Policy and Management Work within International Agricultural Research*

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The diversity of players in the field of agricultural (and, more generally, rural) policy and management (P&M) research is sketched in a global overview of relevant research resources, and the small but important part played by the CGIAR Centers in this is explored, particularly for where it has maximal value in terms of international public goods, and for strategic linkage to other parts of the CGIAR portfolio. The patchy and often slender (and perhaps diminishing in specific cases) capacity of national agricultural policy research and analysis units in the less-developed world to deliver the needed research products is examined.

Introduction

The Consultative Group on International Agricultural Research (CGIAR) System of International Agricultural Research Centers (IARCs) grew out of early (beginning in the 1940s) efforts by U.S. foundations (notably the Rockefeller Foundation) to bring agricultural science to a range of less-developed countries (LDCs) that had a pressing need for increased agricultural productivity. Especially through the involvement of the Ford Foundation, there was an active engagement of social-scientists, at least ultimately of policy bent (e.g., Vernon Ruttan at IRRI), almost from the outset. As the System has grown, matured and been modified, so too has the role of and the resources given to social-science, including policy and management (P&M), research, and commitment to the field is now substantial (Table 1), although the System is but a small fraction of the global agricultural research system (Anderson, Pray and Spiridonova 1997).
[Table 1 near here]

As part of its continuing oversight of the evolution of the System, the Technical Advisory Committee (TAC) of the CGIAR from time to time examines disciplinary areas from a broad strategic perspective. The present paper is drawn from one such recent review[2] addressed to P&M research in the System (TAC 1996).

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An Overview of Policy and Management Research in Agriculture

There are many actors in the world of P&M research and quite a few of these are devoted primarily to addressing "rural" issues. It thus behoves anyone considering the role of the CGIAR Centers in this global "system" to explore first who the actors are, and second the various advantages they are perceived to enjoy and the special contribution that might or should be made by the Centers.

The research community involved with policy and management is a substantial one, whether one views it globally, or in more confined terms, such as for industrialised or more-developed countries (MDCs) only. It is still a large one for LDCs and the for tropical world generally, to mention subsets of primary interest to CGIAR discussions. To overview this community, a simple categorisation of the major groups of players is undertaken in Table 2. The intention is to provide a scheme for seeing how they align, and to set the scene for subsequent commentary.

[Table 2 near here]

The next step in proceeding to an overview is to classify the fields of research that are under discussion. A scheme is offered in Table 3, which introduces several categories of policy research and parallel categories of management research. These are intended to be self-explanatory, but the emphasis on agricultural **research** per se is driven by the topic at hand. It is necessarily the case that some work does not fit neatly into just one defined category.

[Table 3 near here]

With this step taken, the next one is to present some highly subjective, surely crude, estimates of the numbers of full-time equivalent research workers in these fields around the globe. A global perspective seems appropriate, given the potentially high level of transferability of relevant human skills. Such a tabulation is presented in Table 4. These indicative head-counts of P&M research workers suggest that a majority (but probably not an overwhelming one) of these workers are in the North, although significant (but unknown) numbers of these concentrate their efforts on the South.

[Table 4 near here]

The subjective standard errors for the "management" researcher numbers are probably rather the greater of the two but, if these data are anything like correct, it is surprising (at least to this observer) that the numbers of research workers in the management fields under review here are of the same order of magnitude (and perhaps more numerous) as for more mainstream policy work. The CGIAR is a relative late-comer to this field, and is still only a modest player. Another way of expressing this is to observe that the ratio of client partners to CGIAR researchers in management work is surely large and may possibly be daunting.

The matter of the CGIAR System effort being "small but (hopefully) beautiful" is clearly portrayed in Table 4. The indicated small proportions of research personnel in the System places a premium on arguments as to just what it is that such a small cadre of research workers, no matter how fine and committed, can really accomplish.

Criteria for Relevance of CG Research

The CGIAR has, over recent years, had several occasions to ponder afresh the criteria for inclusion within the CG portfolio. First, not unreasonably, is that the activity must be "**research**" or at least "research-related." Research is interpreted to be a systematic approach to discovering new knowledge and thus to build on the past. Research-related activities offer opportunity for more fringe activities, some of which are surely relevant in considering policy research, where the distinction between policy analysis based on existing information and policy research involving the distillation of new information, may be either fine or blurred, but is seldom likely to be crystal-clear. It goes without saying, of course, that the key consideration in this criterion is the "quality" of the research – minimally, "international" in at least one sense of this qualifier as used in "international journal," etc.

