AN ANALYSIS OF LINKAGES
in a
RICE BASED KNOWLEDGE SYSTEM
IN TRINIDAD

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INTRODUCTION

Rice (Oryza sativa), a staple item in the local diet is produced mainly on small farms (<1 ha.) operated by the extended family. They are mainly of East Indian descent, and are limited in their access to resources. The majority of rice (61%) is cultivated in the Oropouche lagoon. Although domestic production has increased over the years, it still represents only a small portion (30%) of total domestic consumption. Additional rice needs are met through importation using scarce foreign exchange.

Research and Extension programmes for the rice based sector in Trinidad have always focused on raising paddy yields, and all paddy produced by farmers are bought at a central buying agency, without much emphasis on quality. In 1994 however, the government signalled a policy shift whereby farmers would be paid for their paddy on the basis of quality, and a grading system was introduced. This statement was met with great apprehension in the farming community. The technological focus and extension education strategies were expected to change to match farmers new information requirements.

Previous extension education approaches had relied largely on the assumed exclusive relationship between Research, Extension and Farmers. However, two observations were made of the dynamics of rice farming in the area:
  i) Farmers employed practices which were totally different or modifications of research recommendations offered by extension, and
  ii) it became clear that other persons, organisations, and institutions were involved in providing information to rice farmers.

In light of these observations, the demand by farmers for technologies to meet the new quality requirements provided an excellent opportunity to evaluate the present system of knowledge dissemination and utilisation in the area. The outcome was expected to inform the extension education approach to be used in future programmes.

THEORETICAL CONCEPTS

For successful utilization of any new technology, farmers must know, be able to follow the recommendations given, and the information should be consistent from all sources. The linkages among the main components of the knowledge system as well as communication among them are central

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issues. The view that linkages between Research, Extension and Farmers are strong and work well may be true for resource rich farmers. However, it may be misleading when dealing with farmers who are restricted in their access to resources e.g. roads, extension, capital. These farmers are adaptive and survive on the basis of shared information within their system. As a consequence various alliances and linkages are fashioned depending on information needs. With time a rich store of knowledge and organised linkages exist in the system. Roling (1988) stated that these linkages allow for the smooth operation of interaction among the people and institutions which receive, transform and transfer information to each other. This linkage model of utilisation holds that there are constant processes of interaction between agents of change and objects of change resulting in mutual influence on each others behaviour (van Dissel and Roling, 1991).

In the Knowledge and Information System, the key issue is synergy. Synergy as reflected by the interaction of the various components of the system, should be the dominant characteristic of a proper functioning Knowledge and Information System. Conflict within a system would impede the smooth flow of accurate information, be a source of confusion among farmers and an obstacle to the achievement of set objectives. An analysis of synergy in a system provides a guiding principle for the diagnosis, design and intervention (Roling and Engel, 1991).

PURPOSE

The analysis of linkages in a Knowledge and Information System provides an understanding of the roles, functions, attitudes, perceptions and cognitions of those involved in the system. Data provided can be used to alter, enhance or establish linkages in any future education environment. Consequently, this study analysed the Knowledge and Information System in the Oropouche lagoon to:
  i)   identify the main actors in the system and their knowledge of the technological recommendations.
  ii)   describe the nature and extent of linkages among these actors.
  iii) identify any strengths or weaknesses in the system.

METHOD

A modified Rapid Appraisal of the Agricultural Knowledge System (RAAKS) methodology was used (de Groot, 1991). A schedule of open ended questions was used as a guide to the researcher. Interviews were conducted with six key farmers from the different areas in the lagoon, the

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two leading agrochemical dealers in the area, all the government extension agents, the private sector extensionist serving the region, the rice agronomist, representatives of the Agricultural Development Bank, representatives of the University of the West Indies and other small machinery manufacturing companies who interacted with farmers in parts of the lagoon. Specific question areas to assess the objectives of the study revolved around:

    i) the frequency of interactions with each other and the nature of their discussions

    ii) the formality or informality of arrangements among them, and

    iii) each person's knowledge of the technical recommendations.

