Extension - Research A natural Linkage

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AUSTRALIAN CO-OPERATION
WITH THE
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THAILAND

EXTENSION - RESEARCH ;
A NATURAL LINKAGE

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EXTENSION - RESEARCH : A NATURAL LINKAGE

A discussion paper prepared for the Department of Agriculture, Thailand, by ACNARP - the Australian Cooperation with the National Agricultural Research Project. The project is concerned with the decentralisation of the Department of Agriculture through the development of nineteen new research centres, and the upgrading of the quality of agricultural research within the Department in order to generate more relevant information for farmers. Responsibility for extension in Thailand rests with a separate Department of Agricultural Extension. Improved linkage between the Departments is therefore a high priority objective of ACNARP.

This paper is also available in Thai.

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SUMMARY

This paper is written to assist the present debate within MOAC on the improvement of linkages between the separate Departments of Agriculture (DOA) and Agricultural Extension (DOAE). It presents a bottom-up view of the issue, beginning with a simple analysis of farmers as managers and decision makers, and describes the farmer's reaction to new ideas and recommendations. This analysis suggests that the essential first step in developing a relevant research program is to define the farmers' problems as accurately as possible.

The paper suggests that there is a natural linkage between "research" and "extension" based upon the joint, agreed definition of high priority farm problems, and on a shared interest and commitment by both sides towards improving the farmer's situation. The sources of conflict between research and extension are examined, and some necessary conditions for effective linkage are suggested. Finally, a number of specific recommendations are presented for consideration and endorsement. These focus on the possible role of the recently formed Liaison Committees in promoting a strong and effective linkage between DOA and DOAE.

1. THE FARMER AS A DECISION-MAKER

Farmers, like all of us, make numerous decisions every day, including deciding to put off deciding until tomorrow! Farmers everywhere are decision-makers. They make decisions about the management of their resources - even the poorest peasant is a manager of his limited resources. The farmer is a manager because he makes decisions about the factors of agricultural production - land, labour and finance. The farmer's decisions are much more complicated than those of most government officials, and they differ in another important respect - the farmer has to take full responsibility for the outcome of his decisions whether they be good or bad. He has to bear the physical and financial consequences of his decisions. This is vitally important when considering the issue of RECOMMENDATIONS TO FARMERS from RESEARCH. This is because farmers have different individual resources, and because they may have different GOALS, different PRIORITIES and different attitudes to RISK. The tendency to classify farmers into amorphous, mindless groups is now well and truly discredited.

Research has shown the farmer to be a rational decision maker, within the limits of his knowledge, resources and risk preferences. Rejection of innovations has been shown to be based upon technical flaws in the innovations themselves, rather than on farmer ignorance or lack of knowledge.

There is a considerable body of information on what a farmer wants and does not want from research and extension services.

He does NOT want a standard "package" of technology which he is supposed to adopt. We know that farmers adopt different pieces of a new system at different stages. They do so at different times, but mostly in the same sequence. What a farmer really does is to fit what he sees as the appropriate pieces of technology into his own unique set of circumstances - into his own system. He makes decisions about each option in the light of his own circumstances. He decides about the financial, social and technical "fit" of the change.

1 In this paper, the term "farmer" applies to the farm family as a decision-making unit.
This should be so obvious that it ought to be boring. However, the point that is usually overlooked is the fact that the farmer is making a conscious decision — he is making choices between alternatives. He is managing his resources. He is not acting like a robot.

The decision-making process in adoption requires, at some point, the input of information about the new practice. With some changes, it seems to be an "all-or-nothing" response — either the farmer buys the new weeder or he doesn’t. In others, he may or may not use the "recommended rate" of, for example, fertilizer. What our farmer-decision maker really wants is information from a source which he regards as credible, about the input-output relationships involved. He may want to know, for example,

"What happens if I do not use any fertilizer — by how much will my yield be reduced? What if I only use a little — what will happen to yield? What happens if I use the recommended rate and it is a very dry season? How much less yield will I get if I spread the fertilizer rather than band it? etc., etc."