Second, the research activity must indeed be **international** in character and must contribute to a priority program that is consistent with the goals of the CGIAR. The international dimension in this sense requires that more than one LDC must be involved, and that there is some movement of information or more material aspects across boundaries. Another important aspect of the international character is the potential further transferability (spillover) of new information across national boundaries. It is natural to inquire as to just how broadly applicable policy research might be. The answer will surely depend on the nature of the policy topic under consideration. It is, of course, conceivable that some useful policy research may have very little transferability outside the particular national context in which it is conducted. This is likely to be a rather special case, however, and it is more likely that there will typically be a high degree of applicability and relevance of policy analysis across a range of analogous or broadly similar national circumstances. One contemporary example of this is analysis of reform policies that will have wide relevance in many transition economies (TEs).

A third and important criterion for inclusion in the CGIAR portfolio is that at least one CG entity must be judged comparatively advantaged and to be relatively the "best qualified" institution to undertake the designated work. This will usually be reflected in a "low unit cost per significant international research result," with benefit accruing from rapid international exchange of information that is derived, along with positive interrelationships with other activities in the Center conducting the research. Naturally, it is expected that the potential payoff should be high relative to cost.

The policy research agenda is thus wide, ranging over objectives concerned with productivity, equity and environmental issues within national borders and beyond, and

there is an analogous and somewhat overlapping breadth to the comparable issues in governance and management of public systems. In thinking about the roles of the many different actors, it thus should be necessary to consider the "quality" of the research, the "internationality" of the work, and the "comparative advantage" of CG providers versus other institutions for conducting such work.

An Analysis of the Players

In principle, it would be possible to make an assessment of all potential suppliers listed in Table 2, disaggregated by detailed institutional characteristics, according to the criteria used to assess relevance for entry into the CGIAR portfolio. This task is resisted, however, because of the intrinsic difficulty of measurement, as well as the plethora of specific institutional groups that would have to be included if there was to be an attempt to be comprehensive. The alternative is to take a more parsimonious and selective approach to discussing possible advantages of different categories of providers.

The CGIAR System is seemingly accepted by many as a small but solid actor in the categories of policy research listed as group 2 in Table 3. In the first group of macroeconomic and trade policy it is demonstrably an extremely "small player" in a rather large field. In aspects of poverty and food-security research, and health and environment, respectively, it is also small, but has special advantages. For example, the work on IPM undertaken at IRRI, IITA, CIP and CIAT is innovative and effective but the scope and policy implications of this work relating to potential health hazards, particularly those associated with agricultural chemicals is broad, and the initiatives have been modest indeed. Inevitably, the theme of health linkages to research will have to be significantly increased in future decades, as the consequences of pesticide and other agricultural chemical mismanagement and inappropriate use become more manifest.

Research is one form of economic activity in which Weinberg's (1975, p.141) presumption that "The future will be like the past, because, in the past, the future was like the past" seems often applicable. In this regard, it is thus appropriate to reflect upon some of the success stories in policy research that would lead to a sense of optimism for tomorrow. Any such arbitrary list is bound to be unfair to those excluded and probably unjustifiable in terms of the implicit support for those connected with the included items. Nevertheless, to be somewhat concrete, a few examples may help. The work by Krueger, Schiff and Valdés at the World Bank undertaken in conjunction with IFPRI, on the consequences of trade restrictiveness and the implicit taxation of agriculture in LDCs, is a notable albeit perhaps less than ideal example, given the partner institution. More micro-level implications of trade restrictions have been effectively pursued and analysed by von Braun and others, also at IFPRI.

