CHAPTER VI RESOURCE SYSTEM AND USER SYSTEM - ITS RELATIONSHIP

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Introduction

The preceding chapters provided a framework to understand the process of innovation, dissemination and knowledge utilisation. It reviewed the relevant literature in horticultural sciences and other fields of practice within the framework. Dissemination and utilization is viewed as a transfer of messages by various media between resources systems and users. Major sectors analysed characteristics of individual organisations, documentation and other extension media, which inherit or facilitate the transfer. The processes is interpreted at four levels: the individual level, the interpersonal level, the organisation level and the social system level. Other things such as linking roles between resources and user have been elucidated. The entire network of the system is to connect user systems with resource systems including basic and applied research.

Know-how power: An information resource

Know-how is power.1 This is common knowledge.

Knowledge has become an industry. Countless professionals—

scientists, technologists, editors, technical writers and more recently information scientists - are not merely in search of new knowledge but in the process of organizing existing knowledge. Articles, monographs, special reports, manuals, books and others are produced so that users of knowledge can be helped.

Know-how has become a special branch of study. One should know where to reach what. Librarian/information specialists feel lost in this era of information explosion. A new agency called "Rapid search" is a New York based organisation that is specialising in information and publication research. For the past five years, this has been rendering know-where service to organisations outside U.S.A.

Thus the book resources, computer resources, and advanced information of conferences, proceedings is made known by the know-how methods.

The resources system, in this case is the new innovations, appreciated the user's needs and problems solving patterns and evaluation process of the resources system. This type of collaborative and effective co-ordination will build
relationship of trust, and mutual perceptions by the user and resource persons. Thus trust-mutual perception relation over time can become true channels for the rapid, effective and efficient transfer of information.
Resource system

Dispersion of sources

The wide array of sources in which relevant material is found, have been scattered in various trade journals, professional "house organs", special seminar and conference proceedings, project proposals and even unpublished manuscripts. These contain relevant, unique and important information.

Transfer of technology as an Act of Communication

| Resource System | Message | Medium | User System |

This simple model serves as a guide to literature search. This paradigm of the transfer of technology suggests a "sender" a "receiver", a "message" and a "medium". This concept was further reduced to "sender" and "receiver" by designating them as "resource system" and the "user system" as indicated above.

To have an effective resource system in the innovative process, it needs to develop reciprocal and collaborative

relationship not only with a variety of potential users, but also with a large and diverse group of other resources systems. It also should have successful internal linkage within itself and among its members. This system works out as a helper or disseminator. It can execute a coherent and logical strategy of helping or dissemination.

Effective resource systems can influence and change both from the user and from other resources systems. The practitioner resources systems should renew their skill and their competence by continuously remaining open to the newest developments of science and technology.

This system will work out as a good diffuser provided it has enough capital at its disposal. It will then have the ability to summon and invest diverse resources; it will be able to plan and structure its activities on a grand scale to produce "high performance products."

For a commercial purpose, profitability is a major incentive for diffusion of innovations. Successful utilization of knowledge requires persistent leadership in the resource system. There must be some group pulling together all diverse resources, structuring them and developing them and executing strategies for effective dissemination and utilization.
User resources

In the process of transfer of technology, there will be a rational sequence of activities which moves from research to development to packaging before dissemination takes place. These activities have to be coordinated in a logical sequence in the evolution of one particular innovation to be disseminated. The above features are basically very important, useful and relevant for effective transfer of technology.

User - the prime factor

For all our purpose of innovations, the users need is the paramount consideration. Diagnosis is part of the process. The outside is a catalyst consultant or collaborator but the user must find the solution himself.

Internal resources

In most of the cases, it is observed that most users are already making very poor use of what they already know and have within their easy reach. The importation of new ideas into a system strains their financial resources and
works out costly. The home-grown and home-stored knowledge is certainly going to be relevant and suitable for the solution of the issue at hand than the imported knowledge. It is therefore, the user must internalize it, in other words, user-initiated change is the strongest.

The user should be organised to receive just as the resource is organised to send. If the user system is a complex organisation, there should be specialised sub-systems which retrieve outside knowledge and adopt innovations for internal consumption. At the same time the user also is expected to have active faith that outside resources will be useful for reaching out new ideas, new products and new ways of doing things. In addition, there should be willingness to take risks and to make an effort to adopt innovations to one's own situation. Likewise the user must be able to assemble and invest his own internal resources to call upon outside help for successful innovation. It is important that he should have self-confidence in its successful utilization. Other ingredients of the user in this process is of his available time, energy, education sophistication and the size of operation.
The following figure presents the base outlines to suggest not only two-way communication but also interdependence among the major sub-systems. Within this over-all social system approach, we are also able to introduce important subsidiary concepts such as "Institution", "Organisation" and "role". The concepts of "Linking role" are crucial to our understanding knowledge, dissemination and utilization.

**FIG. DISSEMINATION AND UTILIZATION VIEWED AS A SYSTEM**

But more important, it is a time for re-examination and renewal. We have had great debates over the last 25 to 30 years about the value of basic research versus applied research. We have had great debates about defining the different categories of research. Most universities have been reorganized to separate basic from applied research. Indeed, some have even suggested that only federal agencies should do basic research and that state universities should do only applied research.

The government policy makers have come forward to aid the poor, the under-privileged and the under-developed, but it is felt that the rich people are the ones who derive the most benefit. They are the ones who know how to identify, retrieve, and make effective use of the potential new resources. However, several methods and means have been used to encourage the poor farmers.

