IDRC-Lib 39111

INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

Office of Planning and Evaluation

Ottawa

EVALUATION IN THE MANAGEMENT OF RESEARCH

Douglas Daniels
Tim Dottridge
August 1988

Paper prepared for the Latin American Seminar on evaluation mechanisms in agricultural research institutions, taking place in Paipa, Colombia, from 28 August to 2 September, 1988.

The views expressed in this paper are those of the authors and do not necessarily reflect those of the International Development Research Centre. Douglas Daniels is the Director and Tim Dottridge is Senior Planning Officer in the Office of Planning and Evaluation of the IDRC.

ARCHIV

TABLE OF CONTENTS

ANNEXES

SUMMARY

This paper emphasizes that evaluation can be a major tool for research managers in providing a part of the information they require, and that it should be an integral part of the management function. Evaluation has often not served managers well since it has been divorced from management information needs. The importance of evaluation in adding to the stock of knowledge on the utilization process and on the impact of research is acknowledged, but it is proposed that most evaluation resources should be directed to addressing key management issues related to ongoing research program activity.

The development of the evaluation field is traced in very general terms to show that it has become a multi-million dollar industry and is slowly maturing. Reference is made to the debate between rigour and relevance in evaluation, with the conclusion that the two extremes must be reconciled for practical evaluation. A number of general principles are identified based on previous experience in evaluation, such as ensuring utilization of evaluation results and the importance of the process of evaluation.

Major issues for research managers are to make best use of evaluation without it being perceived as a threat; and to address the multiple purposes of evaluation in ensuring balance between information for internal use in management and resource allocation matters, and information for use outside the research process. An attempt is made (Annex 1) to put evaluation as a tool in the context of the overall information requirements of agricultural research managers. A summary is given of the range of choices that managers face in terms of type and level of evaluation and the importance of evaluation assessments in selecting from a smorgasbord of options.

The need for information on research outcomes and pay-off, in many cases for an audience external to the research process, is discussed. In relation to information requirements outside the national context, it is recommended that national organization have the primary responsibility for all program management, including evaluation.

Different types of evaluation (ex ante, monitoring, ex post, impact) are reviewed with some comment on their use in agricultural research. In terms of the level, it is argued that the results of evaluation are often most beneficial when it focuses on a wide subject, eg., a broad look at the overall system.

Introduction

The main thesis of this paper - and we hope a theme running throughout the entire seminar - is that evaluation*[1] can be a major tool for managers in providing them with a part of the information that they require for their tasks; and that it should be an integral part of the management function. But we shall introduce a note of caution from the outset: evaluation can provide only some of managers' needs - and only on the basis that certain conditions are fulfilled.

We believe that managers have often not been well served by evaluation as a tool because it has been divorced from meeting managements needs. Evaluation has value only when the information and analysis are used. Thus there is value when the information corresponds to the needs of a client and can be adequately communicated to that client, not when it deluges him or her with a quantity and nature of information that cannot be used. A great deal of discussion of evaluation proceeds on the assumption that it must take place and that its value is given. It is not. There is a real danger that research systems may establish a set of evaluation activities that absorb time and resources, with possible negative effects, and with a product of limited value that is not used.

The challenge for managers then is not an easy one. It is to design and implement an evaluation process or a set of activities that is most appropriate to their needs. There are no ready-made solutions or turn-key

---

[1] * the systematic collection and analysis of information on what has happened or may happen

systems which can or should be adopted in all cases; nevertheless, there is a great deal to learn from the available literature and of course from one another's experience. Evaluation has passed through an age of extravagant expectations and reached, we hope, a certain maturity when it can survive some fairly tough questioning: what can it really offer? What can it do and *not* do? How useful is it? Before addressing the specific role of evaluation in agricultural research evaluation and citing some of the things that have worked, we will review briefly some features and lessons from evaluation globally, for many of the same issues will be addressed in this meeting.