Given the concerns deriving from both poverty and environmental themes, the IRRI work on disadvantaged regions and the implications for IRRI's research program deserve commendation. On other themes, there is a proliferation of work that has a wide spectrum of disciplinary origins and analytical emphases. The ICRISAT Village-Level Studies (VLS) (and the many subsequent detailed analyses of their data that have been possible) is a good

example of a pioneering effort in longitudinal household and community socioeconomic analysis that has had some policy relevance. The CIAT work on cassava and its new role in market-led opportunities in Colombia and Northeast Brazil represents a rather different example. Recent CIP work on the successful spread of diverse potato varieties is also highly policy-sensitive and revealing of successful exploitation of cogent socioeconomic research. Similarly, the CIMMYT and ICARDA analyses of research priorities for "marginal areas" has been a significant contribution to the development of research policy pertaining to this aspect of scarce resource allocation. On the livestock side, the work at ILCA (now ILRI) on dairy marketing in Africa has been of high quality and applicability in contributing to the broader agricultural and food policy debate in Sub-Saharan Africa.

Such examples could be continued many times over, and only the combination of space and ignorance of detail inhibits extensive documentation here. The research reports of all the Centers may, of course, be consulted for more complete description in this regard. Broad thematic areas are also perhaps worthy of mention, such as IFPRI's fledgling activities with its all-too-scarce partners in Sub-Saharan Africa, and its endeavours to assess the wider technological and economic development implications of macroeconomic policy in Latin America (especially through its case studies in Argentina and Chile). As just emphasised, any such listing of illustrative "success stories" is bound to be inadequate, but is indulged in above for illustrative purposes. Summary tabulations of relevant work in hand across Centers are provided in Appendix 2 of TAC (1996).

Assessment of **research advantage** in any particular category of policy research is naturally fraught with difficulties. As is indicated implicitly in Table 4, the number of suppliers is large, even speaking in institutional terms, but certainly in terms of total human resource capacity. As is now clear, the CGIAR P&M research effort is "relatively" small. When the CG System is selecting its priorities, it must do so with due regard to the advantages enjoyed by alternative supplies, the adequacy of effort supplied by alternative suppliers, and its own niche opportunities to work in the area, presumably with the best suppliers, especially in the South, but also in the North. Universities, for instance, have usually managed to carve out particular niches for some of their most specialised research and teaching enterprises. To take the example of food-program management, Oxford University and Brown University, for example, have both developed considerable expertise in such work. Naturally, many others both in and out of academe are similarly involved.

Thus, any CGIAR initiative in such an area must thus take appropriate account of existing capacity and orientation before it develops new research endeavour in such an area. And so it goes for almost every potential research policy theme. If it is the effectiveness of rural credit, for example, there is a multiplicity of potential supplies, including such US-based universities as Ohio State. In the broad field of development studies, particular with a Sub-Saharan Africa orientation, again, there have been many academic institutions in the North, both in Europe (e.g., Kiel, Wageningen) and in North America (e.g., Michigan State, Stanford's former FRI) with a significant commitment to such work, although often organised on a short-term project basis. It is, of course, no surprise that the CGIAR Centers are actively linked to a wide variety of such universities, both for post-graduate training,

post-doctoral research opportunities, and peer interaction and collaboration on major research themes.

The happy conjunction of high potential, combined with modest numbers of research workers, is the essence of the case for continued investment in this type of work by the CGIAR. The CGIAR Centers will thus always have many potential partners. There will be natural collaborative research opportunities between, say, the World Bank, regional development banks, universities in both MDCs and LDCs, and national agricultural policy agencies. The contemporary allocation of research resources within the World Bank reflects such a situation in collaborative work on, for instance, measuring rural poverty.

Other links between CGIAR Centers and the World Bank apply for the Table 3 research categories 2 and 3, as well as 5, notwithstanding the presently grim situation in the Bank concerning research on agricultural matters. There are doubtless many as yet unexploited CG opportunities for involving LDC universities and NAROs in analogous collaborative research work that, depending on its nature, may also involve a "three-cornered" arrangement with an appropriate IARC. Indeed, quite a few such arrangements are already in place.

Policy Research

The point has been made that CG policy research is a small but important element of the global policy research effort. Within the CG System, however, IFPRI stands as a relatively large and important player in this modest but influential work, and thus is deserving of explicit attention, although other Centers naturally are also involved (e.g., see Martinez, Sain and Yates 1991, for an example from CIMMYT). The niche claimed by IFPRI (at least according to its Medium-Term Plan) is defined by its perceived comparative advantage in conducting process-defined work according, inter alia, to the following aspects:

(a) It has a critical mass of policy analysts that can be organised flexibly according to the complementarity of efforts required for focused task forces;
(b) There is little distraction from the primary purpose by activities such as teaching and project management, such as occurs in some alternative suppliers;
(c) Close links are maintained to technological generation units through cross-Center participation within the CG System;
(d) There is a strong inter-disciplinarity of diverse economic and some social disciplinary skills within the Institute and its assembled research teams; and
(e) Last, but not least, is the record of past achievement and perceived impartiality in its policy research work.

