

## **Impact of externally funded projects on development of research capability of national agricultural research system**

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### **Abstract**

The Indo-UK Forage Production Project was conceived to train and equip scientists of the Indian Grassland and Fodder Research Institute (IGFRI), Jhansi (India) to address technical needs of farmers within their socio-economic settings. The Project started in April 1994 and remained operative for 5½ years. It was funded by DFID, UK, and involved collaboration with the Institute of Grassland Environmental Research, Aberystwyth (UK). During the project, a considerable number of scientists were trained in modern research techniques in various areas of fodder production and utilization, participatory research methods, Agricultural Research for Development (ARD) approach, Team Building, Process Management, and Project Management. The Project provided equipment to increase research and IT capacity. These activities led to enhanced research capacity of IGFRI in assessing clients' needs, and screening existing technologies against social equity, economic competitiveness and environmental sustainability. The impact assessment indicated that there is a need to continue to develop skills in proposal writing, problem analysis, and project design, and monitoring and evaluation methods. When planned properly and implemented judiciously, externally funded projects can effectively enhance research capability of national agricultural research system.

**Key word:** Fodder production, human resource management, impact assessment, international collaboration

### **Introduction**

A review of the Department for International Development (DFID), UK funded research and development activities in India concluded that the benefits of dairy development work generally by-passed resource-poor farmers. This was attributed to important farm level constraints being overlooked during the technology generation and dissemination processes. With this in view and having identified that the provision of adequate feed and fodder resources were key limiting factors, the Indo-UK Forage Production Project (FPP) was first proposed in the late 1980s. The FPP, initiated in 1994 for a five-year period, implemented at the Indian Grassland and Fodder Research Institute (IGFRI), Jhansi (India), was completed in September 1999. The FPP was conceived mainly to re-orient the direction of research being carried out at IGFRI, Jhansi towards the technology needs of resource-poor farmers operating on marginal lands.

It was then considered useful to retrospectively see if the project has been successful in achieving the envisaged goals, and its impact on research capacity on IGFRI. Such information would help towards more objective planning of future projects and making better use of available resources.

### **Materials and methods**

The study material was researchers of the Indian Grassland and Fodder Research Institute which is a unit of the Indian Council of Agricultural Research. The council was established in 1961 with the mandate of conducting research on fodder production and utilization. The Institute has three regional research stations at Dharwad (Karnataka), Avikanagar (Rajasthan) and Palampur (Himachal Pradesh). Over 120 researchers of various seniority and disciplines, like, economic botany, agronomy, plant breeding, genetics, horticulture, soil science, animal nutrition, veterinary, agricultural engineering, chemistry, physics, etc are working on inter-disciplinary projects. Major emphasis was on developing technologies for production and utilization of animal fodder.

The project logframe was used as a tool for the impact assessment study. Project activities were related to one output or the other and the various outputs collectively contribute to achieving the project purpose. Impacts were measured in terms of fulfillment of the envisaged goals and purpose of the project. The goals of the project are linked with different outputs through purpose given in the logframe

of the Project. The methods applied for assessing impacts of the Project were based on a bottom up approach; first the extent of the achievement of various outputs is verified through objective verification indicators and means of verification. The achieved outputs are linked with the purpose and then with the goals of the Project (Fig. 1). Activity flow chart of the Study is given in Table 1.

#### ***Review of publications related to the Indo-UK Forage Production Project***

All project related publications/documents were reviewed to assess impact of the project. Information generated from the review of publications of the Project was verified through personal interactions with the concerned person.

#### ***Criteria for selection of scientists for interviews:***

Scientists of the Institute are a large heterogeneous group with varied capabilities and needs. It was envisaged that the Project had created different impacts on different types of scientists. Therefore, it was considered a prerequisite to typologize them into small homogenous groups for the purpose of interviews. The following criteria were adopted to typologize them:

#### **Presence during most period of the Project**

##### ***Research experience***

Long experience (All Principal Scientists)

Medium experience (All Senior Scientists)

Moderate experience (All Scientists (Senior Scale) and Scientists)

##### ***Association with the Project***

Close association (Trained abroad/closely associated with Research Grant Fund, RGF projects) medium association (Trained in India/visited abroad, associated with RGF projects), and low association (Not associated with activities of the Project, control group). The viewpoints of the control group regarding the Project were obtained to provide a baseline for assessing impacts and their utility to research in the institution as a whole. One recently transferred scientist with long experience plus nine scientists with medium or moderate experience, formed the control group. The number of scientists in each of the groups and the sample size are given in Table 2.