Evaluation - a brief overview

Two authors writing about evaluation in 1981 have said "In terms of world culture, perhaps the two most distinctive U.S. contributions of the 1970s are the movie "Star Wars" and evaluation research"(1)**[2] and they went on to identify the main similarities between these two contributions: both are a mixture of reality and fantasy, both have proved lucrative, both have been critically examined and acclaimed by other nations and now both have been refined and expanded in concept during the last decade.

Other authors have reminded us that evaluation is not something that suddenly appeared in the USA in the last few years. Contrary to some claims, evaluation has been cited as "the oldest profession" on the basis of a verse

---

[2] ** Numbers in parenthesis refer to the reference notes at the end of the paper.

from the Old Testament of the Bible (Daniel, Chapter 1, verse 16) relating to evaluation of a special education program for the children of Israel(2). Evaluation has also been traced in China as early as 2200 B.C. when the Emperor instituted proficiency requirements for his public officials(3).

While these historical reminders are salutary, clearly the systematic use of evaluation is a more recent occurrence. Freeman and Solomon(4) tracing the development of contemporary evaluation research in the USA have suggested three distinct phases for its development: first an "extended and deprived infancy" from 1920 to 1969, then a brief "adolescence" in the 1970s and, finally, a present day state of "gawky and floundering adulthood" since the early 1980s. While their consideration is essentially of government programs' evaluation in the USA, one can find a similar evolution in other cases and places - though not all industrialized countries may have achieved adulthood(5). Similarly, many third world countries have started to develop their activities in this area; India, for instance, has had a "Programme Evaluation Organization" since the 1950s, well ahead of many of the industrialized countries(6). For some third world countries, their first brush with evaluation has come through, usually external, evaluation of programs or projects which are receiving support from external funds (Official Development Assistance - ODA). In relation to evaluation of ODA, Cracknell(7) has also identified three main phases of development along the same lines as those mentioned earlier for evaluation of US government programs, with ODA evaluation coming of age only since 1984. The summary of the global workshop on agricultural research evaluation(8)- distributed earlier to participants - suggests that there may, however, be a

fourth phase necessary in which donors begin to rely on evaluation done by national programs themselves or at least in tandem with national needs. The disadvantages of donor evaluations based on external models and information requirements and foreign evaluators will be well known to most of you participating in this meeting.

In summary, evaluation has in recent years developed into a multi-million dollar growth industry fuelled by both national government and ODA funds. If there has been a painful passage through a period of extravagant expectations and subsequent disillusionment, what can we learn from the expenditure of all these dollars?

One of the major issues of much debate has been centred around the notion of the "utility" of evaluation work. While this is now recognized as a major criterion for undertaking evaluation, there is also a debate that Patton(9) has characterized as one between the *Research/truth tradition* of evaluation which is concerned about independence, integrity, rigour and still operates to some extent out of the context of value-free notions of science and the ***Practice/action perspective*** which emphasizes putting the evaluator into the political frame, to pursue use, to be involved in facilitating use and advocating on behalf of findings. This has also been called the "rigour vs. relevance" debate(10). For the former, it is the production of valid results that counts but what happens to them is somebody else's concern, while the latter perspective takes a more activist view of the evaluator. We do not see the two perspectives of Research/truth and Practice/action as irreconcilable opposites,

but rather as two aspects of the same discipline that have to be reconciled to produce evaluations that are the most value for all interested. Rigour and relevance have to be reconciled in some sort of "practical rigour"(11).

An overall review of practices and experiences in various countries and sectors, including that of ODA, suggests that there are a few general principles that have emerged in recent years and are considered important landmarks for the continuous development of evaluation. Some of the main ones, accepted for an increasing number of evaluations, are:

(1) the central issue is utilization : "doing evaluations that are useful and actually used!"(12).

(2) to improve the results of evaluation and its potential utilization, it is important to involve clients and stakeholders in all aspects of the evaluation process(13);

(3) the *process* of evaluation is as important as the product(14);

(4) potential users should not have unrealistic expectations about the evaluation's results that do not correspond to the capacity of the resources, information and methodology available and utilized(15);

(5) the more highly focused the question is, the higher the utilization potential(16);

(6) evaluation should aim to provide a positive, constructive contribution to the project/program it investigates (instead of trying to find fault) (17);

(7) 80% of the value of an evaluation can often be had for 20% of the effort by focusing on key issues(18).