Even a casual reading of IFPRI publications, supported by knowledge of its staff and institutional structures, strongly supports most of these claims. Some, however, could usefully be challenged along the following lines:

(a) By its nature, policy research can be efficiently conducted by quite modestly sized teams -if the relevant skills can be harnessed, perhaps even within just one competent individual on occasion -so the "critical mass" argument is not necessarily persuasive in sorting out providers.

(b) Arguing that full-time dedication is a niche-defining attribute can be dangerous if indeed there are strong complementarities through engagement in other activities, such as teaching policy analysis or conducting policy dialogue with borrowing countries as in, say, development banks. Indeed, a case might be made that the most productive long-term policy-research environment would be within agencies that have a multiplicity of policy-related activities, providing that research does not become an activity marginalised by other tasks.

(c) The claimed advantages of strong links with technological development work, such as is accorded through CG membership, does not adequately recognise that many other potential players have similarly close working relationships with biophysical agricultural research systems, both within and without the CGIAR. Indeed, some of IFPRI's critics have charged that, in spite of its CG membership, at least until recently its links with other Centers have been fragmentary and insufficient. This is, however, a time of change and the current situation now looks quite positive in this regard.

(d) The claim of interdisciplinary scope in IFPRI's teams is a thin straw if, indeed, it is contrasted with the way some policy-oriented work is undertaken at other CG Centers where, by the nature of the mandate of the Center and its staffing, much more diverse teams can be and are put in place. The situation is now, however, changed (if not clouded) by the new-style inter-Center initiatives in which IFPRI has been such a busy and active partner, and thus its System-wide effective transdisciplinarity has been much extended.

(e) I am unaware of anyone who has had an opportunity to assemble comparable data to assess the productivity of IFPRI relative to other institutes and agencies around the world. On a rather casual inspection, it does not stand out as singularly impressive in terms of, say, volume of published papers per full-time research fellow equivalent. It might be argued that the style of work at IFPRI, with its typically long in-field work in LDCs followed by collaborative interpretation of primary data into a policy analysis mode, means that what is produced is relatively thorough-going work (publishable in quality journals?), and not a multitude of quick analyses, such as may be more the style of some other suppliers. This claim then is worthy of further empirical testing with some attempt to "correct for" the different types of research products and their different inherent qualities and resource requirements. The claim of impartiality is probably quite reasonable, at least to the extent that partners in LDCs do strongly attest to this feature of IFPRI's work as being one of its most appreciated strengths, and certainly its working style has sought to emphasise this aspect of IFPRI's work. Documentation of this issue is available in various forms, including the CGIAR Impact Study of the mid-80s (Anderson, Herdt and Scobie 1988).

Research on Research Policy

Research on research itself and related policy is something that has been done from time to time in various parts of the CGIAR System, and of course, extensively outside the System. ISNAR was the lead Center for conducting research on research policy within the CGIAR, at least until recent times, although increasingly IFPRI's recent activities especially by ex-ISNAR staff are complementing those of ISNAR. One the basic requirements of any such analytical work is the availability of cogent data on national research systems (Pardey, Roseboom and Anderson 1991), and this has been a commendable contribution of ISNAR (and increasingly IFPRI) in assembling such a database and seeking to implement procedures for updating and maintaining a system for monitoring the state of NARSs. Much remains to be done in exploiting this database analytically to yield insights that may better inform decision makers concerned with investment in research systems, particularly public systems. There is challenge also in comprehending better the nature of the broader research portfolio that involves the private sector as well, an increasingly important phenomenon in many parts of the world.

