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## Discussion Paper

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### Natural Resource Management and Environmental Issues An Agenda for ISNAR

**Pierre Crosson**

**Consultant - Resources for the Future, Washington**

**Jock R. Anderson**

**Consultant - The World Bank, Washington**

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International Service  
for National Agricultural Research (ISNAR)  
P.O. Box 93375  
2509 AJ The Hague  
The Netherlands  
tel: (31) (70) 349-6100  
fax: (31) (70) 381-9677  
email: Dialcom (CGNET): 157:CG1601  
or Internet: ISNAR@CGNET.COM

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## FORWARD

A consultancy report on natural resource and environmental issues has been prepared for ISNAR by Drs Pierre Crosson and Jock Anderson. This report has been divided into two for publication purposes.

The first part, which is directed at NARSs managers, relates natural resource and environmental issues to the research agenda of national agricultural research systems (NARS). It is being published in ISNARs Research Report Series.

The second part, which is presented here as an internal discussion paper represents the recommendations of Crosson and Anderson as to how ISNAR should address natural resource and environmental issue in its work program.

Although both reports can be read independently, and are intended for different clients, the present one will be best understood if the report to the NARS is read first.

## ABSTRACT

The increasing emphasis on Natural Resource (NR) and environmental issues in agricultural research is likely to affect, in varying degrees, the whole range of ISNAR's activities. An overarching challenge may be to convince NARSs that achievement of sustainable agricultural systems requires that NR and environmental research be a key component to be considered in their programs. Many NARSs remain unconvinced that concern about NR and environmental issues is anything more than a rich-country obsession that they cannot afford. They are right not to be stampeded by apocalyptic visions of environmental destruction, and ISNAR should make clear it does not share this vision. What is needed is a balanced argument that NR and environmental issues require NARSs' steady attention, just as other resource management issues do.

To be persuasive with NARSs, and credible with its sister institutions in the CGIAR system, ISNAR will need to strengthen its analytic capacity in NR and environmental economics. The most direct way to do this would be to add an economist with these skills to its staff. An alternative, probably less effective, would be to use consultants on an as-needed basis.

ISNAR can help NARSs in their critically important task of controlling the agricultural research agenda with respect to NR and environmental issues. A major form of such help would be to impress upon NARSs the importance of competent estimates of the NR and environmental consequences of alternative NRM (Natural Resource Management) practices and commodity technologies. Otherwise those with a vested interest in promoting exaggeratedly negative estimates of the consequences may dominate research strategy in this field.

ISNAR's sister institutions in the CGIAR should be an important source of assistance to NARSs in dealing with NR and environmental issues. Some of these institutions have long included such issues on their research agenda, and now virtually all of them are giving the issues increased attention. The institutions, have, thus accumulated, and are accumulating, a substantial body of knowledge about the NR and environmental consequences of alternative NRM practices and commodity technologies. ISNAR could play a key role in helping NARSs to tap this valuable store of knowledge.

## 1. Introduction

As the rising concern about NR and environmental consequences of agriculture is increasing the responsibilities of NARSs, so also will ISNAR's responsibilities grow. In fact, it is not too much to say that virtually all of ISNAR's activities with respect to NARSs will be touched in one way or another by the increasing emphasis on NR and environmental issues, in agricultural research programs. The toughest questions for ISNAR are likely to be which of its activities will be most affected, and which responses will be most appropriate for meeting the emerging challenge to its capacity to assist NARSs. We suggest only some tentative, and partial, answers to these questions. More definitive answers will no doubt will emerge over time as ISNAR "learns by doing" its best in helping NARSs to deal with the complex set of issues discussed in our paper on "Incorporation of Natural Resource and Environmental Issues in the Research Agenda of NARSs"<sup>1</sup>

## 2. Sensitizing NARS

Our case for action by NARSs has been based on the implicit assumption that NARSs are prepared to take seriously the arguments for incorporating NR and environmental issues in their research programs. But are they? It seems that some, perhaps many, LDC governments still consider concern about the effects of agriculture on the natural resource base and environment as a rich-country luxury that they cannot afford. These governments insist that, for them, the top priority for agricultural research is to increase yields, more or less regardless of NR and environmental consequences. Yet other nations see the issue quite differently (Dorji 1992)<sup>2</sup>.