We will further explore some of these points in the rest of the paper.

Uses and purposes of agricultural research evaluation

Given the fact that agricultural research is usually the largest research sector, it is appropriate that some of the most active initiatives in evaluating research in the Third World are occurring in this field. The discussions by national agricultural research managers in Singapore in 1986 confirmed both a growing interest and activity but also many cases where evaluation is either not used or is having limited value(19).

There are a variety of reasons that explain why research managers have had difficulties in integrating effective mechanisms and procedures into their organizations. Some stem from the very creative nature of the research enterprise. Others, however, are not inherent and thus could be modified, and depend often on defensiveness before the perceived threat of "program evaluation." While the evaluation of individual performance has always been intrinsic to science(20), there is a novel element involved in that scientific activity and research are seen more and more clearly as "economic" activities

requiring resources and having a potential pay-off in terms of their contribution to development. As the OECD recognized "the emergence of new, exploratory types of evaluation at the institutional level has generated uncertainty, not to say deep insecurity, among those responsible for managing research(21)." These attitudes will not change until management and staff have a common understanding of the importance of evaluation and until evaluation activities are seen to contribute constructively to the research process.

This then is one of the first challenges of the research manager and evaluators. It can be facilitated by involving scientific staff in discussions on the need for and uses of evaluation as well as ensuring that evaluations, especially in the initial stages of an evaluation program, emphasize those positive elements which will improve the research programs and working environment of scientists. Introducing critical assessment of individual scientists' performance at this level can be very counterproductive and develop strong resistance.

A second issue arises from trying to address the multiple purposes of evaluation with the following being some of the objectives commonly cited:

- to contribute to improving operational management;
- to ensure quality of research and contribution to science;
- to verify the development impact, effects and utilization of research outputs;
- to assist in broad policy decision-making including resource allocation;
- to act as an information reserve;

- to ensure accountability; and consequently,
- to foster political and financial support.

This list includes questions of ***direct*** interest to research managers in the accomplishment of their tasks and other of ***indirect*** interest (as will be seen indirect may not be the best term). There is a distinction between evaluation information required for the ***internal*** workings of the research enterprise, under the control of the manager, and information required for ***external*** purposes. Studies for accountability and showing the rate of return to investment in research are examples of information required for an audience outside the research enterprise - their vital influence on the level of resources available to research, however, make it a little ingenuous to call these of "indirect" interest to the research manager!

Information for research managers

Annex 1 shows areas in which agricultural research managers might require information. The efficiency and effectiveness of resource use in the research process (areas 5 and 6) are of direct interest to them, and are areas in which evaluation can make a contribution. In terms of setting research priorities (area 2) and allocating priorities (area 3), ex ante evaluation has a role to play, and others outside the research enterprise will clearly have an interest. For the area dealing with research outputs (7 and 8), research managers clearly have a major interest in knowing what has happened with and as a result of the products of research. However, these areas start to move away from managers' direct sphere of responsibility and control and include more and more factors which are beyond their influence. As such, they need to

include other interested parties in study of these areas - and maybe leave some of this work to other actors. Much of the current evaluation interest in research deals with the impact of research on development. This is in many ways a new research area (extending into the more general consideration of the factors that make for technical change) and responsibility for work in this area must be shared and not laid exclusively at the door of "evaluation of research."

Annex 2 shows some of the range of choices of evaluation that research managers face: evaluation at different levels of generality from the individual project to national program; from the disciplinary activity through to systems and assessment of operational issues like training which cuts across programs. This wide range of possible areas of evaluation as well as different users creates a serious problem of choice.

Resources for evaluation will be limited if not by the financial and human resources available for evaluation, then by the *capacity* of managers to select evaluation issues to be addressed, to monitor, digest and use the results in improved management decisions. This latter constraint of management resources to absorb and act on evaluations cannot easily be overcome since our own experience indicates that the process can be as important as the product. It is essential for the user to be involved in helping define what information they need to have; what methodologies and attendant limitations in analysis are possible and what results are produced.