The case for CGIAR investment in this work is strong, given its lack of popularity as a theme in the large policy world outside the CG system, where rather little has been done and much of what is available is for a very restricted set of OECD countries, such as USA, UK, Netherlands and Australia. There are demonstrably pressing policy issues that must be addressed as the investment in national research systems in many countries is diminishing to crisis levels. These, for instance, stifle achievement in research systems where a large fraction of the scarce resources available goes to salaries only, and then often disturbingly late (Purcell and Anderson 1996). The productivity of such systems is unlikely to be sufficiently high to justify the existing public investment and the crisis is bound to become rather worse before there is any significant improvement. Accordingly, policy analysis of options open to countries is of utmost importance and must be addressed by many agencies, including ISNAR and IFPRI, but also concerned donors and development agencies, such as the World Bank (Anderson and Purcell 1996).

Management Research

As is indicated in Table 4, the ability to conduct research in the field of management is rather circumscribed, what with the few human resources devoted to such work. Given that the CGIAR has focused on some key public management research issues, it is thus appropriate to address some of the special cases and their particular problems.

Management of public agricultural research agencies is clearly well within the mandate of ISNAR, although the research focus to date has been on a relatively narrow concept of agricultural research, primarily "agricultural" as opposed to fishery and forest, for instance, and (for good reasons) primarily on publicly managed national research organisations. The management problems of these agencies are indeed considerable, in part because of a lack of clear guidance from about efficient organisational forms and

managerial procedures. Since such agencies are largely within the public-service sector, they are often compromised in fairly fundamental ways by the necessity of conforming with applicable public-service rules and procedures.

In an increasing number of cases, agencies have been recast as autonomous or at least semi-autonomous bodies, which enables them to disconnect from some of the strictures of traditional public service systems, such as promotion solely according to seniority, to take one illustrative example that is clearly counterproductive in a scientific research environment. Notwithstanding the many difficulties and problems that remain to be addressed, the resources thus far devoted to such work have been extremely small and the work has not yet been structured in a very systematic cross-country learning mode. Much effort has been devoted to policy dialogues among key decision makers and managers in national research systems, but this in itself does not lead to critical analysis of what works and what does not. Accordingly, much remains to be done in this field (Byerlee and Alex 1997), and it should be accorded high priority in the public-management research agenda of the System. Without successful investigations that point the way more clearly, much future investment in this vital developmental field will be to little avail, and agriculture will thus not deliver its promise.

Other management themes within the system are diverse, but two are of particular significance and are highlighted here, given the focus of the two institutions that recently joined the System, namely, CIFOR and IIMI. Needless to say, other Centers are also engaged to some extent in issues related to public management, such as CIAT in Latin American land policy, and ICRAF in the management of publicly, privately and commonly owned agroforestry resources, for instance.

The difficulties facing managers of forest resources in LDCs are manifold, and the social losses through inefficient management of public forest resources are probably huge, although not well documented. In part, the inadequacy of current information relates to the prevailing weaknesses in national forest research systems and the sometimes compromising links between forest departments and such research units, typically where the research unit itself is part of the department that is suffering "the problem." Other contentious issues related to both biodiversity preservation, and gainers and losers in use of public forest resources have surely made even more difficult the progress of investigatory work on management.

The issues to be addressed are not primarily the traditional technical aspects of tree and forest management per se, but rather the public management of the resource and the control of the human resources involved, and the powers accorded them for exercising those controls. Aspects of governance in general bear heavily on the success of such public-management systems, and complications of impoverishment of managers themselves, and communities settled in or around forest resources make the analysis especially challenging. Clearly, however, there are many social gains to be made from implementation of more successful policies and practices that might be identified through such research.

Presently, the CGIAR investment in this work might best be seen as a modest initial beginning for tackling a large and significant global problem. The issues facing fishery resource management in coastal areas and inland water bodies are similar in many respects and the System must look to the global experience (as embodied, for example, in FAO), and to ICLARM's fledgling efforts in this regard, for guiding future investment in this important field of public responsibility.

As the shortage of non-sea-water for all purposes in the world grows, especially for the most densely populated areas, it is appropriate that so too does the recent attention to improved water policies, especially concerning irrigation water and especially in Asia. It is to such purpose that IIMI has primarily been addressed. The inefficiencies of many irrigation management systems have been well documented in a wide range of studies in recent decades, and the establishment of IIMI to focus on this issue, working through collaborative mechanisms with national irrigation authorities, seems to have been timely and important. This is not the place to endeavour to assess just how successful this work has been but, from a strategic perspective, the work is surely vital and must be conducted with renewed vigour as the problems magnify.

