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Research-extension linkage: differences in formal and actual situations

Verbindung zwischen Forschung und Beratung
Unterschiede zwischen formaler und tatsächlicher Organisation

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The increasing agricultural knowledge ensuing from national and international research results is only insufficiently transmitted to the farmers via the extension services and thus is utilized inadequately. The international training and visit system provides a new way of agricultural extension used in Sri Lanka. Formal organisations, such as the Regional Technical Working Groups, Research-Extension Dialogues, and Adaptive Research Units, are intended to strengthen the linkage of research and extension and improve the transfer of knowledge. In addition, experts are employed in regional research centres to coordinate research and extension, and specialists at district level for training the farmers. For various reasons, the field situation in research and extension requires modifications, which should also affect the aim of extension work.

1 Introduction

Agriculture is the main income earner in Sri Lankan economy. In 1990 it has contributed 23% to the country's GDP and has earned 37% of the foreign revenue in 1985 (CENTRAL BANK 1990). the livelihood of the population is based on agriculture and agro-based industries. Alternative employment opportunities are severely limited, specially in the rural sector, which accounts for 79% of the population (CENTRAL BANK 1988). Hence, the need for rapid agricultural development is widely recognized. Today, more and more agricultural land is being developed under large irrigation

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projects, new crops and cropping patterns are introduced, input use and farm mechanization are becoming increasingly popular, the demand for basic ingredients for agricultural development is increasing, new markets are growing for agricultural products, large investments are directed to the agricultural sector, the need for trained manpower in agriculture is increasingly apparent, farmers demand more scientific knowledge, and agricultural information receives much attention. All these aspects have implications on knowledge dissemination and utilization. This in turn requieres effective interfaces between research, extension, and user as well as effective processes of technology development, information exchange and feedback. An agricultural system, like in all other systems, is composed fundamentally of a network of entities. In agricultural systems, research - extension - user linkages play a substantial role as they represent the connection between the major components.

However, the technology-driven agricultural development has given priority for technology generation and has paid less attention to technology transfer and utilization. Researchers have developed technologies in an environment physically and mentally isolated from farmers and have transferred the unfinished, untested product to extension workers (COLLINSON 1985). In early analyses, the 3 components (research, extension, and user) were regarded as separate but interrelated sub-systems. NAGEL (1980) has elaborated his analysis on the above context and has demonstrated that the 3 sub-systems make the connection or linkages by transmitting knowledge or information. Hence, the relationships between the elements of the agricultural system are governed by the nature of the communication linkage (HAVERKORT and ENGEL 1986). Today we regard not only the above 3 elements, but also other components such as policy makers, agro-support services, non-profit organizations, private firms, training institutions, which are equally important elements in the agricultural system. Further, different from the early tradition, certain 'functions' are not confined to particular elements in the system. For example, it is now generally accepted that the generation of knowledge is also farmers' activity, who are engaged in experimentation in their environment. A agricultural system is a complex system with a vast number of elements playing different roles, the linkages among each other become more important. Essentially, it should be, because farmers have to be the prime beneficiaries. The farming systems research is an example of an attempt to make strong linkages among different elements involved in agriculture.

Further, the knowledge system paradigm provides a wider audience in understanding the function of linkages in an agricultural system. NAGEL (1980), HAVELOCK (1986a, b, c), HAVERKORT and ENGEL (1986), and ROLING (1988a,b, 1989) have highlighted the vital importance in strengthening the linkages among different elements in an agricultural system through their contribution towards the agricultural knowledge system.

2 Weak linkages : a cause for extension re-orientation

In the Sri Lankan agricultural sector, the 3 sub-systems, research, extension, and user, can be identified as in many other developing countries. However, it is evident that comparatively research has benefited from government and other agencies over extension. As a result, research has made a significant progress with a vast number of technological discoveries to its credit. Sri Lankan rice research provides a fine example. Hence, knowledge has been generated in an effective manner and accumulated knowledge is already there, not only for rice but also for other crops of the peasant agricultural sector. However, there is a significant knowledge gap between the levels of research and utilizer (WIJERATNE 1988). In the past, research and extension executed their programmes as if they were 2 separate line departments without much horizontal coordination. The interactions which took place between the 2 divisions were restricted to ad-hoc consultation, usually seeking asssistance in crisis situations. New knowledge was rarely transferred from research to extension and to the users. The research extension linkage was limited to annual conferences, in-service trainings, and occasionally published pamphlets.

