given because of differences in:

- availability capital, labour and other resources,
- other possibilities to invest these resources, e.g. good quality of land outside the drainage project,
- non-farm sources of income and ability to bear risk,
- goals of the farmers.

The Extension Division could take the lead in formulating these recommendations in consultation with researchers in different disciplines and extension SMSs. This would support the trend towards more participatory approaches in agricultural development in Indian Departments of Agriculture, which is already stimulated by the training given in Farmers Situation Based Extension Programmes based on Participatory Rural Appraisal techniques at MANAGE and NAARM.

Feedback

Not all farmers adopt research recommendations. Researchers should know why (some) farmers do not adopt certain recommendations. They may have quite good reasons for it. If farmers adopt an innovation, they often modify it at the same time. For researchers it is quite important to know which modifications they make, why they make them and what are the results of these modifications. It may be valuable improvements which make the innovations more acceptable for the situation in which the farmers live, but it may also indicate that there has been some miscommunication.

Internationally there is now a lot of interest in using the indigenous knowledge of the farmers. Researchers usually look at a problem from the point of view of their discipline, whereas farmers try to integrate knowledge from different disciplines in the real situation of their farm. Researchers should know about this farmers' knowledge to be able to test whether it is valid and to integrate this knowledge in extension recommendations.

Monitoring the impact of recommendations given in the past

Extension recommendations are expected to solve a farmers' problem, but we have to know whether this is indeed realised. For example, as a result of CSSRI recommendations many farmers have reclaimed their alkaline soils. It was expected that this would solve their problems with these soils forever, but on a number of farms problems return. This is at least partly because farmers have modified CSSRI recommendations. It would be useful to know to what extent this is happening in order to decide whether CSSRI research and extension should again give attention to this problem.

Organising communication or communication?

The Extension Division can organise the communication with different user groups or they can communicate the research findings themselves. They can e.g. organise a training course in which researchers from other divisions act as trainers or they can give the training for certain groups themselves. If we choose the first approach, the staff of the Extension Division needs a basic understanding of the major research findings of their institute. For the second approach they should have a sound knowledge of these findings.

Graduate teaching

A fewICAR institutes are also responsible for M.Sc. and Ph.D. courses. The Extension Division may be responsible for teaching e.g. the Dairy Extension Programme as well as for teaching a minor in extension for other M.Sc. and Ph.D. programmes. This is often considered to be the major task of the Extension Division at these ICAR institutes, partly because this role has a higher status than other possible roles for this division. A danger of this situation can be that one is inclined to emphasize the differences in extension in this field and in other fields, instead of general principles which can be applied in each field. Progress in extension is often made

by cross fertilization between different social science disciplines rather than by narrow specialization. It could be more useful to teach the general principles in addition to their application in this specific field.

Transfer of technologies developed outside the research institute

The ICAR has a number of First Line Transfer of Technology Projects such as the National Demonstration Project, the Operational Research Project, the Lab-to-land programme and the KVKs (Prasad et.al., 1987). Theseprojects are now being consolidated in the KVKs. Often the Extension Division of the ICAR Institute is expected to play a role in these projects. We will not discuss these projects in detail, but only mention a few difficulties the Extension Division can have in performing this role properly:

1. It is the task of the ICAR institutes to study one aspect of agriculture in depth, but farmers need help from extension with all aspects of their farm. Often there are possibilities to help farmers to increase their income by introducing new technologies, which are outside the mandate of the ICAR institute. An exemple is the introduction of aquaculture in Karnal district by the KVK of NDRI. It can give tension in the Institute if the Extension Division gives more attention to dissemenating technologies developed at other institutes, universities or even by farmers than at to introducing the technologies developed at this institute.
2. For logistic reasons most of these technology transfer activities are performed in areas close to the institute, but the institute has a national mandate. These activities may stimulate the institute to focus its research on problems of the farming systems in its own surroundings. This may e.g. be a cause of the complaints about the NDRI research programme in Maharastra and Gujarat. We are told that the NDRI research is of little use for farmers in these states, but is mainly useful for farmers in Haryana, Punjab and Western Uttar Pradesh.
3. The KVKs have a similar problem as the extension divisions of the ICAR Institutes. In theory they can perform many useful roles, but the resources available make it only possible to perform a few of them. Often no clear choices have been made so far.