With the limited economic scope for adding new irrigation areas and the political difficulties over creation of new major reservoirs, the existing resources must be used more efficiently to economically underpin the demands that will be placed on these irrigation systems for their contribution to future food and fibre productivity. The lessons of improved management systems for the water resource are many and are addressed at greater length in another recent strategic review of natural-resource management research in the CGIAR (TAC 1995). In brief, effective involvement of water users, and linkage between both upstream and downstream residents in river basins are key to improved management and to greater social benefits through the operation of such public and community systems (Tinker and Anderson 1995).

Pressures from the Green end of the political spectrum will surely continue to push for a widening of research agenda for biophysical scientists, and this along with other forces will inevitably lead to an analogous widening of the corresponding activities of social-scientists. As the foregoing review indicates, this has already happened to a great extent in the international agricultural research system. More is in train, especially as national research systems in the less-developed world move also to respond to these same pressures. So, the challenge to our profession will continue to grow in breadth. But it will also grow in depth, and it is to one such aspect that I must turn before closing, namely, the theme of evaluation.

Evaluative Imperatives

Frameworks for evaluation of social-science research are crucial, especially if such researchers are to be credible in their efforts to evaluate other forms of agricultural research as, following the seminal exposition of method by Alston, Norton and Pardey

(1995), will increasingly become the normal practice. But there are even more compelling reasons to be self-evaluative. Only by learning from our past mistakes do we really make advance possible. Why then do we do so little of it? The dominant excuse is that it is so difficult that we can be excused. The increasingly resonating hollowness of such a line is what doubtlessly led IFPRI recently to sponsor a competition on approaches to evaluation of social-science research.

Smith (1996) and Norton and Alwang (1997), for instance, have suggested commendable frameworks for such work, but it is still not going to be easy and there is much to be done on terms of both method and practice. Since P&M research provides information primarily to assist decision making, it seems natural to look for evaluative insight in approaches that emphasise the role of research in decisions. One such insight is provided by Lindner (1987) in his Presidential Address to this Society, and for me, the decision-oriented approach he advocates still gives us the best angle of attack for evaluating social-science research. Big decisions will have potentially big rewards to research. Research that can generate information that changes decisions can have relatively high value. In short, a decision-analytic perspective (Anderson, Dillon and Hardaker 1977, Hardaker, Hearne and Anderson 1997) gets one into the right position to be able to evaluate research in the social sciences. On a personal note, Byerlee and Anderson (1969, 1982) made some early efforts in this regard, but unfortunately got side-tracked into other activities before getting to apply such methods to mainstream social-science research efforts. Maybe they will get back to it in their next lives?

Conclusion

The small but precious commitment of international research investers to P&M research in agriculture has been sketched. Its contribution is not only highly complementatry to that in international biophysical research but valuable in its own right to add to disciplinary efforts elsewhere in the world, both less- and more-developed. While small in the several senses described, it is considerable and, along with the CGIAR work in socioeconomics generally, is indeed quite significant in terms of the rather parsimonious resources centrally devoted to the issues of rural poverty reduction, improvement in human nutrition in rural areas, and LDC-agricultural intensification that it is environmentally responsible. It is thus to be hoped that it can be sustained at at least the present modest levels, particularly in an era of active policy liberalisation and institutional innovation in civil society.

Whether the CGIAR style of P&M work, at arm's length from policy making itself, is optimal has not been addressed here, as it is fundamentally at odds with the deliberately neutral and impartial position adopted by the Group in its relations with beneficiary nations—but it is one important question that can be raised. Likewise, the evident reluctance of the CGIAR P&M research effort to move "upstream" into the realms of policy science, such as the economics of institutions, imperfectly informed markets and policy-making theory, is another fertile field for analysis that must be ploughed—but on another day.