RESULTS

Main actors in the knowledge system

The survey identified five categories of actors as being important in the generation, dissemination and utilisation of Knowledge and Information within the study area. These were the farmers, government extensionists, the private sector extensionist, the rice agronomist and the agrochemical dealers. The other agencies, institutions investigated did not interact significantly with farmers with respect to the technologies to improve paddy quality.
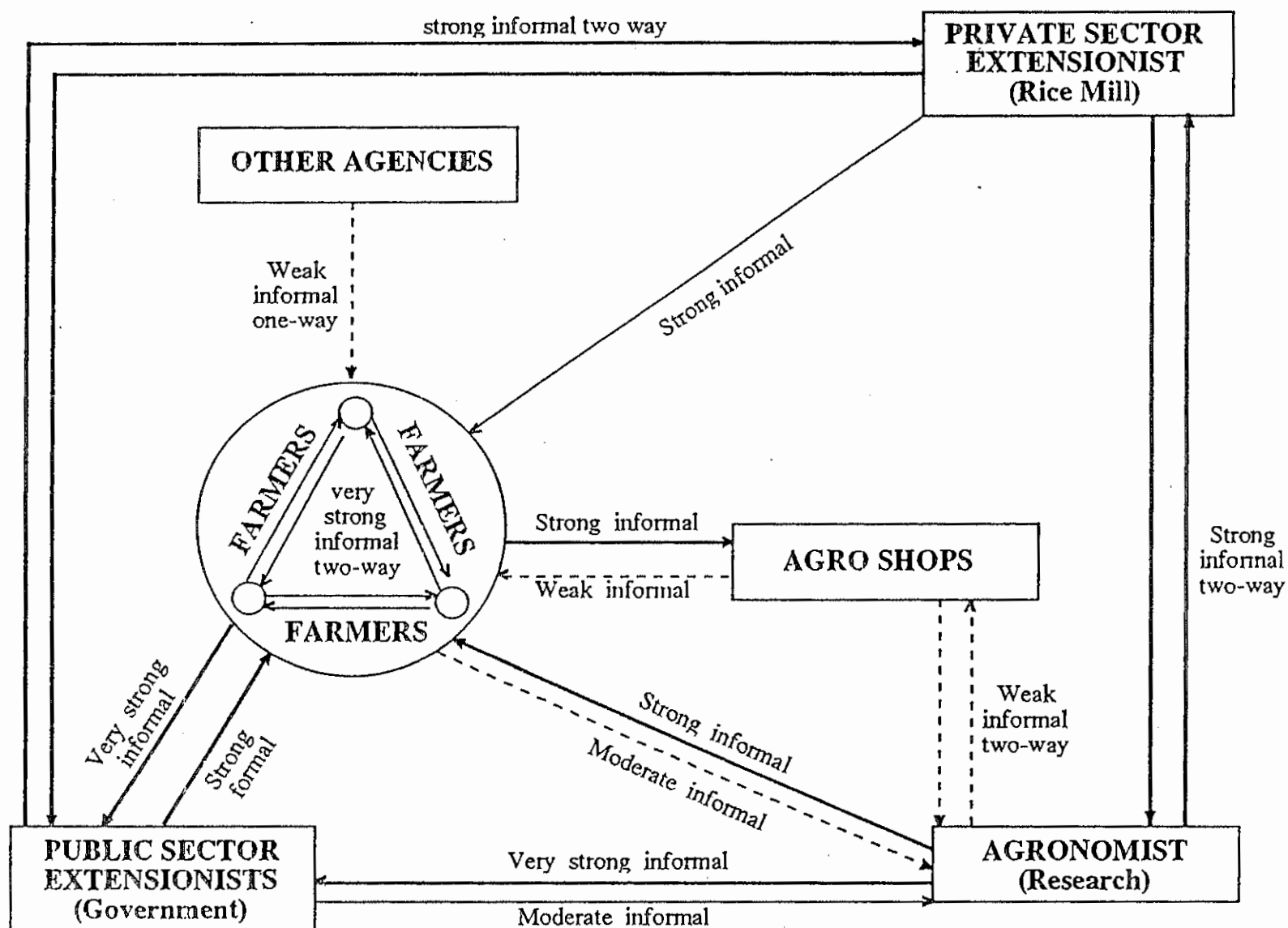
Linkages in the knowledge system