EXTENSION RESEARCH

The role of the Extension Division could also be to do research justas the other divisions of the ICAR institutes. Often there are extension problems which are specific for a field. It could be the task of Extension Division to develop solutions for these problems what often will require action research. Let me give two examples.

Problems of soil salinity can be solved or at least decreased through drainage. This requires collective decision making, whereas nearly all extension research has supported individual decision making.Inthe Australian "Lamd care programme" methodologies for collective

decision making have been developed (Chamala and Keith, 1995). Is it possible to apply these methodolgies for salination problems in India after they have been adjusted to the Indian culture and the the Indian legal system?

Research on rice production has shown that it possible and often profitable to replace pesticides to a large extent by IPM, that means by location specific knowledge about the ecological balance between different kinds of insects and their predators. This requires quite a different extension approach than the blanket recommendations, which have been given in the past. Farmers have to learn to observe the insect population in their rice field and to make decisions on basis of the these recommendations. For this purpose Indonesia has much success with its Farmer Field School. The Extension Division of the Central Rice Research Institute could test whether a similar approach to extension would work under Indian conditions, whether this approach should be modified and how it is possible to train the facilitators for these schools (See Van de Fliert, 1993).

CONCLUDING REMARKS

Several of the roles mentioned above are at present already performed by the Extension Divisions of ICAR institutes, some a more systematic way than others. It is not possible to perform all the roles mentioned in this article well with the staff available in these Divisions. Choices have to be made. The major criterium for this choice should be in my opinion: through performing which roles will the Extension Division contribute most to the realisation of the tasks their Institute. Another criterium could be: which roles is the present staff motivated and capable to perform well.

There are two reasons why this article does not say which choices should be made:

- management and staff of ICAR institutes do have a lot capabilities and information to make these choices, which I do not have,
- if the people concerned are involved in the decision which roles they should perform, it is more likely that they are motivated to perform them well than when this decision is made on the basis of the suggestions of an outside consultant.

However, as long as no clear decisions are made we can expect that many people remain dissatisfied with the way the Extension Divisions of ICAR institutes perform their task.

There can be two different kinds of considerations in making choices regarding the roles of the Extension Division:

1. Which roles are most important for the institute and for Indian agriculture?
2. Which roles are in the interest of the staff members of the Division, e.g. because they give them more opportunities to get a promotion or to do pleasant work?

It is a management task to let these considerations coincide as much as possible. If one would decide e.g. that it is in the interest of the institute that the Extension Division concentrates mainly on

organising the communication with the users of its research, staff members who perform this task well, should have as much possibilities for promotion to higher ranks than staff members who do good research. The ICAR Review Committee (1988: 120) that a major consideration for the promotion of extension scientist should be the quality of their extension work; published papers may not be the main criterium. However, at present it seems that many people perceive that the main criterium for the promotion of scientists in ICAR institutes, including extension scientists, is the quality and the number of their publications.

ACRONYMS

AKIS	Agricultural Knowledge and Information System
AV	Audio-visual
BIOCON	Indo Dutch Projecton the Biocon versi onof Cro Residues
CSSRI	Central Soil Salinity Research Institute
ICAR	Indian Council of Agricultural Research
KVK	Krishi Vigyan Kendra = Farm Science Centre
MANAGE	National Institute of Agricultural Extension Management
NAARM	National Academy for Agricultural Research Management
NABARD	National Bank for Agricultural and Rural Development
NDRI	National Dairy Research Institute
SAU	State Agricultural University
SMS	Subject Matter Specialist (in the extension system)
WALMI	Water and Land Management Institute

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