He is also weighing up the cost of financing the fertilizer against his present debt load, the extra work, the reliability of delivery when he needs it and, always, the likely price for any extra yield. As we said earlier — quite a complex decision! What does he usually get from extension and research? — usually a blanket, official "recommendation" to use, for example 20 kg/rai of 20:20:0. This answers none of his questions!

Is the recommendation wrong? How can it be improved? Can the farmer be blamed for not adopting such a recommendation? The answers are crucial for the effective linkage of research and extension. Because — the purpose of both research and extension should be to help the farmer to make better decisions in order to solve his problems. The farmer must solve his own problems — research and extension can only give him better tools to help in this task.

This is very different to handing out recommendations of isolated pieces of technology, as is the common view of "extension" in Thailand. It is very different to the generation of new technology by research, and its downward passage to passive farmers via extension.

It is very different to having the extension (or research) system MAKE THE DECISIONS FOR the farmer. The extension and research services CAN ONLY HELP the farmer to make his decisions — he needs and welcome this assistance if it is really useful. If it is not seen by the farmer as relevant, reliable and practical — he will ignore the advice — and rightly so.

2. TOWARDS BETTER DECISIONS

We have looked at some problems of farmers making decisions about changes in their farming practice. There are three avenues through which advice to farmers MIGHT be improved.

2.1 By ensuring that the real problems and constraints of the present farming system are really understood by researchers and extension workers.

2.2 By obtaining agreement between research and extension workers as to the nature and importance of these problems and constraints.
2.3 By designing research programs which will produce results which can be used for decision making at the farm level - by farmers and their advisers. This also involves the presentation of research data to extension workers in a form that is useful for decision making.

2.1 Defining the real problems

This is superficially easy. Every researcher can recite a list of what he believes to be the farmers' problems in an area. So can every extension officer. They usually sound convincing, and each list is obviously the product of a sincere attempt by that person to understand the farming system. Any challenge to the accuracy of such a problem - list will invariably be taken as a personal criticism and rejected - "my experience is better than your experience".

This is a very delicate and complex problem, and egos are easily bruised. It is also the basis on which the relationship between farmers, extension workers and researchers is built or broken, and it cannot be brushed aside lightly or ignored.

There are many causes for these differing views of farmers' problems - level of research training, level of education, amount of practical on-farm experience and social class, to name a few. These sources of different opinions are a two-edged sword - they make consensus more difficult to obtain but they also bring a wide diversity of experience to bear on farmers' problems. However, if the output from research is going to be useful to farmers, the research process must start with the existing on-farm situation, and with a careful consideration of the problems as perceived by the farmer.

Techniques for the definition and analysis of on-farm problems are well known. They have been developed by rural sociologists as various small-group activities, involving farmers, extension workers and resource specialists. Techniques for problem definition and prioritisation are also well developed as part of farming systems research (FSR) methodology, of which a number of versions have already been applied in Thailand. These include the techniques of Rapid Rural Appraisal/Assessment, agro-ecosystems analysis, and the more recent "triaging" system. Unfortunately these techniques have become so closely identified with FSR that they have been largely ignored by both research and extension. As we shall see later, these techniques can be used as the key to solving the extension-research linkage dilemma.

2.2 Conflicts between extension and research

With a few notable exceptions, researchers and extension workers in Thailand are as far apart as ever. The extent of the gap may be judged by the public and private claims of DOA staff that the results and recommendations of the DOA are not relevant to the real needs of the small farmers. The argument then follows that DOAE "must do its own research in order to solve the farmers' problems. Research and extension appear to see themselves as competitive rather than as complementary functions.

Clearly, there is a huge gap in the perceptions of the two organisations as to what research is required. This will lead to on-going conflict and a waste of scarce research resources unless it can be resolved.
At this point it is worth examining some of the traditional differences between people involved in research and extension.

