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Bridging The Gap Between Technology Generation and Adoption in Fisheries: Role of Participatory Intervention Planning

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Abstract

Why research efforts and technology development in the agrarian sector (which includes fisheries) has not effectively reached the end user in India has been a question often asked but never satisfactorily answered. No doubt, agricultural research outputs have resulted in ensuring food security, self-sufficiency and perhaps nutritional security in India. However, a close look at the sector reveals that in spite of decades of agricultural research and millions of rupees spent on such efforts, the adoption of most of the technologies by the targeted end users developed is rather poor. Compulsions of researchers have more often resulted in development of research projects and research results rather than actual need of end users, which were not fully understood or addressed. In an effort to ensure adoption of such research results, efforts and money have been spent, further to develop 'extension programmes' with the belief that such efforts will result in better adoption. Now that it is well realized that all these have not really resulted in the anticipated results, it is felt necessary to have a fresh look at the existing extension system and evolve practices that would result in better acceptance and adoption. The present paper examines this issue in the light of a case study carried out in Orisson and Andhra Pradesh during 1997 – 2000 in the marine post-harvest fisheries sector for the Department of International Development (DFID) of the United Kingdom. Based on the lessons learnt, a participatory planning approach to ensure better adoption by end users is proposed.

Key words: technology adoption, extension programmes, participatory planning.

Introduction

Why research efforts and technology development in the agarian sector including fisheries have not effectively reached the end user in India is a question often asked and never satisfactorily answered. No doubt, agricultural research in India has resulted in ensuring food security, self-sufficiency and perhaps nutritional security in India. However, a close look at the sector reveals that in spite of decades of agricultural research and millions of rupees spent on such efforts, the adoption of most of the technologies by the targeted end users is rather poor. Why is there a gap between technology generation and adoption? The most common answer to this question is "lack of extension". Most researchers and development workers believe that it is this lack of adequate mechanism to take the information to the targeted users is the cause. This wide spread belief that it is the information gap that is responsible for the lukewarm response of the end users has resulted in devising a number of new extension methods to ensure wider and more effective information dissemination. The past few decades have seen intensive extension dissemination with the hope that the farmers will adopt the technologies developed by the researchers. Has this been effective? If one looks at the impressive list of agricultural technologies developed and described in the several documents brought out by research institutions and compare with the field situations, a dismal picture emerges which shows that the uptake has been extremely poor. There are numerous technological interventions, which have remained in the research and extension documents. Organizations and agencies that are concerned about such failures of uptake often resort to promoting such technologies by offering incentives that include soft loans, loans, grants and subsidies. The practice of offering subsidies has become so common and routine that the situation is such that without offering a subsidy no farmer is willing to even test a technology, not to speak about its adoption. Other reasons for poor uptake are that many of the technologies are not need based and field-tested or the economic viability not proved or the technologies do not fit in to their operational skill levels or the costs are too prohibitive.

The present paper describes an alternate approach in the light of a study carried out in Orissa and Andhra Pradesh during 1997-2000 in the marine post-harvest sector. Based on the lessons learnt, a participatory planning approach to ensure better adoption was proposed and described here.

Present project identification and extension methods

A review of the currently used project identification methods indicate that the project idea generally originates in the mind of a researcher drawing upon several stimulants such as literature survey, peer pressure, role models from similar or related sectors, felt need by the researcher or colleagues, feed back from the farmers or other end users or other stake

holders. Of these, except for the past, all other sources are not demand driven. This is the greatest drawback in the project identification process followed at present. The simple fact that the need is not felt by the end users itself is the root cause for poor technology adoption. Further, if we closely examine the methods of extension used to promote technology uptake, we will realize that all these methods such as oral and visual presentations in the communities, visual and print media, demonstrations, field trials, melas and fairs are all aimed at information dissemination. There are a few methods focusing on training and skill development. However, the most popular and extensively followed method is the loan / grant / subsidy method.

What is the present status of technology adoption in the fisheries sector? The scenario in the mariculture sector is analyzed here as a case in point. (Table 1)

Table 1. Status of technology adoption in mariculture

Technology	Level of adoption
Shrimp culture	High
Crab culture	Moderate
Mussel farming	Moderate
Oyster farming	Low
Pearl oyster farming	Low
Seaweed culture	Nil
Marine Ornamental fish culture	Nil
Sea cucumber farming	Nil
Pelagic crab culture	Nil

Road map for an alternate approach

In view of the general failure of the present methods followed for technology dissemination and adoption, it is thought necessary that an alternate approach may be attempted in order to increase the uptake and reduce the dropouts. The participatory intervention method was field-tested and level of acceptance evaluated through an independent process.

What is participatory intervention? The concept hinges on participation of end users in decision making. End users decide on their requirements and choose what is best for them. They field test them for potential benefits and adopt the technology / intervention which fits in to their agenda. This agenda may include their liking of the idea, availability of resources like time, labour, materials, money, skills *etc.* The role of scientist is developer and facilitator. The presently followed extension menu is not used, and as a consequence, time effort and money are saved.

The participatory process

The key elements of the Participatory process are listed below and depicted in Fig.1.

1. Developing an intervention menu

Steps

- Group discussion with end users
- Drawing up of list of practical and potential ideas or need
- Sifting out ideas which are less appropriate
- "Initial intervention menu" is now ready which is a mix up of intervention ideas provided by the end users, facilitators and also from existing practices

2. Refining an intervention menu

Steps

- Peer review of menu by other development workers or facilitators outside the group
- Quality control or cross check the menu the appropriate ness and also to get other ideas
- Analysis of feedback from peers
- Sifting out inappropriate ideas
- Produce the revised menu at the end of the brainstorming with end users

3. Letting end users choose intervention option

Steps

- Discuss the final menu with the end users in a semi-structured interview
- Support oral discussions with audiovisual aids to get a full idea to the end users to whom the concepts may be new. This allows the end users to decide which, if any, of the intervention ideas they felt were appropriate and which could benefit them. This also enables the end users to suggest how interventions could be adapted to better suit their own circumstances. Feedback enables to understand whether the ideas were appropriate, whether they were interested in trying it and what the reasons were for either accepting or rejecting an idea.