The review of Thailand's evaluation experience presented at the Singapore workshop provides one indication of how important management involvement is. The Poverty Eradication Program was selected as the best

example of an effective evaluation program precisely because of the active involvement in an ongoing review committee in monitoring and evaluating various components. "Because monitoring within the PEP is carried out by a special body with direct and strong support from the Prime Minister's Office, there have been several tangible results. Some ongoing projects have been modified and improved, some unsuccessful projects have been terminated..."(22).

Evaluation assessment

This manager involvement should begin at the very initial stages of selecting which kinds of information needs should be addressed and which users will be served. An ***evaluation assessment*** at this stage can often sort out and eliminate attempts to analyze what is not necessary or possible. Evaluation can provide reliable, credible and relevant information on the operations of projects/programs for modifying them or designing new ones. However, evaluation cannot provide on its own "new, fresh innovative solutions to problems, although disciplined investigation of actual performance by innovative minds may be one of the best ways of identifying practical new ideas."(23) Thus, the role of evaluation is "not to produce authoritative truths but to clarify, to document, to raise new questions and to create new perceptions."(24) Evaluations can be useful in telling us ***how*** to do things better by documenting and analyzing experience, but they are usually not so helpful in telling us, starting from scratch, ***what*** to do -- though ex ante evaluation may help to discriminate between a set of planned activities competing for the same resources. To find out what to do, one needs better market research, the development of science and technology indicators and resource allocation analysis(25).

Secondly, this assessment stage can be used to reduce the scope and different objectives of an evaluation. It may often be possible to satisfy the information needs of different users by a modest exercise and hence the suggestion that, in many cases, 80% of information needs can be met by the first 20% of the resources devoted to a possible evaluation. Evaluators are not unlike other researchers in being tempted to provide all the information they have available, rather than selecting only what is pertinent and needed.

The third and most essential reason for careful assessment of evaluation needs arises from the existence of multiple possible users of evaluation. The issue of using particular evaluations to meet multiple user needs is one that must be carefully considered. Resources for evaluation are limited, and the idea of serving several users with the same evaluation is attractive, but a danger exists of inadvertently introducing information distortion and not satisfying the specific needs of any one user. The information will, of course, be used by others -- but it is important to maintain the focus of the evaluation and not jeopardize its usefulness to the primary client by trying to overload it.

Serving external information requirements

As mentioned above, it is worth making distinction between those evaluations which are being undertaken primarily for the use of research managers, and those which are required for ***external*** purposes. The most important user in most cases is likely to be the research manager responsible for allocating resources. However, individual scientists and other actors outside the research system can be important users of such information. Developing a

national constituency of knowledgeable and supportive actors is one of the most important requirements for many national systems, given the generally weak level of support and continuing financial pressures on governments. Information may have to be tailored to meet the needs of different groups such as politicians, central funding agencies, ministries, extension agencies, producer associations and individual farmers. Some of these external actors may be best served by general publicity on achievements of research and its effects on value of output. Others need more analytical assessments. Clearly national research managers feel this responsibility to provide information and evidence of the achievements to which research has contributed, although researchers themselves may feel they have little responsibility. In some cases, research staff need to be made aware (e.g., through staff seminars, etc.) that their research must be relevant and responsive to national needs and perceived as such.

In demonstrating achievements and the need for funding, the objectiveness of research managers may be questioned. There may therefore be a greater tendency to use evaluators or researchers who are external to the agricultural research system. In agricultural evaluations that IDRC has supported in Thailand, for instance, the Department of Technical and Economic Cooperation (DTEC), the agency controlling the approval of foreign-funded projects, and the National Economic and Social Development Board (NESDB), the government's central planning agency, were both involved. We believe their participation has made these central agencies more sensitive and responsive to the financial constraints and special needs of Thai research institutes.