Further, in most instances, such horizontal coordination only took place at the higher levels of the organizational structure. All these factors imply that the former extension network had a weak research-extension linkage. This reason has contributed to the ineffectiveness of the extension organization to a great extent. In many instances, extension received the blame for not serving the farmers with scientific knowledge on the one hand and for ineffective feedback to the research on the other. The awareness of weak research-extension linkage warranted policies to improve such a liaison.

3 Training and visit (T & V) system of agricultural extension

This system (BENOR and HARRISON 1977, BENOR et al. 1984) has been introduced to overcome the main weaknesses prevailing in extension organizations in developing countries. One main issue is the improvement of the liaison between research and extension. ROLING (1988b) stated that this system seeks to increase the interconnectedness of various elements in existing agricultural systems. Sri Lanka is among the pioneers which adopted the system. It was introduced to the entire rural sector from the beginning of this decade in order to strengthen the linkage between the major elements. As in many other developing countries, the system in Sri Lanka is in its infant stages of implementation. Therefore, the country has gained only limited experience on its reliance and there is not much empirical realization. Based on an investigation carried out in Southern Sri Lanka, this paper reports on existing differences in formal and actual situations with respect to research-extension linkage in the context of T & V.

4 Re-orientation for an effektive research-extension linkage and empirical evidence

The T & V has established 3 formal bodies to improve research-extension linkage. They are Regional Technical Working Groups (RTWG), regular Research-Extension Dialogues (RED), and Adaptive Research Units (ARU). Further, Subject Matter Specialists (SMS) and Subject Matter Officers (SMO) were introduced to the extension system in order to establish liaision in certain places in the framework. The RTWGs were formed in research centres. Generally, one research centre extends its service to 3-4 districts which come under one agro-ecological zone. The RTWG provides a forum for research, extension, and training officers in a particular region. It is expected that decisions on research, extension, and training priorities will be taken for the region during the session, on a collective basis. Generally, RTWG sessions are held 125 days before the on-coming season and take at least 2 days. The REDs are another formal bodies which facilitate the research-extension linkage. The participants are similar to those of the RTWGs. At these sessions, extension officers present their current problems to the research officers and in turn, research officers have an opportunity to provide solutions. The ARUs which function at district level, attempt to develop research-extension-farmer linkages. They expect active participation of research and extension staff. Adaptive research trials are conducted in farmers' fields. Such trials mainly focus on testing the validity of research findings and farmer acceptability (WIRASINGHE et al. 1984). The SMSs are confined to the Regional Research Centers (RRCs). They are supposed to advance their knowledge on specific subject areas through the current findings of research and other available sources. In the formal system, they have the special task of making research-extension bonds through the communication of technical knowledge. In fact, they are supposed to act as intermediaries between research and extension. The SMOs function at the district level. They too, are expected to keep close connection to the research and are responsible for the dissemination of knowledge to the field extension workers. The above description outlines the re-orientation made in order to improve the research-extension linkage in the context of T & V. As mentioned earlier, the aim of this study is to explore the actual situation in relation to the formal system. In order to understand the actual function of the bodies described above, the writer participated in a series of such forums and had in-depth dicussions with officials involved. The following paragraphs present the outcome.

The RTWG meeting allows presentation of the progress made during the previous season and of the targets and proposals for research and extension for the coming season. Such presentations are done by respective Assistant Directors of Agriculture (ADA) or Agricultural Officers (AO) of the district. The possibilities for training are conveyed by the Assistant Director of Agriculture (Training and Education) or SMSs. However, it seems that some of the requested trainings are not possible due to the

small number of training officers in the in-service centre. In many instances, the in-service centre has to depend on other resource persons in other regions.