If this rich-country-luxury attitude is, in fact, widely and strongly held in the LDCs -- and presumably therefore in NARSs -- then the greatest challenge to ISNAR in this area may be to persuade these NARSs that the attitude is inappropriate -- perhaps dangerously so. This is a delicate issue. To challenge the attitude is to suggest to the LDCs that they do not understand their own best interests as well as ISNAR does!

We believe that ISNAR's best approach to this issue is to make clear in its dealings with NARSs that it by no means accepts the apocalyptic view of impending NR and environmental disaster expressed by some members of the national and international environmental communities. Nevertheless, ISNAR should point out, there may be some NR and environmental consequences of agriculture of sufficient importance to the welfare of the nation, and not necessarily only in the long-run, that NARSs should take them seriously. The concept of total productivity can be useful in making this point. This concept makes clear that, in their implications for the public welfare, the benefits and costs of the NR and environmental consequences of production are no different

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<sup>1</sup> Crosson, P. and Anderson, J.R. (1993), ISNAR Research Report (forthcoming)

<sup>2</sup> Dorji, L. (1992), "A policy perspective on the sustainability of production environments : discussion", In ISNAR, Highlights of a Policy Dialogue, ISNAR, The Hague, 16.

from any other benefits and costs. That NR and environmental inputs and outputs are not priced, while commodity inputs and outputs are, is irrelevant to the public welfare. No NARS would argue that the country can be indifferent to the quantities of priced inputs and outputs of agriculture. Once they understand the concept of total productivity, NARSs should recognize that, for the same reasons, they cannot be indifferent to unpriced NR and environmental inputs and outputs. ISNAR can play a valuable role in promoting that understanding.

Acceptance by NARSs that NR and environmental inputs and outputs should be included in the concept of total agricultural productivity would be a major advance for NARSs in gaining perspective on NR and environmental issues. Questions of valuing the inputs and outputs, however, would still need to be addressed. Here ISNAR should recognize -- no doubt it already does -- that the countries themselves must make these valuations. We suggested as much in our paper for NARSs<sup>3</sup> of assigning values to NR and environmental consequences and to discount rates. We now make that explicit. Our paper emphasized that the valuation decisions involve much judgment. Our point here is that those judgments must be made by the responsible people in the LDCs, maybe within a NARS, maybe in some other agency, such as a finance ministry for, say, discount rates. For example, who but nationals of the country are qualified to make decisions about which, if any, natural resources are of such great current and future social value that they should be protected against exploitation for economic development? Similarly, who but the nationals are qualified to decide that the social costs of, for example, pesticide pollution are so high that a major share of research resources should be devoted to development of technologies to reduce the costs?

The pesticide example is pertinent because some countries, e.g., the United States, have adopted policies of not exporting to LDCs any pesticides that the country has banned for use within its own borders. In effect, the exporting country presumes to decide that the environmental costs of pesticides in a would-be importing country would be inconsistent with that country's best interests.

We do not suggest that ISNAR should take a "hands-off" posture with respect to valuation issues. On the contrary, we believe that ISNAR should be quite active in emphasizing to NARSs the importance of obtaining the best feasible estimates of the quantities of NR and environmental consequences, and of systematically sifting all available evidence about the marginal social values of the consequences. In the end, however, assignment of the values must be the responsibility of the country itself.

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<sup>3</sup>  
Crosson and Anderson (op.cit)

### 3. Strengthening Analytic Capability in Natural Resources and Environmental Economics

*ISNAR's Medium-Term Plan 1994-98* (October 1992) discusses three "strategic issues" for the 1990s, one of which is to help NARSs to "set priorities and integrate, organize and manage..." research on NRM (p.3). On page 4, the plan indicates that ISNAR will seek to "multiply" its impact by forming partnerships with other institutions, and that "A key element of this strategy is to base ISNAR's service on research." On page 45 the *Plan* states that

"The ISNAR strategy for the 1990s, the recommendations of the external review, and consultations with our partners and donors have all endorsed the principle that, if ISNAR is to have an impact on national systems and the environment in which they work, *its three types of service must be well-grounded in research.*" (Emphasis added.)