The advantages and disadvantages of taking evaluators from within or from outside the research institution have been well demonstrated elsewhere(26) and are not repeated here. Managers should not be afraid to experiment in using specialists with different perspectives than the immediate focus of the evaluations. Extension staff, communication specialists or economists can have penetrating insights into the overall approach.

Where the primary audience is external to the research process, the same considerations of accurately identifying information needs are present in evaluation exercises. Does rate of return analysis, with the implication of precision through presentation of aggregated quantitative data, serve the cause of research better than studies of particular cases where research can be shown to have changes the lives and well-being of an identifiable group or community? The answer may depend more on the persons who make up the target audience than any unswerving rule. Evaluations are most effective when the audience is seen as persons rather than institutions.

In cases where evaluation is initiated by a foreign-funding agency, there has been a tendency to use foreigners as evaluators, and to direct evaluations, first and foremost, to the interests of the donor. Such practices have a series of drawbacks, such as:

a) the findings may be relevant only to the external agency and not pertinent to the needs of local institutions;

b) results may not reflect an adequate understanding of the local situations and problems;

c) there have been inadequate attempts to include local evaluators or to strengthen local evaluation capacity.

Clearly, major changes are required in the way the various actors interact which we suggest should start with the simple and logical principle that "National organizations have the primary responsibility for program management *including evaluation*"(27). The Singapore publication outlines a number of steps to increase national involvement(28).

Using external evaluators can be much more effective if they are familiar with the particular research environment and there is some consistency in their involvement. A good example of this is the ongoing involvement of an ISNAR consultant in six sub-sector program reviews of Indonesia's Agency for Agricultural Research and Development (AARD) over a two-year period. This allowed for use of a broadly similar format and standardized methodology which facilitates management assessment as well as building national evaluation expertise(29).

Types of evaluations

More important than external environment requirements, however, is the role evaluation can play in meeting the information needs of research managers in terms of decisions to improve implementation, management and the quality of the final research product; to encourage critical discussion inside the research enterprise on the research process; to help decisions about allocation of resources to projects and programs; to identify programs that are weak, inappropriate or duplicative and to contribute to better knowledge of the 'finality' of the research product.

The range of evaluation types should perhaps be seen as a smorgasbord from which managers can choose according to their particular needs. There are of course important benefits that can be achieved by assessment at each of the four levels of ex-ante, monitoring, ex post and impact. Still, each developing country needs to set its own priorities as to the type of evaluation which can best be emphasized in accordance with its stage of economic development and planning, and in view of the resources available for evaluation(30). A few comments can be made about the various levels:

(i) Ex ante: national agricultural research managers at the (Singapore) meeting concluded that ex ante appraisal probably provides the highest pay-off and that the quality of analysis at this level is very good in a few cases but grossly inadequate in most so that the variations between different countries in terms of quality and usefulness of evaluation was greater at this stage than any other stage of the research process(31). In terms of research donors' contributions to evaluation, most resources have been directed at the ex ante and monitoring levels. "Ex ante assessment is probably the most important in that research is an area where getting your bets right in the first place is critical"(32). Evaluations have consistently shown a number of weaknesses in project design, such as not addressing weak research and management capacity and poor links with users, that could be addressed if the lessons were fed back into project design.

ii) Monitoring:

Ongoing and monitoring kinds of evaluation are usually considered essential management tools. In principle, we agree that monitoring activities can be useful in encouraging flexibility and enhancing the success rate of

projects, but they can also be extremely time-consuming and of little value if they are not designed to provide measurement of change or are not used critically by managers.