##### ***Questionnaire***

An open-ended semi-structured questionnaire was designed to gather perceptions and perspectives of scientists of the Institute about the objectives, achievements and impact of the Project.

## **Results**

The following activities of the project contributed toward enhancing research capacity of IGFRI, Jhansi.

#### ***Training in research techniques***

Twenty-nine scientists were trained at IGER, UK, in modern research techniques in the areas of germplasm collection; molecular biology; forage breeding, evaluation, and quality enhancement; forage seed production, testing and quality control; grass/legume agronomy, nitrogen fixation and nutrient cycling; and agroforestry. Subsequent to this training, most of the scientists set up research projects relevant to rain fed agriculture and utilized the skills acquired during the training programs.

A forage seed testing laboratory was established (following a training assignment on pasture seed analysis in Thailand) to cater for the need for seed quality control. The lab offers forage seed testing and quality control services to small holder farmers engaged in forage seed production, and services to seed production programme at the Institute.

#### ***Training in participatory research***

Forty-five scientists in seven batches were trained in participatory methods of appraising needs of rural communities. Most of the PRA training were conducted in collaboration with the KRIBHCO Indo-British rain fed farming Project, West (KRIBP,W), Dahod with facilitation by the UK consultants. After the training, focused PRAs were conducted around Jhansi and Dharwad to identify needs and problems of local farmers. Information gathered through PRAs was used to formulate research projects. The interaction with KRIBP(W), Dahod led to the training of five batches of *jankars* (knowledgeable farmers in their project area) in fodder production technologies at the Institute.

#### ***Training in development-oriented research***

Five IGFRI scientists were trained in three batches in Development-Oriented Research in Agriculture (DORA) methods (multidisciplinary research and team dynamics). Collaboration between IGFRI and ICRA led to implementation of two field studies in India by the joint Indian-international teams. Another field study is being planned with KRIBP(East), Ranchi, to understand fodder related technological information needs of farmers in the project area, and to identify potential roles of the IGFRI to fulfill these needs. Twenty-seven IGFRI scientists were trained by MANAGE (Hyderabad) in the Team Building and Process Management, and Project Management courses.