If ISNAR is to meet these commitments to its own research program, and its commitments to assistance to NARSs in NRM research, it will have to strengthen its capability in natural resource and environmental economics. Dealing adequately with the difficult problems of identifying, measuring and valuing the NR and environmental consequences of agriculture requires expertise in that discipline. We have noted elsewhere<sup>4</sup> that NARSs currently lack capability in this branch of economics (as well as in others), creating a critical gap that ISNAR can help to fill until NARSs themselves can acquire the necessary skills. We do not suggest that ISNAR go in and actually do the necessary work on NRM issues. But it can play a valuable role advising NARSs on how to find people to do the work until NARSs can do it for themselves.

Having expertise in this area would be essential also, in our judgment, to ISNAR's task of persuading NARSs (and higher authorities) that NR and environmental issues deserve serious treatment, and that analytical and measurement techniques are available to provide that kind of treatment. Even in its dealings with those NARSs already committed to working on NRM issues, and with some capability to do it, ISNAR's hand would be greatly strengthened if it could demonstrate that it too has such competence. In fact, if it cannot demonstrate such competence, these NARSs would likely scorn its services in this area. And rightly so.

ISNAR will need capability in NR and environmental economics also because it will want to include this kind of material in its training program. The program could be an effective instrument both for making the case with NARS managers that NR and environmental issues are important and for beginning to build some of the human capital that NARSs will need to work productively on the issues.

One strategy for ISNAR, before it incorporates NRM issues in its training program, would be to wait until the many unresolved issues arising out of Agenda 21 have been worked out. Clearly ISNAR is well aware of what Agenda 21 has to say about

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<sup>4</sup> Crosson & Anderson (op.cit) section 4.4



NRM -- ISNAR (1993)<sup>5</sup> conveys this very succinctly -- but we see no reason why ISNAR should take Agenda 21 as its principal guide in shaping its training program or in anything else it decides to do with respect to NRM issues.

Finally, ISNAR will need capability in NR and environmental economics if it is to "hold its own" in its dealings on NRM issues with its sister institutions in the CGIAR and with the World Bank, USAID, and other donor agencies. The argument applies equally for ISNAR's dealings with the numerous NGOs engaged in work on NRM issues. Concern about these issues is not going to go away. If ISNAR is to participate as an acknowledged equal in the ongoing discussions and, inevitably, controversies in this area, and, not least, if it is to defend its interests, it must have command of the economics of the issues.

ISNAR will be able to accomplish much of what it will want to do in the area of natural resource and environmental economics by contracting with experts on an as-needed basis. But to do this efficiently, and perform other critical tasks in this area, ISNAR, in our judgment, will need to add a full-time NR and environmental economist to its staff. ISNAR does not itself have to do everything that will need doing in this area, but it will need someone who understands what must be done and who can take the lead in organizing to get it done.

#### 4. **Assisting NARSs in Taking a Leadership Role**

We have argued<sup>6</sup> that NARSs risk loss of control of the agricultural research agenda unless they take the leadership in defining the terms of the discussion of NRM issues in agriculture. Environmental protection agencies, environmental NGOs and, perhaps, donor agencies will not be reticent in expressing views about environmental policies affecting agriculture, and even in prescribing the kinds of NRM practices and commodity technologies that NARSs should develop. NARSs inevitably will have to respond to these various pressures and, of course, should seek to do so in a constructive way. But if it can be assumed that NARSs are best positioned to decide how to find and stay on a sustainable path for agriculture, then they must ultimately decide the appropriate agricultural research program. This role will not be easily ceded to them by the various contending forces. They will have to earn it by demonstrating that they have not only the technical skills but, at least as important, the organizational, and even the political, skills needed to get the job done.

ISNAR can help NARSs to perform this leadership role. An obvious, but exceedingly important way is to help keep the NARSs' unwavering attention on the importance of getting the best feasible estimates of both the economic and the NR and environmental costs and benefits of alternative NRM practices and commodity technologies. Because the environmental costs and benefits are so difficult to measure, wildly varying estimates of them are possible, even usual. Experience shows that

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<sup>5</sup> ISNAR (1993), Agenda 21 : Issues for National Agricultural Research, ISNAR Briefing Paper 4, ISNAR, The Hague.