**Extension Officers' Complaints about Researchers**

1. Much research bears little relation to the real problems of farmers. Researchers are interested mainly in research for its own sake.

2. Researchers are reluctant to undertake work in complex, multi-disciplinary areas. They prefer to remain within the boundaries of their own discipline (or commodity) area. Worse, they are not interested in problems outside their own area - these are "someone else's responsibility". Interactions with other disciplines or systems are ignored or dismissed in the same way.

3. Researchers are not interested in the social or economic aspects of a problem.

4. Research results are either not published at all, published very late, or published in rigorous scientific jargon. This is difficult to access in the field, and takes much time to read.

**Researchers' Complaints about Extension**

1. Farmers and extension workers do not understand the principles of research or the scientific method, and have an inadequate knowledge of biometrics.

2. They present ever-changing demands for answers to new and urgent problems, leading to disruption of long-range research programs.

3. Extension officers are prone to think like farmers - they are uncritical and subjective with their observations, and are given to premature judgements.

4. Extension workers only want simple, "recipe" - type advice on complex problems.

5. As developed by the NERAD (USAID) project at Khon Kaen

6. Extension workers are unable or unwilling to seek out and read research reports and publications.

7. Research by extension workers leads to poorly designed trials which cannot be interpreted and can be quite misleading to farmers.

8. Extension workers do not accurately describe or define the problems they see in the field.

9. Extension activities and training activities are time-consuming and interfere unduly with research activities. (Some researchers, however, enjoy direct contact with selected farmers - the training of extension workers is much less popular).

Even a casual glance at these lists indicates that the problems will not be solved easily, and certainly not be legislation or coercion. The solution must lie in the development of a system of mutual collaboration between...
farmers, extension officers and researchers which acknowledges the role of each group and recognizes that each party requires the assistance of the other if the goals of improving farm productivity and raising the standard of living of the rural community are to be achieved.

2.3 Resolving the conflicts

It is one thing to propose that these deep-seated conflicts can be resolved simply by "cooperating" or "working together", but it is quite another to make this "cooperation" work in practice. The problem can only be resolved by tackling its basic cause, that is - the differing opinions on research priorities held by researchers, extension workers and farmers.

A linkage can only begin from a personal understanding of farmers' needs by both extension and research workers. It is vital that both groups share the same view of the problems, constraints and opportunities within the farming system. The views will not always be identical, of course, but there must be agreement on the major issues and their importance. This can be done by arranging for both research and extension people to engage in a systematic, objective, joint, program of problem definition and analysis at the farm level. It is vital that these activities are:

- **systematic**: part of a planned, agreed, on-going program, not a once-only event.
- **objective**: as far as possible the methodology must obtain hard, factual data rather than subjective, anecdotal data. This allows the proper analysis and interpretation of the data. Anecdotal information can only assist with interpretation, at best.
- **joint**: working together allows both research and extension people to reach agreement, especially if there is mutual dedication. It also promotes team-work and inter-personal relationships. Involvement = Commitment.
- **farm level**: the opportunity for farmers to have a real say in the research planning process. The data is gathered at the grass-roots, not from secondary sources.

These factors are incorporated in the "rapid assessment" techniques of FSR, which were designed to improve the definition and prioritisation of on-farm problems. But - if a natural linkage is to develop, this work must be done by research and extension people, jointly. It is not the preserve of "farming system researchers" acting in isolation. FSR people must obviously be involved, but not to the exclusion of research and extension staff. It is vital that the people who will be doing the actual extension and research work participate fully, otherwise we have only added a new linkage problem, not solved one!

The proposal that extension and research people work together in this way will promote:

- a much better, mutual understanding of farmers' problems.
- a mutual interest and commitment to working towards solutions to these problems.
- the extension and adoption of improved technology arising from research.
- the planning of research from the "bottom-up".