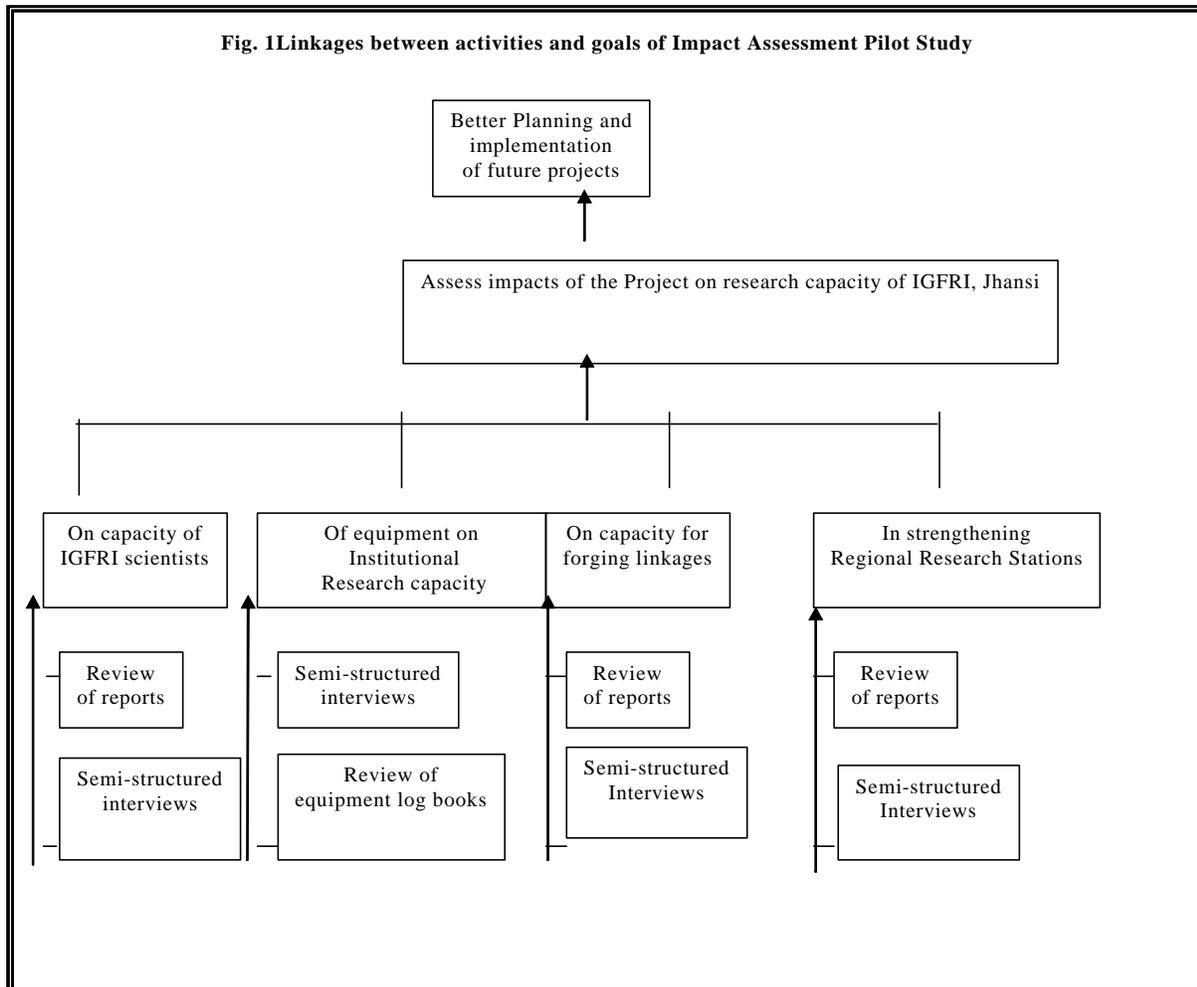
**Table 1. Activity flow chart of Impact Assessment Pilot Study**

Review of logframe of the Project- initial and revised
Review of project reports and co-ordination reports to learn about activities undertaken under the Project
Review of available literature like consultancy reports, trainee reports to assess impacts of activities
Semi-structured interviews to obtain perception and view point of IGfRI scientists about impacts of the Project
Data analysis and interpretation of results
Report writing and circulation of draft report
Report presentation in End-Project Workshop to obtain feedback
Incorporation of suggestions and finalization of report

**Table 2. Number of scientists in different types and control group**

SN	Criteria	Long experience	Medium experience	Moderate experience	Total
1	Close Association	2(2)*	9(8)	14(8)	25(18)
2	Medium Association	3(2)	14(7)	13(4)	30(13)
3	Low Association (Control)	2(1)	17(5)	28(8)	47(14)
4	Total	7	40	55	102
5	Per cent of 1+2 to total	71	58	49	54

\*Number of scientists given in parentheses were interviewed



***Exposure to international meetings***

The Project supported a considerable number of scientists of the Institute to participate in number of workshops organized in India and abroad. About 10 scientists participated in international scientific gatherings.

***Use of information technology***

Modern IT equipment were made available to the IGFRI and necessary training was imparted to use them. As a result, a growing number of the IGFRI scientists are using computers in research and e-mail to communicate with outside scientists.

***Impact of the project activities on research capacity of IGFRI***

The above mentioned inputs contributed to enhanced capacity of IGFRI for the management of research as outlined below:

***Capacity for assessment of client needs***

There has been a marked enhancement in the capacity of the Institute to assess client's needs using participatory approaches and DORA methods. A workshop on "Client Orientation" was organized at Jhansi to assess whether technologies lying on shelf had potential for uptake and impact and, if so, how they might be most rapidly disseminated. Having identified reasons for weak client orientation, a client-orientation strategy was designed for the Institute, emphasizing the need for:

- Strengthening the use of PRAs
- Institutionalized capacity for regular assessment of clients and their needs;
- Creation of a Business Liaison Unit for marketing technical services and products.