We have wandered around the world on a long and varied trip, and 'tis now time to return home. An analysis of the role and function of public economic research for the rural sector in Australia would provide a convenient landing point, as one ponders the analogous work in the CGIAR. This could take us back to a debate spawned by Phillips (1975) and picked up variously in the 1970s and 80s (e.g., Harris 1979) although strangely quiet in the 90s, notwithstanding the brief foray of Curran and Podbury (1994). Meantime, I have endeavoured to share some thoughts on how kindred work in an important part of the international research community is shaped. Perhaps it is still timely for the profession to reflect on what it is that it does, and how much, and why? If, however, this has all been nicely agreed and resolved during my (too) long absence from the deliberations of this Society, please forgive and inform me.

References

Alston, J.M., Norton, G.W. and Pardey, P.G. (1995), *Science Under Scarcity: Principles and Practice for Agricultural Research Evaluation and Priority Setting*, Cornell University Press, Ithaca.

Anderson, J.R., Dillon, J.L. and Hardaker, J.B. (1977), *Agricultural Decision Analysis*, Iowa State University Press, Ames.

Anderson, J.R., Herdt, R.W. and Scobie, G.M. (1988), *Science and Food: The CGIAR and Its Partners*, World Bank, Washington, D.C.

Anderson, J.R., Pray, C.E. and. Spiridonova, S.V. (1996), "The "Other" X percent of the Global Agricultural. Knowledge System: The Past and Future of the Former Soviet Union Agricultural. Research System", Paper for the Development Studies Association Conference, Reading, UK, 18 Sept.

Anderson , J.R. and Purcell, D.L. (1996), "International policies for agricultural research investments", In *Conference Proceedings: Global Agricultural Science Policy for the Twenty-First Century: Invited Papers*, Department of Natural Resources and Environment, Melbourne, 513-40.

Byerlee, D.R. and Anderson, J.R. (1969), "Value of predictors of uncontrolled factors in response functions", *Australian Journal of Agricultural Economics* 13(2), 118-27.

Byerlee, D. and Anderson, J.R. (1982), "Risk, utility and the value of information in farmer decision making", *Review of Marketing and Agricultural Economics* 50(3), 231-46.

Byerlee, D. and Alex, G. (1997),), *Strategic Issues for Agricultural Research Policy to 2000 and Beyond*, draft for discussion, World Bank, Washington, D.C.

Cooperative State Research Service (1994), *Inventory of Agricultural Research: Fiscal Year 1993*, CSRS, USDA, Washington, D. C.

Curran, W. and Podbury, T. (1994), *Government Research Agencies: A Case Study of the Role for Government in undertaking Economic Research*, ABARE Research Report 94.2, Canberra.

Harris, S. (1979), "The criteria for social scientific choice", In S. Encel and J. Ronayne (eds), *Science, Technology and Public Policy: An International Perspective*, Pergamon (Australia), Rushcutters Bay, 148-59.

Hutme, R.B.M., Hardaker, J.B. and Anderson , J.R. (1997), *Coping with Risk in Agriculture*, CAB International, Wallingford.

Krueger, A.O., Schiff, M. and Valdés, A. (1988), "Agricultural incentives in developing countries: Measuring the effect of sectoral and economy-wide policies", *World Bank Economic Review* 2(3), 255-71.

Lindner, B. (1987), "Toward a framework for evaluating agricultural economics research", *Australian Journal of Agricultural Economics* 31(2), 95-111.

Martinez, J.C., Sain, G. and Yates, M. (1991), "Toward farm-based policy analysis: Concepts applied in Haiti.", *Agricultural Economics*: 5(3), 223-35.

Norton, G.W. and Alwang, J. (1997), "Policy for plenty: Measuring the benefits of policy-oriented social science research", VPI, Blacksburg, unpublished ms

Pardey, P. G., Roseboom, J. and Anderson, J. R. (eds) (1991), *Agricultural Research Policy: International Quantitative Perspectives*, Cambridge University Press, Cambridge.

Phillips, J. (1975), "A subjective evaluation of resource allocation within agricultural economics research: 1958-73", *Review of Marketing and Agricultural Economics* 43(1), 52-6.

Purcell, D. and Anderson, J.R. (1997), *Agricultural Research and Extension: Achievements and Problems in National Systems*, Operations Evaluation Study, World Bank, Washington DC.

Smith, V.H. (1996), "Measuring the benefits of social science research", In *Conference Proceedings: Global Agricultural Science Policy for the Twenty-First Century: Invited Papers*, Department of Natural Resources and Environment, Melbourne, 95-122.