Many monitoring reports lack any analytical or evaluative content. The volume of information produced in a large research system from such reports can be overwhelming. Unless sufficient resources are devoted to synthesizing and acting on such information, much of its value is lost, and it becomes a burden as it moves up through the different levels of responsibility. India proably has the most comprehensive evaluation system of any developing country with a review committee system established at numerous levels of the system. Even here, however, Acharya points out that "national institute meetings averaging three days monitored the progress of 183 projects, considered 48 final reports, and 65 new project proposals for a total of 296 projects, giving an average of 31 projects considered each day!"(33) In other countries, reviewers found reports were as much as two years late or no evidence could be found that they had ever been read.

iii) Ex post

Research needs at some stage to be evaluated against the project, program or institutions' own objectives. Participants in the Singapore seminar agreed that ex post evaluation can be most effective when the research objectives are carefully defined at the proposal stage. If performance criterion have been established, information on each criterion can be collected as the research is being undertaken. Some felt that the best time to decide on ex post evaluation was at the project development stage to ensure that objectives and performance criteria were clearly outlined. Ex post was felt to provide

useful information even in the absence of a formal planning system. We believe evaluation at this stage may be more useful for external users than for direct use by research managers.

iv) Development effects or "impact"

One of the most significant developments appears to be the growing interest in using evaluation to measure development effects. This is increasingly present in external ODA evaluations - but also in national consideration of research activities. There exist general difficulties in using this kind of evaluation - "difficulties in collecting adequate data present greater obstacles to doing them than methodological problems"(34). In evaluating research, there exists a dilemma between research outputs and broader impact studies. Situations abound in the agricultural field where a change in pricing policy may have a much more profound effect on production than technical change induced by new technology. If the application of research is dependent on a multitude of factors which link to development, the research institution must be clear about how far it can go to bridge the gaps between the successful completion of research and the economic and social advancement of the intended beneficiaries.

Impact studies may be appropriate to answer political concerns but not address immediate management concerns. There are some legitimate questions about the value of economic returns to research studies and particularly their limited value as a tool for resource allocation. Nevertheless impact studies can serve to elucidate better the conditions under which research has been used- or failed to have been used; some lessons from this may be ones that can feedback into the research process (e.g., the need for contact with intended

users of research at the earliest possible stage in deciding what research is to be undertaken). These studies can also serve the purpose of helping "project managers and staff to raise their eyes from their immediate concerns with the daily problems and tasks in implementation and the all too common fixation on outputs, towards the more distant objectives of the effects and impacts of their activities"(35).

Level of evaluation

It is difficult to generalize about the level of evaluation since this will depend, as in other cases, on the decision at hand and the information required. Nevertheless, experience shows that the results of evaluation are often most beneficial when it focuses on a wide subject, e.g., a broad look at the overall system. National system review evaluations have arguably had the greatest influence on the direction of research activities in many countries. The creation and structure of many existing research organization in the Philippines, India, Indonesia and elsewhere was due to the results of system-wide reviews.

One neglected area we believe can be useful in improving the efficiency of research is to focus on operational aspects that cut across particular commodity, regional or disciplinary programs e.g., the adequacy of training strategy; the degree and quality of contacts with extension agents or producer associations.

Conclusion

We have insisted heavily on evaluation being driven by user considerations -showing how they can be used by managers to serve some of their own needs for information, but also how they can satisfy the requirements of those external to the research enterprise. The emphasis is on pragmatism and experimentation, though clearly this does not discount the importance of rigour in undertaking evaluations.

There is a role for disinterested evaluation which will add to the stock of general knowledge and further work of more depth and rigour is needed particularly in impact research trying to elucidate the role and contribution research can make to development as well as in finding ways to improve usable feedback to ongoing research. However, we believe most evaluation resources should be directed to addressing key management issues related to ongoing research program activity.

Evaluation takes resources in its implementation and makes further demands in terms of managers' or other users' time and ability to digest results. It is a tool that should be used advisedly with a clear understanding of what can and cannot be expected from it. When it is warranted, however, it should not be seen as a separate activity from that of management, but rather one that is integral to and provides support to the management function. Managers have to take control of this tool and use it to their own purpose and advantage.