***Capacity for screening technologies***

The IGFRI has developed capacity to screen technologies against the following criteria:

- Social equity - Incorporation of gender and poverty issues
- Economic competitiveness - Incorporation of economic viability of technologies
- Environmental sustainability - Ex-ante analysis of the impact of technologies on environment and sustainability

***Utilizations of "technology-on-shelf"***

A follow-up workshop on "technology-on-shelf" recognized that the Institute has developed many fodder production technologies over the years, but farmers have adopted only a few of them. For improving the uptake of developed technologies, it was acknowledged that a basket of choices should be offered to clients, with special reference to small, under-utilized areas of land on farms, such as bunds, and

with due consideration to the socio-economic and ethnological conditions.

***Enhanced capacity for extension communication-IGFRI Newsletter***

The IGFRI Newsletter, published quarterly, is disseminating technologies and information to a wide clientele. The IGFRI started publishing the Newsletter in early 1990s. A researcher was trained at the IGER in Newsletter Publication. The quality of the Newsletter improved significantly.

***New research***

The following new research initiatives, largely based on clients' needs and participation and on-farm trials, were financially supported, primarily via a Research Grant Fund:

- Forage seed production at farmers' fields
- Forages on bunds
- Evaluation of stay green trait in sorghum
- Socio-economic impacts of improved management of goat production
- On-farm evaluation of somaclones of *Dicanthium*
- On-farm evaluation of superior *Cenchrus* accessions
- Participatory varietal selection in forage legumes at farmers' fields
- Collection, evaluation and introduction of fodder trees and shrubs

***New international and national linkages created***

Encouraged with the success of the Indo-UK Forage Production Project, the IGFRI developed other international linkages, which has resulted in the following collaborations:

***Collaboration with ICRA, The Netherlands***

A visit of senior IGFRI scientists to the International Centre for development oriented Research in Agriculture (ICRA), Wageningen, The Netherlands has developed into an effective long term collaboration. Since 1997, ICRA has been training scientists of the Institute to work in interdisciplinary teams and use participatory and system-oriented approaches for the identification of client-oriented and need-based research activities.

***Collaboration with ACIAR, Australia***

The ACIAR, Australia and the Institute have collaborated in the project "Use of high yielding anthracnose resistant *Stylosanthes* for agricultural systems".

***Evidence of enhanced research capability***

A focused PRA conducted on constraints of forage seed production at Dharwad, during a Forage Seed Workshop in December 1999, has led to a Status Paper on forage seed availability and production in the study area. Similarly, a Concept Note on nutrient management/indicators of watershed health, developed during the workshop/stakeholder planning meeting, was followed up in an IGFRI-ICRA joint field study conducted during April-July 1999 at Bellary.

## Discussion

Based on the experience of the Forage Production Project at IGFRI, a reasonably safe extrapolation may be made to state that externally funded projects have potential to capacity of National Agricultural Research System. They are more effective when local needs are given due consideration during planning phase, and implementation is open to the changed realities. While looking at the Project, in general, the majority of the project outputs were considered to be either “satisfactory” or “very good”. As such, the Project can be considered successful. However, progress needs to be made in addressing certain issues and institutional constraints including:

- Incentives for high-achieving staff
- Simplifying administrative procedures
- Increasing levels of overall funding

Although these constraints are mostly beyond the control of IGFRI management, progress needs to be made wherever possible. Additionally, there is a need to continue to develop skills in project management and, specifically, in:

- Proposal writing
- Problem analysis and project design
- Using the logical framework
- Monitoring and evaluation methods

Similarly, further consideration needs to be given to research management training with sources of funds and revamping existing training courses offered by IGFRI to suit clientele's needs.

## Conclusion

Externally funded projects can enhance research capability of National Agricultural Research System to a great extent. However, the local institute should look forward even when externally funded projects are over. They should continue to achieve improvement in the selected areas. As in case of IGFRI it should:

- Prepare an inventory of “technologies-on-shelf”
- Categorize IGFRI technologies and match them with the needs of different agro-eco systems, agrarian systems and different types of farmers
- Increase numbers of on-farm research projects
- Seek more professional training in multidisciplinary and interdisciplinary team work
- Endeavour to rectify the imbalance between numbers of social scientists and bio-physical scientists, and gender issues within the IGFRI.

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