

TO: Camus  
From: DeWit

In its mid-term meeting of May 1986 in Ottawa, the CGIAR included the word "sustainable" in its goal statement and concluded that greater emphasis should be placed on sustainable production systems in future work of the Centers. Upon this, TAC reviewed the circumstances that threaten sustainability, analyzed areas where international research could contribute more effectively to the development of sustainable agricultural production and formulated recommendations for the future work of the Centers.

The results of these considerations are summarized in a draft report entitled "Sustainable Agricultural Production: Implications for International Agricultural Research", and made available in this stage to the donor community, the Centers and other organizations to invite written comments.

The present draft report and these written comments will be considered at a workshop in January in Rome with about 24 participants from the donor community, the Centers, international organizations and national agricultural research systems.

The report will then be redrafted and finalized at the TAC meeting next March, to be presented for consideration to the

Consultative Group at its mid-term meeting next year. Written comments are welcome anytime, but we would like to receive them before the end of the year to be able to make full use of them.

I will now proceed to highlight important elements of the draft report.

In the first chapter, sustainable agriculture is defined as the successful management of agricultural resources to satisfy increasing human needs while maintaining and enhancing the natural resource base and avoiding environmental degradation.

This dynamic definition of sustainable agriculture brings home the fact that in order to enhance sustainability in the coming decades, the die is cast, and agriculture has to accept a formidable challenge to meet the needs of an increasing world population in a sustainable manner.

Chapter 2 concerns the circumstances that limit the achievement of sustainability. It contains the important statement that the problem is not so much the ultimate capacity to produce food, but whether the local rate of production can keep up with the increasing demand in a sustainable way.

It is then argued that the growing demand has to be met by a more productive use of the agricultural land rather than by

further raping the surface of the earth by bringing more and more land into agricultural production, destroying remaining natural ecosystems in the process.

The remainder of the chapter is mainly devoted to political, social and economic circumstances that hamper the enhancement of the human resources that are needed.

Chapter 3 deals with the physical, chemical and biological factors that affect sustainability. The general concern about sustainability is reflected by the fact that TAC was unable to identify problems that were not identified already by others. This appears also in Chapter 5, where research needs suggested by a number of consulted organizations are discussed.

Chapter 4 presents how the IARCs are at present contributing to the goals of sustainability. It is a short chapter because it is a summary of an annex to the report which is not as yet included in the present draft. TAC notes with satisfaction that, although more has to be done, the Centers have been responsive to public concern about sustainability.

Chapter 6 recommends strategies for the achievement of sustainability goals. It emphasizes that sustainability research is not a separate area of activity, but that all research designed to generate new agricultural techniques should be done

with a sustainability perspective from its conception to the implementation of its results.

The various technical innovations suggested by research should be assessed in relation to sustainability, and their potential domains of application should be specified. Within each domain, the resource demands should be quantified as far as possible, and the implications for sustainability further considered. The process of assessment should be continuous and iterative, and should be an integral part of the planning and review process of review programs. Moreover, it should be open for public scrutiny.

Just as it has been accepted that new techniques have labor, cash and management implications that are important in the eyes of the farmer, it has to be accepted that they have sustainability implications that are important in the eyes of the community as a whole.

This last chapter contains also about 20 further recommendations which should be detailed and pertinent enough to be functional within the CG system. These recommendation are especially brought to your attention because we need your comments on them in order to improve the report.



## CSC I - CHAIRMAN'S REMARKS

As you know, CSC I accepted to prepare for TAC four topics, namely

- sharing of responsibilities among Centers
- sharing of responsibilities between Centers and NARS
- collaboration between Centers and other research institutions including non-CGIAR centers, and
- relationships of Centers with the private sector.

Concern about these topics arose in TAC's strategic considerations at its meetings in the early 1980's, which led in due course to the TAC Review of CGIAR Priorities and Future Strategies of 1985 and its elaboration and acceptance by the Group in May 1986.