How does the proposed system for joint problem definition fit into the overall research-planning process? What about contributions from "basic" research? What about new crops or techniques? What about past research findings?

The following generalised diagram indicates the way in which the various inputs can contribute towards development of research programs.
PAST RESEARCH

CURRENT RESEARCH

TECHNICAL DATA - BASE

PRIORITISATION

APPLIED RESEARCH

NEW TECHNOLOGY

PROBLEM IDENTIFICATION

PROBLEM DEFINITION

PRIORITISATION

JOINT REVIEW

POTENTIAL

GAPS

CONSTRAINTS

JOINT DEFINITION

OF RESEARCH PRIORITIES

APPLIED RESEARCH

ADAPTIVE RESEARCH

DESIGN/TEST NEW FARMING SYSTEM

TO FARMERS

FURTHER PROBLEM DEFINITION

RESEARCH SYSTEM

FARMING SYSTEM

DIAGRAM
It is also possible for extension to proceed independently of the research system.

It is perhaps significant that in this model, as in the real world, it is possible for agricultural research to proceed quite happily as a self-contained and self-perpetuating system, without contact with farms or farmers.

A key feature of this model is the balance of inputs to the research planning process. Traditionally, emphasis is given to technical review aspects, with less emphasis on the problem definition aspects. Where emphasis is placed upon problem definition, it is usually (i) on problems defined by someone other than the scientists, with (ii) the presentation of weak or anecdotal data which compares unfavourably with the objective data from the research reviews.

The Natural Linkage requires that all parties be involved, right from the beginning, with the emphasis on the joint, accurate analysis of existing farming systems. The joint involvement of extension, research and FSR people in activities which decide upon research problems and priorities is the essential feature.

The involvement of researchers in this "grass-roots" definition of problems is valuable, per se, in the research process. This is because the systematic, objective analysis of problems in the field by researchers offers an excellent opportunity to expand the array of hypotheses about the problem through direct observation. This close, personal involvement of the researchers may also increase the frequency and range of creative "flashes" or insights.

It is important to note that involvement of extension in the definition of PROBLEMS and PRIORITIES does NOT mean involvement in the formulation and approval of research PROJECTS. The design of research activities to solve problems is the function of researchers and research management, but in the interests of continuing the Natural Linkage, there is merit in extension being represented on research centre committees. However, if the extension people have NOT been involved previously, there may be little point in them wasting time listening to research proposals with which they may not agree. There are other good reasons for this involvement, mainly when the committee comes to consider the on-farm research program and may need the advice and assistance of the extension people -- to plan a COOPERATIVE program. Involvement also ensures that extension is kept fully informed about the actual, total, research program of a Centre.

The natural linkage also demands that the extension people be invited to inspect experiments in progress at suitable times during the season, and to discuss developments with the researchers - which is one of the best and most natural "training" methods.

An even closer and more natural linkage is possible with experiments in farmers' fields. It is suggested that extension people, perhaps at Kaset Tambon level, should actually become involved in the field work of key experiments - jointly with the FSR or Centre research staff. This involvement may range from assistance in site selection and preparation, through monitoring, sampling and harvesting. In this way the natural interest, generated earlier in the planning process, can be maintained. It is very desirable that the "research" activities of extension officers always be in collaboration with research specialists, and NOT be conducted independently or in isolation by the E.O.'s. This will legitimise the "research" activities.
of extension, and greatly increase the total resources available to work on agreed priority projects in farmers' fields. It is obvious that these cooperative activities would not take place without the earlier steps in the "natural linkage". They must occur voluntarily and enthusiastically, or they will be of little value.

**Completing the Linkage**

The final stages in the "natural linkage" are vital, because they complete the linkage and renew the cycle.

Once experiments are completed, it is important that the results be processed and analysed, and that they be communicated to extension as quickly as possible. This is a difficult and contentious issue, as there is need for some coordination of recommendations between regions, especially with subjects such as new variety releases. However it is worth noting that the communication of results to extension is simplified when the research has been conducted cooperatively with extension.