The public sector (government) extensionists provided information to farmers by means of a formal programme consisting of group lectures, discussions. These were supported by a series of fact sheets. Farmers' problems were expressed to the extension agents at these sessions. The extensionist related to the research agronomist informally to discuss farmers' problems and possible solutions. The private sector extensionist was relatively new in the system but interacted well with the government extension agents. No significant relationship existed between the government extension agents and the agrochemical dealers.

Farmers discussed rice production technologies quite easily and readily among themselves. They shared their indigenous knowledge and seed material. They related to the rice agronomist only when he visited their holdings as part of the on-farm experimentation process.

Farmers' wives interacted informally with each other on a regular basis, and formally through a "Women in Rice" grouping. At these

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Linkages in the Rice Based Knowledge System

PRIVATE SECTOR EXTENSIONIST (Rice Mill)

strong informal two way

OTHER AGENCIES

Weak informal one-way

Strong informal

FARMERS
FARMERS
FARMERS

very strong informal two-way

Strong informal

AGRO SHOPS

Weak informal

Very strong informal

Strong formal

Strong informal

Moderate informal

Weak informal two-way

Strong informal two-way

PUBLIC SECTOR EXTENSIONISTS (Government)

Very strong informal

AGRONOMIST (Research)

Moderate informal

meetings, all their concerns, to include their activities in rice production were discussed.

The rice agronomist did research work both at the experimental station sixty (60) km, away and on farmers' fields in collaboration with extension. He provided information on all aspects of rice production technologies directly to farmers, and to the public sector extensionists by way of planned training sessions. Both formal and informal sessions, as in the application of a modified training and visit (T & V) system in 1987 were used. The private sector extentionist also sourced his information from the same rice agronomist through regular informal sessions. The agrochemical dealers and the agronomist had no significant relationship. The government extensionists had an open relationship with the agronomist and would visit the experimental station occasionally for information updates.

The private sector extensionist was employed by the National Flour Mill, the agency responsible for purchasing all farmers paddy. The agent, who carried the title of "agronomist" effectively functioned as an extension agent. He provided information to farmers to enable them to improve their paddy quality as well as to create mass awareness of the recently introduced grading system and the criteria for assessment. Although the agent was relatively recent to the system, there were strong two way relationships established with both the rice agronomist and his counterparts from the government department. A strong informal one way relationship was established within this short space of time with farmers.

The agrochemical dealers related to the farmers mostly on an informal basis, but a strong link existed between them. The farmers visited the shops to purchase fertilizers, herbicides and pesticides mainly, and used the opportunity to solicit information on all aspects of rice production.

Information flows in the system

The majority of actors had the same knowledge of the technology and communicated similar information. The exceptions were the agroshop dealers who were unsure of the recommendations, but nevertheless gave advice freely to farmers.

CONCLUSION

The study concluded that while a great deal of synergy with respect to knowledge flows existed within the system, the agrochemical dealers presented a serious challenge to the integrity of the knowledge environment.

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The linkages with the private sector extensionist who held important knowledge on the grading criteria could be formalised and strengthened. The "Women in Rice" group had the potential to become a major contributor in the system. There were no significant relationships between both the public and private extensionists and the agro shop dealers.

EDUCATIONAL IMPORTANCE

Recommendations to improve the education effort in the sector would be:
1) Extension should build upon the strong farmer - farmer linkage, using it as an entry point for programmes to improve paddy quality.
2) Since some practices to improve paddy quality are carried out mainly by women, they should be targeted for training in their formal grouping.
3) Linkages between all the educators (private and public) and the agro shop dealers should be established and a programme of education for them would enhance synergy in the knowledge system.
4) Formal linkages with the private sector extensionist should be established within the system to enhance the knowledge base on quality, grading and assessment criteria.

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