REFERENCE NOTES

1. Freeman & Solomon, 1981 : 12.
2. Patton, in a Seminar organized in Ottawa, July 23, 1984.
3. Guba & Lincoln, 1981 : 12-13.
4. Freeman & Solomon, 1981.
5. Derlien, 1988.
6. Berg, 1987.
7. Cracknell, 1988.
8. Daniels (ed.), 1987.
9. Patton, 1988.
10. See Ulrich, 1984 and Graves, 1984.
11. Graves, 1984.
12. See Patton, 1986; Haveman, 1987; OECD, 1986.
13. See OCGC, 1985; Patton, 1986; McQueen, 1984; Guba & Lincoln, 1981; OECD, 1986.
14. See Daniels, 1987; Peuse, 1987 : 213.
15. See Elzinga, 1981 : 29; Cronbach, 1980 : 51-54.
16. See Patton, 1988 : 121.
17. OECD, 1986 : 9-10; DAC/OECD, 1987 : 16; Perrin, 1988 : 80.
18. Rayner, 1986 : 9.
19. See Daniels, 1987.
20. OECD, 1987 : 14.
21. OECD, 1987 : 14.
22. Kamphol et al, 1987 : 57, in Daniels, 1987.
23. OCGC, 1985 : 10.
24. Lindblom & Cohen, 1979, as cited in Cronbach, 1982.
25. Daniels & Young, 1987.
26. See McLean, 1988 : 17.
27. Daniels & Young, 1987 : 5-6.
28. Berg, 1987 in Daniels, 1987. See also Berg, 1984.
29. Daniels, 1987 : 115.
30. DAC/OECD, 1987 : 5.
31. Daniels, 1987 : 7.
32. Daniels & Young, 1987.
33. Acharya, 1987, in Daniels, 1987.
34. OECD, 1986 : 10.
35. Grabe, 1983 : 63.

BIBLIOGRAPHY

Acharya, R.M. 1987. Evaluation in the Indian Council of Agricultural Research. In Daniels, W.D., ed.

Berg, R.J. 1984. Quo vadis? A look at where evaluation is heading in the years ahead. In Cracknell, B.E., ed. The evaluation of aid projects and programmes. Proceedings of a conference at the Institute of Development Studies, 7-8 April 1983, Sussex, England. Overseas Development Administration, London, England.

Berg, R.J. 1987. Donor Evaluations: What is and what could be. In Daniels, W.D., ed. 1987.

Cracknell, B.E. Evaluating development assistance: A review of the literature. Public Administration and Development, vol. 8, 75-83 (1988).

Cronbach, L.J. and associates 1980. Toward Reform of Program Evaluation. Aims, Methods, and Institutional Arrangements. Jossey-Bass Publishers, San Francisco, USA.

Cronbach, L.J. with the assistance of K. Shapiro 1982. Designing Evaluations of Educational and Social Programs. Jossey-Bass Publishers, San Francisco, USA.

Daniels, W.D. (ed.) 1987. Evaluation in National Agricultural Research, Proceedings of a workshop held in Singapore, 7-9 July, 1986. International Development Research Centre, Ottawa, Canada. IDRC 254e.

Daniels, W.D. and Young, A. 1987. Approaches to Research Donors Evaluations: A Review of the Issues. International Development Research Centre. Discussion paper.

Derlien, H.-U., 1988. Genesis and Structure of Evaluation Efforts in Comparative Perspective. Discussion draft for the working group on Policy Evaluation. International Institute of Administrative Sciences, Brussels, Belgium.

Elzinga, A. 1981. Evaluating the Evaluation Game: On the Methodology of Project Evaluation, with special reference to development cooperation. Swedish Agency for Research Cooperation with Developing Countries.

Freeman, H.E. and Solomon, M.A. 1981. The next decade in Evaluation Research. In Levine, R.A., Solomon, M.A., Hellstern, G.-M., and Wollmann, H., ed. Evaluation Research and Practice: Comparative and International Perspectives. Sage Publications Inc., Beverly Hills, California, USA.

Graves, F.L., 1984. Towards practical rigor: methodological and strategic considerations for program evaluation. Optimum, 15(4), 1984, 40-55.

Guba, E.G. and Lincoln, S.Y., 1981. Effective Evaluation: Improving the Usefulness of Evaluation Results through Responsive and Naturalistic Approaches. Jossey-Bass Inc., San Francisco, USA.