The final link in the process is the incorporation of progress results into the local farming systems by the design and testing of step-wise changes to these systems. This work is usually held to be the responsibility of FSR, and FSR has tended to develop as yet another, separate, activity. In fact, the on-farm research required to validate and develop new techniques is an obvious and "natural" opportunity for joint activities between research and extension, with extension working closely with FSR in the field. This also allows the feedback of problems into the research planning system, as a natural part of the joint planning process.

Students of Farming Systems Research will recognise the rather blatant way in which FSR functions have been grafted on to both ends of the normal research process. They will also note the blurred identity of FSR in the overall research process, and the absence of any formal "linkages" to join FSR with research or extension. Perhaps this is because FSR itself *is* the linkage? Thought of in this way, FSR becomes part of a natural continuum of services which have responsibility to help solve agricultural problems. It is not just another organisation erected to serve bureaucratic needs, which has unfortunately become its fate in many places.

**2.4 Improving Recommendations**

Earlier we examined the complexity of the farmer's decisions, and pointed out that farmers need to "fit" new pieces of technology into their existing systems. Therefore, when research which was based upon carefully defined farm problems finally produces a result, it is important that the result be presented so as to allow its proper economic interpretation, under real-life conditions, where prices, costs, yield levels and risk are variables. An obvious exception would be a new variety with a clear-cut yield advantage and no disadvantages. The inflexible, recipe "recommendation" is one reason that farmers sometimes criticise and reject official recommendations as being economic nonsense. It is not the purpose of this paper to treat the problem in depth, but to point out that people who advise farmers must have a good grasp of biological and economic variability, and must be capable of adapting results to farmers' circumstances. This is a long-term process, and is a two-way learning process - extension workers need to gradually improve their understanding of input/output relationships and the economic interpretation
of this data, while researchers need to become more conscious of the need to design their experiments and projects so that the output data can be used for decision making as well as for statistical analysis and publication.

Both these important processes are encouraged when extension workers and researchers work more closely together in the field and gain a better appreciation of each other's work and problems.

This is also the province of the more complex techniques of modelling and farming systems analysis. These techniques have the potential to serve as a focus for cooperation between all areas of research by assisting extension workers, farmers, researchers and policymakers to make better decisions about technology, priorities and policy.

3. CONCLUSIONS

Detailed comparative study of research and extension management at regional centres in Thailand (see ACNARP reports by the author) suggest that a number of factors are necessary for successful extension-research communication. Taken together, they may even be sufficient. These factors are:

1. Close personal and professional contact between research and extension staff.

2. Researchers involved in some direct contact with, and extension to, farmers.

3. Researchers who really know and understand the farming systems in their region or area of responsibility. This is facilitated by location of researchers close to the farmers, at the Regional Centres.

4. Extension officers with sufficient qualifications and training to achieve the respect of researchers through their ability to think critically and objectively about problems.

5. Extension workers actively engaged in field research in cooperation with the researchers. This involves actually working together in the field on experiments, not "talk-fests" in the office.

6. Leadership of research at the regional level which has a future-oriented, farming systems, multi-disciplinary approach to improving agriculture.

7. Research programs developed from the problems of farmers, which have been jointly defined by extension and research, i.e. there is a general agreement about the problems which require research.

These factors are proposed as the key elements required for a natural and effective linkage between "research" and "extension". An effective research-extension linkage is therefore built from a shared perception of the major problems of the farming system in a region. It is facilitated by mutual respect between research and extension workers, and by researchers who understand the complex, multi-disciplinary problems of the real world. It is a natural linkage, because it sees "research" and "extension" as inter-dependent parts of the same process.
The list is notable also for its omissions:

* There are no formal meeting or reporting or committee requirements. Emphasis is on informal links first and foremost.

* There is no mandate that researchers and extension people work from the same administrative centre or that they live close together. Obviously being in the same office, in a rural centre, with shared progressive leadership will facilitate the linkage -- but it will not guarantee the linkage.