4. Preparation for field testing menu

Steps

- Prepare an intervention facilitator team
- Draw up a group of end users willing to field test the intervention idea
- Plan the step by step activities
- Introduce the intervention to the community
- Provide the required training or skills

5. Planning meeting prior to field trials

Steps

- Specialists from different fields meet the community
- The team get to know each other and foster team spirit

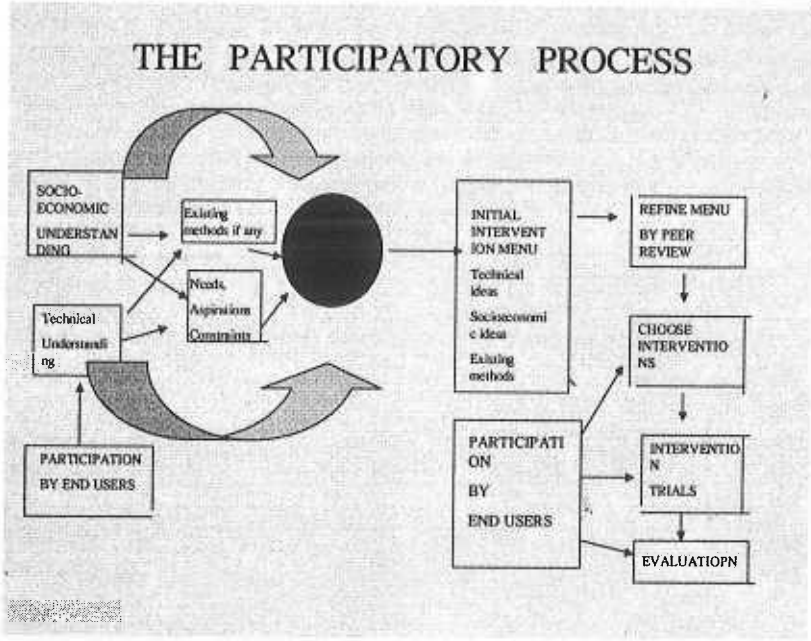
- Clarify interventions planned
- Prioritize interventions to suit community needs
- Identify changes needed to suit local conditions
- Discuss previous related work experiences
- Define roles and responsibilities of the team.

8. Intervention trials

Steps

- A period of intervention activity.
- Development workers / facilitators work with the end users sharing the skills and experiences, allowing the end users to innovate and modify.
- An evaluation to assess the success or failure

Fig.1 Diagrammatic presentation of various steps for the Participatory Process



6. Familiarization with the community

Steps

- Village walks
- Learning through serendipity
- Meeting key stake holders
- Explain intervention ideas
- Explain benefits
- Seek co-operation
- Do not raise expectations
- Listen and give consideration to dissent

7. Training and demonstrations

Steps

- Provide skills through working together
- Provide implements or special tools not available with the community
- Allow innovations and refinement
- Consider this a two way process thus learning much from the exercise
- Provide minor inputs when necessary
- Observe and refine approach for future

9. Post intervention monitoring

Steps

- This involved a local member from the team
- Initial monitoring was daily for one week subsequently once a week visit for monitoring was done for three months
- Monitoring was intended to:
  - Enable the end users receive advice and guidance until they had perfected the use of the interventions
  - Maintain the user's interest in the work
  - Obtain the feed back from the end users
  - Quantify the effectiveness of the interventions

10. Evaluation

Steps

- The evaluation is carried out by an independent specialist.
- The objective is to check whether intended benefits were realized or not.

- The evaluator tries to obtain the perceptions of the users to the interventions.
- A general qualitative evaluation is carried out by "willingness to adopt" principle where the readiness of the stakeholders to adopt the technology coupled with "if and but" conditions is taken as a positive attitude for adoption.
- Views on the benefits from others in the community who were watching the process taking place were also obtained.
- This resulted in identifying successful interventions that could be promoted and disseminated and highlighted constraints that limited the effectiveness of other interventions that were not successful.

Lessons learnt

The study provided much valuable information. The best lesson learned was that interventions may appear appropriate and beneficial to outsiders, but may not be always appropriate to the end users. It was also realised that trying to encourage ideal practices may be impractical and even result in failures. The ideal practices should go hand in hand with the perceptions with the communities and the style of functioning. It was also realised that some ideas may be too simple and the end users may not be overwhelmed by these because they were expecting some high technology or immediate solutions. Local practices and methods are matched to market dynamics and interventions may not positively benefit some persons/ practices. The team also realised that all interventions may not produce expected results and interventions should get adapted for local situations and innovations. It is also possible that some interventions may need continued support. It also proved that unexpected benefits also may come out of interventions

The Participatory Intervention Model is proposed as an alternate to the advisory extension model currently used, and not a substitute. There have been occasions when advisory models have worked. Therefore the decision to use which model where rests upon the wisdom and field experience of the developer / facilitator. A positive aspect of the participatory model is that it can be adopted and modified to suit local situations Experience has shown that participatory models work better when decisions affect the lives of people involved. Participatory models are extensively used in many other countries successfully and therefore this can be tried in other situations in India as the first trial in the present study yielded very positive and encouraging results.

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