From the point of view of user, it is difficult to induce to adopt an innovation on the basis of one message from one source at one time. He always needs repeated inputs in a variety of media over an extended time from a variety of sources before he will become an adopter. This is the synergy inside the user.
Inference - expert opinions

Dr. Senanayke (YDA) of Lanka points out that there are several observations and implications of the pure research and applied research and also conflicts between free enquiry and directed research. He makes it clear that young researchers are exposed to fundamental research more than applied research and when they return to their institutions back they are asked immediately to direct their linking to applied research which probably they find difficult to do it. Dr. Javier explains that free enquiry does not mean that anything can be done. Public supported organisations have set goals, e.g., Agricultural Research Institutions. This has a set goal or objective i.e. food production. So all the programmes and projects relate to or directed to food and its related aspects. This is what is known as free enquiry. Free enquiry binds itself by national needs. In fact there are real problems which are applied in nature but, nevertheless, would require a lot of scientific thinking.

Dr. Campos (Filomena F) of Philippines affirms that the problem of applied versus pure research is just like, which comes first, the egg or the kitchen. There are many

causes where it is not possible to apply anything without getting the basic information first. The problem faced is where exactly one has to delineate between the two i.e. applied research and pure research. Dr. Javier quotes a very logical example of this kind. The problem is green leafhopper, and the approach is breeding for insect resistance. How could one conduct breeding work if one does not know how the insect looks like, how it behaves and so on. This may be considered as applied research by studying the stages of the biology of the green leafhopper. In a way, this type of research could be classified as pure and basic. Such are the peculiar problems and they are the problems of terminology only.

Dr. Herath (HMW) of Lanka has tried to solve this problems with some suggestions. He points out extension and research services should work hand in hand. The communication set up should be a two-way process in which the extension staff would bring the field problems, both applied and fundamental to the research staff which in turn, would find the solution and pass the information back to the extension staff.

Dr. Hemmi (K) from Japan expresses that all the agricultural research should be program-oriented. He opines that basic and applied research should be combined into one. It needs to

create an expertise capable of bridging the gap between the agricultural science and non-agricultural sciences. It is easy to find textbooks on economics, agronomy and so on in all the countries, but they are not relevant to the conditions required. What is wanted is that, textbooks should be available not only to the local conditions but also to the general conditions as well.

Dr. Charan (O) from Bangkok has made clear that agriculture subject is different from other subjects. In agriculture, socio-geographical practices are very important. It cannot apply the results directly from one country to another country. So he suggests that pure sciences or applied sciences are not the problems to be reckoned with but points out thought should be given to commodity approach or the system approach to solve the problems.

The terminology problem of applied and pure research lines is whether there is a meaningful application intended for the research. It varies in degree—how far and how close, e.g. one could study the physics of acid sulphate soils. This relates to fundamental and at the same time applied because the problem relates to growing of rice in acid sulphate soils.

Unfortunately, one has to know the physics of that soil to be able to grow rice. Dr. Wahab Hashim affirms that basic research and applied research have to be integrated and not consider them as two separate entities to achieve the desired goals.

The whole chain of research pursuits is concerned with the application of the research results. In this process two important agencies involved are, the research wing and extension wing. Mr. Malayang III (Ben) of Philippines says that the above two wings cannot be delineated but have to be integrated. To have a perfect knowledge of field, chairman Mao of China has a very nice solution for that. He suggests that one year out of three, the professors should live in the farm or factory. This is compulsory in China.

Lacuna

India since independence has been witnessing a dramatic change in the agricultural sector. Considerable efforts have been made by the Government of India to improve and modernize agriculture. Facilities have been extended to farmers to increase the productivity of their land. Several developmental projects have been put on rails to gear up productivity.
these 30 years or so, more land was brought under plough. Several agencies came forward with better package plans for the ameliorations of the poor and small marginal farmers in the rural areas. Programmes and projects for the draught-prone areas, hill area development schemes, integrated tribal development plans, small farmers development agencies, marginal farmers' programmes and a host of others including several operational programmes by the ICAR have been put into operation besides audit facilities and financial help from Government cooperative institute and commercial banks. Agriculture was given a lion share in all the FIVE PLANS of the country for all-round development. Several irrigation projects have been taken up and completed as a result of which, towards the end of the 4th five year plan period irrigation potential had increased and the percentage of utilization of water had gone up from 10% to 35%.

All said and done having dumped inputs of every description into the agricultural sector, what is the net result and what is the outcome. In simple terms it can be said, it is applause and staggering !!! India has not achieved anything in terms of output either in agriculture or horticulture or as a matter fact in any agri-business.

Solution to problems

The studies indicates that well organised information centre is essentially needed to co-ordinate and diffuse the information to research workers. Awareness of information is lacking. At the national level there is no proper encouragement for appropriate flow of information services. It is also pointed out that extension workers have not got enough facility and package of information ready with them to transfer the technology of innovations. The application and adoption of new releases are not finding enough customers. These new knowledges emerging from national institutes are normally used and implemented by the affluent class of farmers. There is an impression that small income group of farmers are not encouraged with new idea generated from these laboratories. Low income group of farmers need the knowledge of releases in understandable form and know-how to be taught without any ambiguity and complexity in a language that can be understood easily by them. The diffusion problem indicates that certain achievements have high claims and the results are adopted by farmers in the field it would be thoroughly a flop. Such things should be avoided through multi-trials in different regions of the country.