TAC (1995), *Priorities and Strategies for Soil and Water Aspects of Natural Resource Management Research in the CGIAR*, SDR/TAC:IAR/96/2.1, CGIAR Secretariat, Washington, D.C.

TAC (1996), *Perspectives on Policy and Management Research in the CGIAR*, SDR/TAC:IAR/95/26.1, CGIAR Secretariat, Washington, D.C.

Tinker, B. and Anderson, J.R. (1995), *A Strategic Review of Natural Resource Management Research on Soil and Water*, SDR/TAC:IAR/96/9, CGIAR Secretariat, Washington, D.C.

Vernon, R. (ed.), *Directory of Research Workers in Agriculture and Allied Sciences*, CAB International, Wallingford.

Weinberg, G.M. (1975), *An Introduction to General System Thinking*, Wiley, New York.

Table 1. CG Centers' Social-Science 1995 Human Resource Numbers (rounded)

Center	Policy	Management	Other socio-economists	Total social sciencists	All researchers
IFPRI	25	0	15	40	40
IIMI	2	7	4	13	25
ISNAR	5	3	5	13[b]	38[b]
CIAT	2	0	7	9	83
CIFOR	3	1	4	8	23
CIMMYT	1	0	5	6	77
CIP	2	0[a]	6	8	62
ICARDA	2	1	6	9	55
ICLARM	0	0	2	2	16
ICRAF	2	0	7	9	110
ICRISAT	2	0[a]	7	9	101
IITA	2	0	2	4	89
ILRI	6	0	6	12	86
IPGRI	1	0.5	1.5	3	50
IRRI	1	0[a]	4	5	60
WARDA	1	0	1	2	22
Total	70	14	78	163	903

[a] A small part-FTE capacity exists.

[b] Given the service nature on ISNAR, this categorization of researchers is a liberal one.

Table 2. Categories of Major Players in Policy and Management Research

1	International		
	1.1	GOs (North)	
		National Development Assistance Agencies, e.g., AIDAB, ODA,	
		NAROs and EPAs	e.g., ABARE, SDA ERS, FAS
		Universities	e.g., ANU, IDS, UNU
	1.2	NGOs	
		Research agencies	e.g., ABRI, WRI
		Action Agencies	e.g., Winrock
		Firms	e.g., World Economic Inst.
	1.3	Official Multilateral Development Agencies	
		FAO	
		UNDP	
		UNEP	
		Regional Development Banks	
		World Bank	
	1.4	IARCs	
2	National		
	2.1	NAPAs e.g., BIDS, TDRI	
	2.2	NARSs	
		NAROs	
		Universities	
	2.3	NGOs (South)	

Table 3 Simplified Categories of Rural Policy and Management Research

Category	Policy Research	Management Research
1	Macroeconomic & Trade Policy	**Trade Regulation (and negotiation)**
2	Agricultural Policy (including domestic agricultural and marketing policy)	**Agricultural Agency Management (including marketing parastatals, extension and national policy analysis management)**
3	Research Policy (including AR priority setting and funding, and gender, ...)(a)	Agricultural Research Organisation and Management
4a	Poverty Policy (including food security and nutrition policy)	Food Program Management (including relevant tax and welfare management)
4b	Health & Education Policy (relevant to the rural sector, including agriculture)	Public Health System Management (relevant to rural sector, including regulation of toxic products)
5	Environment Policy (relevant to the rural sector)	**Public Resource Management (including land, soil, water, forest, fishery, colonisation, biodiversity)**

Table 4. Indicative Rural-Oriented Policy and Management Research Workers (full-time equivalents[a])

	Policy	Management
North		
GOs	1800[b]	1700
NGOs	500	300
Sub-total	2300	2000
South		
GOs	1000	2000
NGOs	200	200
Sub-total	1200	2200
International & Regional		
ODA agencies	200	150
IARC's	58	18
Grand total	3758	4368
IARCs as % of total	1.6	0.4

[a] Data are purely subjective "estimates" intended to illustrate orders of magnitude of the numbers of involved research personnel

[b] Includes, for instance, 425 workers in the USDA and State experiment station system of the USA in 1992-93 (Cooperative State Research Service 1994) and 790 workers in the North nations of the British Commonwealth in 1986 (Vernon 1989).