Haveman, R.H. 1987. Policy Analysis and Evaluation Research after Twenty Years.

Kamphol, A., Rungruang, I., Preeyanuch, A., Nittaya, D. 1987. Evaluation of Agricultural Research in Thailand. In Daniels, W.D. (ed) 1987.

Manwan, I. and Nestel, B. 1987. Evaluation of Agricultural Research in Indonesia. In Daniels, W.D. ed. 1987.

McLean, D. 1988. Monitoring and Evaluation in the Management of Agricultural Research. Working Paper no. 14. International Services for National Agricultural Research; The Hague, Netherlands.

McQueen, C., 1984. Linking program evaluation to decision making. Optimum, 15(4), 1984, 30-35.

OCGC, 1985. Background Notes for Seminar on Program Evaluation (What's new after twenty years). Montreal, March 7 and 8, 1985. Office of the Comptroller General of Canada.

OECD (1986). Methods and Procedure in Aid Evaluation, OECD, Paris.

OECD (1987). Evaluation of Research: A Selection of current practices, OECD, Paris.

OECD/DAC (1987). Expert Group in Aid Evaluation. Aspects of DAC Evaluation Seminar, held in Paris 11-12 March 1987. (Development Assistance Committee.)

Patton, M.Q., 1986. Utilization-Focused Evaluation - Second Edition - Sage publications. The Publishers of Professional Social Science - Beverly Hills. Newbury Park. London. New Delhi.

Patton, M.Q. 1988. The Present and Future of Evaluation: an interview with Michael Quinn Patton. The Canadian Journal of Program Evaluation, 3(1), 1988, 113-123.

Perrin, B. 1988. A Review of "Effectiveness: Reporting and Auditing in the Public Sector." The Canadian Journal of Program Evaluation, 3(1), 1988, 79-83.

Peuse, H.G. 1987. Designing, Managing and Evaluating Organization Development Projects for Improving the Performance of Rural Development Organizations. Agricultural Administration and Extension, 24(4), 1987, 213-222.

Rayner, M.H. 1986. Using evaluation in the federal government. The Canadian Journal of Program Evaluation, 1(1), April 1986, 1-10.

Ulrich, M. 1984. Rigor versus relevance in program evaluation. Optimum, 15(4), 1984, 56-63.

Information needs for managing agricultural research for development

Area of information	Type of information	Possible Sources
1. Agricultural problem and needs	Principal national and regional agricultural priorities and government plans for the sector	National development plans; government and research studies
2. Research needs and priorities	State of science (probability of breakthrough) and importance of effects of possible advance	Sectoral research plans. Ex-ante assessment/ evaluation of possible pay-off
3. Research resources and allocation	Quantitative estimates of present and planned resources and their allocation	Sectoral/institutional program/project budgets, human resource and equipment availability
4. Research organization	Linkages between component parts of the research system; and between research and extension/ development	Documentation and knowledge of formal and informal arrangements for exchange of information and experiences
5. Efficiency of use of resources in research	Whether the research process is using resources (energy, time, money) in the most advantageous way to transform inputs into outputs	Evaluation
6. Effectiveness of resource use in agricultural research	Extent to which a program achieves its intended goals	Evaluation

Area of information	Type of information	Possible Sources
7. Use of research output	Knowledge of what has been done with output from research (either technology or information)	. Evaluation . Survey
8. Development effects due to agricultural research	Social, economic, environmental effects of the adoption and use of the outputs from research	Research Some evaluation Case studies of impact studies on economic rates of return
9. Experience of technical change in agriculture	Effects of a variety of factors - land tenure, access to credit and including changing knowledge - on the situation in the agricultural sector	Research studies

Examples of the Range of Choices for Evaluations of Research

Choice areas	Alternatives within different choice areas		
Stage of research process at which evaluation undertaken	Ex ante	Monitoring	Ex-post Development effects ("impact") (if outputs from research used)
Level	Scientist	Project Institution	Program National Program Sector
Degree of specificity	Single commodity	Farming System	Operational issue cutting across programs eg. training