<sup>6</sup> Crosson & Anderson (op.cit) section 4.4

environmental agencies, particularly environmental NGOs, tend to discount, if not ignore, the benefits and to emphasize costs in the high end of the range. NARSs must recognize the importance of this issue and have the technical competence -- or know where to get it -- to distinguish the better from the worse estimates of benefits and costs. ISNAR's role here would be to assure that NARSs do not lose sight of the importance of the issue and, where they lack the necessary expertise, to help them locate it in other national or international agencies.

NARSs also need to identify the principal institutional actors in the NRM and environmental fields and devise ways to tap the expertise of these actors and enlist their support in shaping the agricultural research agenda along lines that NARSs think are most appropriate. ISNAR should be able to help in this also, the value of the help depending no doubt on the degree of the NARSs' sophistication in dealing with this range of issues. The larger and more experienced NARSs perhaps already know how to maneuver in this field. The smaller, less sophisticated ones probably do not.

We cannot identify all the ways in which ISNAR might help this area, but a likely one would be for ISNAR itself to forge links with all the significant non-NARS institutional actors. ISNAR should indeed actively seek contacts at national level to include at least the body or bodies responsible for environmental matters, definitely including those institutions engaged in or with responsibilities for natural resources management. Among public institutions, these would include the environmental protection agency, the departments of forestry and water resources, the soil conservation service, the fish and wildlife service, and any other service relevant to NR and environmental management. ISNAR should also keep itself informed about and establish contacts with individuals and university departments engaged in social science and natural science research relevant to NRM.

Establishing and nurturing these various contacts would not be a trivial exercise for ISNAR, even in small countries. In large ones, ISNAR probably would have to be much more selective in deciding which institutions to contact. We are convinced, however, that the payoff would be substantial in strengthening ISNAR's ability to help NARSs forge the inter-institutional ties they will need if they are to successfully assert their leadership on NRM issues relevant to agriculture.

We have also made the case that NGOs active in rural areas could be a useful conduit for the flow of NRM and environmental information from farmers to NARSs<sup>7</sup>. The argument was based on the implicit assumption that farmers generally are very knowledgeable about NRM in their operations, given the resources, including the human capital, at their command. The argument also rests on the apparent fact that, in most LDCs, there are bureaucratic and attitudinal blockages to the flow of farmer-to-NARS information through extension and other public agencies.

The rural NGOs perhaps could circumvent the blockages, thus providing NARSs with potentially valuable information that they currently lack. Moreover, these NGOs,

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<sup>7</sup>  
Crosson & Anderson (op.cit) section 4.4

at least in some cases, could prove to be valuable political allies of the NARSs in gathering support for the NARSs' version of the agricultural research agenda.

We suggest that ISNAR's ability to assist NARSs would be strengthened if it actively sought to identify NGOs that might be useful in this respect and to establish ongoing contacts with them. As in all its dealings with NARSs, ISNAR's credibility depends on its recognized competence to address the issue at hand. Its ability to persuade NARSs of the value of linking-up with certain NGOs would be strengthened by a showing that ISNAR knows from "hands-on" experience what those NGOs have to offer.

#### 5. **Assisting NARSs to Coordinate with IARCs<sup>8</sup>**

The drive in the CG system to give more attention to NRM and environmental issues means that the IARCs in general are beginning to strengthen their capacities in this area. ISNAR is well positioned to take the lead in helping NARSs tap this emerging body of NRM and environmental knowledge that the IARCs are accumulating (as well as the knowledge they already have accumulated). We recognize that the IARCs already have long-standing relationships with NARSs of special relevance to them. And no doubt these relationships are now being broadened to include more IARC-NARS attention to NRM and environmental issues of mutual interest. Nevertheless, no other IARC has ISNAR's special responsibility to assist NARSs; and no other is as well positioned, institutionally, to coordinate and expedite the systematic flow of NRM and environmental knowledge from the IARCs to the NARSs.

We endorse the suggestion that has been made in ISNAR that it follow other IARC work on NRM and environmental issues, including such activities as the development of GIS databases, and would extend it to urge ISNAR to monitor not only data collection activities in the IARCs but also any analytical work based on the data. In particular, any IARC analyses of how to set priorities between NRM research and commodity research in their research agenda would be of direct interest to NARSs. Our point here is to emphasize the importance of setting up such a procedure to strengthen ISNAR's capacity to advise NARSs on NR and environmental issues.

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For a useful discussion of some of the issues here see IAC/Center Directors' Working Group (1993, Annex 1, pp.4-6).