At the RTWG session, there was little presentation of ongoing research or planned research at the RRC. Furthermore, there was hardly any discussion on the presentations made by the extension personnel, so that the impression arose that each district can execute their own proposals without much coordination between other districts or research. Some of the problems presented to research were very vague and did not seem to be pressing problems for a significant number of farmers. On the other hand, Research Officers (RO) were not inclined to accept research problems suggested to them by extension. In fact, they have their own research programmes, in addition to which they satisfy some of the extension needs. A recent study carried out in the same region implies that at the RRC, research done for extension requests has declined during the recent past (SEEGERS and BLOCK 1988). The insufficient number of ROs at the RRC may be one of the reasons for the above outcome, but it has to be stated that the analysis has been made on relative terms. At present, the duration of the RTWG sessions is limited to on day, although the formal system specified a meeting of 2 days. The case material in the vignette provides some facts concerning research-extension linkage in the context of RTWG.

Vignette : A view from research

> In order to keep a close connection between research and extension, extension personnel should bring more and more questions to the research. In fact, for most of the problems they put forward, solutions have already been given. In most instances, they repeat the problems and sometimes problems were misidentified. On rare occations, extension conveys problems which they have identified and are relevant to a significant number of farmers. The scientific background of the extension field workers should be increased so as to understand farmer problems more precisely. At the RRC few ROs are serving and one RO has to deal with many specific fields. With insufficient facilities available, it is hard to execute the research programmes in order to satisfy the needs of all parties.

At the RED, AOs present bi-weekly messages for the coming months. Such presentations make it easier for the ROs to add additional or new knowledge to the messages. However, extension hardly gets new knowledge from these meetings. Generally, the ROs tend to transfer knowledge when extension officers ask for it or in situations where problems have to be solved urgently. The ROs often complain that they do not receive sufficient feedback from extension during these discussions. The frequency of RED sessions has been reduced from once a month to once in 2 months.

The SMOs at the Regional Training Center (RTC) are not much involved in solving problems forwarded by the extension. They can be regarded as training officers. Their role in the constitution of any significant link between research and extension is not apparent. They have not received much benefit from the research as they get little information on related fields. Occasionally, SMSs and ROs visit farmers' fields. This is mostly done at the request of the extension staff. The ROs often have little contact with extension officers. The extension staff do receive some scientific information from ROs through informal contacts and during in-service training. However, such situations are limited. Further, SMOs of a particular district are confined to the training aspect of the field staff, but are not given enough opportunities to visit research stations. Hence, the linkage seems weak. As a result, knowledge does not come down to the middle level of the extension structure.

The Adaptive Research Unit has limited its coverage to few specific fields due to insufficient personnel resources and other facilities. Its function as a team of officers has to be materialized because collective efforts are still marginal. Hence, its contribution to the establishment of an effective linkage between research and extension is also at an infant stage.

5 Conclusions

The above findings demonstrate that the actual situation is quite different from what one would expect from the description of the formal system with respect to the efforts made for constituting an effective linkage between research and extension. The formal assemblies in the extension framework have still not concentrated on making such linkages. The concept may well not have penetrated into the various elements which form the assemlies. It seems that the 2 major sub-systems, research and extension divisions, have marginally achieved horizontal coordination. The duration of RTWG sessions has been reduced to one day and the frequency of RED has been reduced once a month to once in 2 months. Such alterations can be regarded as modifications to the prevailing conditions, but such decisions may further reduce the research-extension linkage as the opportunities for communication among the elements in 2 sub-systems are restricted. On the other hand, it can be argued that the authorities have felt the functional inefficiency of such components in fulfiling the expected tasks so that attention granted to them was reduced. However, the effect of such modifications should be taken into account as the linkages are governed by the nature of the communication process and the bodies available for it. The function of the SMSs is limited to the training aspect. They are few in number, and the DTC is experiencing a severe dearth of such personnel. As a result, the DTC is incapable of handling the trainings requested by the extension. Hence, imperfections exist in the process of knowledge dissemination. Next, limited training programmes mean that the possibilities for the establishment of expected linkages are not so apparent. Administratively, the SMSs

belong neither to research nor extension. They come under the Division of Training and Education. This setup may need additional effort to incorporate the SMSs into the context of T & V in order to utilize them in the expected manner. In the formal system, the SMSs are regarded as highly specialized personnel resource, but it is evident that their technical competence is insufficient to fulfill the given tasks. Hence, they should be granted further training in their specialized fields so that they can fit into the system. The insufficient number of SMSs and their technical competence were seen as limiting factors in the implementation of T & V (HOEPER 1988). One of the prime objectives of the introduction ot this special variety is to bridge the gap between research and extension and to strenghten the research-extension linkage. One of the main tasks of the Sri Lankan T & V reform is to strenghten the Division of Training and Education but evidence shows that it is, in fact, slowly dissolving. The ARU has shown a marginal contribution towards making an effective research-extension linkage. In fact, ARU is experiencing a number of limitations such as lack of personnel resources, insufficient laboratory facilities, etc. Even within the limited framework, team work is not apparent. As a result, extension workers, especially the SMOs, do not get enough opportunities to deal with current problems.