* There is no formal "instruction" of senior extension workers by researchers.

* There is no separate group of researchers doing "farming systems research". FSR is part of the research team at the Regional Centres.

* There is no emphasis on "packages" of "recommendations", as the use of these is not supported by recent extension research.

4. IMPLEMENTATION

"The concept of the Training and Visit system is predicated upon the institutionalisation of the linkage between extension and research, and upon their simultaneous, mutually reinforcing development", (Cernea, 1981). The irony of this quotation is what is omitted --- that the T and V system is also founded on the institutional and functional separation of extension and research, and (in practice) on their separate development. Therefore our efforts to promote linkage and cooperation commence behind formidable institutional barriers. These barriers must be accepted as immutable, at least in the short term, and no useful purpose is served by using them as excuses for lack of cooperation. As was pointed out, a shared administration does not, per se, guarantee harmony between research and extension. Indeed, some of the most bitter conflicts between extension and research officers, in the author’s experience, occurred where the officers had adjacent offices in the same building!

It is proposed that effective cooperation between extension and research, in the Thai situation, requires:

(1) Formal agreement between the highest levels of DOA and DOAE that cooperation is essential, and that it will be given full support by both bodies.

(2) Establishment of formal mechanisms for dialogue and decision-making between the departments, as equal partners, at both executive and regional levels.

(3) Support from both departments for the necessary budget and staff for liaison activities.

(4) Recognition that the two-way communication of research information is a valid and necessary requirement for promotion and other rewards.
Cooperative activities at the regional level to focus upon joint activities which will develop a common, shared definition of the major problems of the farming system of the region. It is essential to note that the focus is on the definition of problems, and not on the derivation of the necessary research programs. The identification, definition, quantification and prioritisation of PROBLEMS is the basis of the linkage, because BOTH research and extension have useful expertise in these areas.

For implementation, it is suggested that this paper and its recommendations be considered by the DOA/DOAE Liaison Committee, and its recommendations be either rejected, or endorsed for action by the six Regional DOA/DOAE Liaison Committees.

The DOA and DOAE should consider the adoption of the following recommendations:

1. That the departments endorse the principles of natural linkage, as described in this paper, and that they work to providing the necessary administrative systems to bring this about.

2. That the six Regional Liaison Committees adopt as their first, and major on-going responsibility, the implementation of joint problem definition studies in high priority regions. Committees should initiate these studies but delegate responsibility for action to the appropriate Research Centre(s) and Kaset Changwat(s).

3. The Regional Committees should convene meetings for the specific purpose of collating all available information and ideas on the problems and priorities of agriculture in the Region. Contributions should be sought from all agencies working with agriculture in the region, including development assistance projects and Universities. Such meetings could provide the broad perspective which is necessary to supplement the specific, smaller, problem-definition studies. These meetings have a logical starting point in reviewing the published results of previous problem definition/survey projects in the region. In some regions, these existing studies are quite extensive, and the original exercise may be quite large.

4. Methodology for problem definition studies should be based initially on the CIMMYT, IRRI, NERAD and French models for Rapid Assessment. More intensive approaches such as agro-ecosystems analysis may be justified in some cases.

5. The Regional Liaison Committees should initiate and sponsor appropriate training of staff in survey, Rapid Assessment and analytical techniques.

6. Regional Committees should monitor progress with problem definition and prioritisation studies. The Committees should forward completed reports to the Bangkok Liaison Committee for use in policy formulation.

7. The Liaison Committees should ensure that inputs are obtained from all relevant sources including foreign projects, other departments and Universities, at both Bangkok and Regional levels.
The Regional Liaison Committees should sponsor regular technical reporting workshops to review progress results from the research program, and to ensure the rapid communication of results to extension. Such workshops should be held in the Regions, and should not duplicate the existing program of technical conferences.

5. BIBLIOGRAPHY