Further, as this linkage stands at a weak position, extension workers have limited possibilities of updating their technical knowledge. In all, the T & V reform has made a great effort in establishing a strong research-extension linkage. However, the Sri Lankan experiences imply that the concept of linkage has not received enough attention. The formal bodies should be re-oriented according to the operational conditions. Finally, it seems that a considerable difference exists between the formal description and the actual functioning of the research-extension linkage.

Zusammenfassung

Das zunehmende landwirtschaftliche Wissen, resultierend aus nationalen und internationalen Forschungsergebnissen, wird über die Beratungsdienste nur ungenügend an die Bauern vermittelt und bleibt so wenig genutzt. Mit dem international geschaffenen Trainings- und Besuchssystem ist eine neue Organisationsform der landwirtschaftlichen Beratung entstanden, die in Sri Lanka Anwendung findet. Formale Organisationsformen, wie die Regionalen Technischen Arbeitsgruppen, die Forschungs-Beratungs-Dialoge und die Adaptiven Forschungseinheiten, sollten die Beziehungen Forschung und Beratung intensivieren und den Wissenstransfer verbessern. Zusätzlich eingesetzt werden Fachspezialisten in Regionalen Forschungszentren, die die Verbindung Forscher - Berater herstellen sollen, und Fachberater, die auf Distriktebene sich der Schulung der Bauern widmen. Die praktische Arbeit, sowohl in der Forschung als auch Beratung, zwingt aus unterschiedlichen Gründen zu Änderungen, die auch ihre Auswirkung auf das Ziel der Beratung haben.

M. Wijeratne: Rapports entre recherche et consultation. Différences entre organisation formelle et effective

Le savoir agricole toujours plus grand, résultant des recherches nationales et internationales, n'est transmis qu'insuffisamment par les services de consultation aux paysans et reste ainsi peu exploité. Avec le système d'entraînement et de visites, créé à l'échelle internationale, est née une nouvelle forms d'organisation de la consultation agricole, pratiquée au Sri Lanka. Les formes d'organisation formelles telles que les Groupes de travail techniques régionaux, les Dialogues de recherche et de consultation et les Unités de recherche adaptatives devraient intensifier les rapports recherche et consultation et améliorer le transfert des connaissances. En plus, on se sert de spécialistes dans les Centres de recherches régionaux, lesquels doivent réaliser la coopération entre rechercheurs et consultation, et d'experts qui se consacrent à l'échelle du district à la formation des paysans. Le travail pratique dans la recherche aussi bien que dans les services de consultation exige, pour des raisons diverses, des changements qui favoriseront en même temps les objectifs de la consultation.

M. Wijeratne: Relación entre investigación y asesoría. Diferencias entre la organización formal y efectiva

El creciente fondo de conocimientos en el terreno agropecuario, como resultado de investigaciones nacionales e internacionales es transmitido a los campesinos por medio de los servicios de extención rural en forma deficiente y queda de esta manera subutilizado. Con el sistema internacional de visitas y entrenamiento se ha creado una nueva forma organizativa de la extención rural, la cual tiene aplicación en Sri Lanka. Formas de organización formal como los Grupos de Trabajo Técnico Regionales, los Diálogos de Investigacio y Extensión y las Unidades de Investigación Adaptadas, debieran intensificar la relación Investigación - Extensión y mejorar el transfer de conocimientos. Se deben emplear adicionalmente a especialistas en los Centros de Investigación Regionales, los cuales deben crear la unidad investigador - asesor y consejeros especializados, los cuales a nivel de distrito se ocupen de la calificación de los campesinos. El trabajo práctico, tanto en la investigación como en la extensión rural, obliga a realizar cambios los cuales tienen también una repercusión sobre las metas de la extensión rural.

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