You will also be aware that an urgent call on CSC I to deal with collaboration between our Centers and some non-CGIAR centers led to the preparation, approval by TAC, and consideration by the Group at its meeting earlier this year in Montpellier of a position paper on "Promoting Collaboration Between CGIAR Centers and Other Research Institutions". The sub-committee considers this topic completed. However, we felt it would be useful to circulate to TAC members the tabulated results of a mail survey covering some non-CGIAR centers and indicating the areas of cooperation which they report. This

tabulation is to be found in document AGR/TAC:IAR/87/25 and is submitted solely for your information.

Before I deal with the main document which is now before the Committee for approval, the one dealing with "Sharing of Responsibilities Among Centers", I would like to brief you on progress made in preparing the remaining two topics on our agenda for TAC. Both were discussed among us in the meetings we have held in Montpellier in May, in Nairobi in June and in Karachi in September of this year.

A tangible outcome of our work on the topic "Sharing of Responsibilities" was the draft outline reviewed by the Committee in Nairobi. This was entitled "Sharing of Responsibilities between CGIAR Centers and National Institutions". This outline met with general agreement, and the Committee's comments were taken into consideration in the preparation of a first draft paper on the topic in Karachi. This draft, which includes conditions for and principles of sharing of responsibilities, has now been submitted to the Standing Committee. It is our hope to have the final draft position paper available for review and approval at TAC 45 in March 1988.

Our work on the topic "Relationships of CGIAR Centers with the Private Sector" has moved forward more slowly, and we did in fact find ourselves in Karachi at a sort of dead end.

For this reason, CSC I has requested guidance from the Standing Committee on how to proceed. In particular we need guidance on the purpose or purposes a TAC position paper on this topic is meant to serve, as this will greatly affect the coverage and depth of treatment.

Now I should like to make a few comments on the paper "Sharing of Responsibilities Among Centers", document AGR/TAC:/AR/87/24. An earlier version was reviewed at TAC 43, and the Committee's comments were considered in preparing the paper before you. Our task today is to give it a second and hopefully last review before we pass it for comments to the group of Center Directors and the Committee of Chairpersons. If these comments can be available before or at the March 1988 meeting, the paper could be finalized then and forwarded to the CGIAR meeting in Berlin in May 1988.

I might briefly review the genesis of this paper as an aid to its re-review. The topic of overlapping mandates has been on TAC's agenda for some years. When problems became serious, as in the case of overlap in the wheat research mandates of ICARDA and CIMMYT, the maize research mandates of IITA and CIMMYT, and the rice research mandates of WARDA, IITA and IRRI, TAC took ad hoc initiatives which were mainly in the form of exhorting the Centers involved to come together and reach workable agreements among themselves.

The TAC Review of CGIAR Priorities and Future Strategies put the problem of potential conflict over mandates in the positive light of promoting synergistic collaboration among Centers. Nonetheless it recognized that conflicts might arise and that a published procedure for their resolution within the system could assist in some cases to prevent their assuming crisis proportions and in others to lead to workable agreements without TAC's intervention. The paper before you includes such a procedure which emphasizes the role of the Centers in resolving conflicts over mandates among themselves and of TAC to promote this process. It also defines some of the principles that should guide the definition and assignation of Centers' mandates.

Before opening the floor for discussion, I would like to pay tribute to my predecessor as chairman of CSC I, Dr. Emil Javier, for his work on the first version of a draft paper, and to our colleague Mike Arnold for his volunteer effort to cast the paper in roughly the form in which you see it now.

As I said earlier, our task is to see whether the paper is acceptable as it stands. Your comments are invited.

VEGETABLES RESEARCH

The discussion in plenary and working group sessions spanned a wide range of topics and reflected the concern of TAC that a proposal to the CGIAR on a new initiative had to be sound and well supported by facts or reasoning in every aspect. The preparatory work by Dr. McClung received high praise for its thoroughness in assembling information and in analyzing it for the consideration of TAC.

At the scientific level, TAC members raised questions about the species selected for priority attention. Importance of species could be defined in many ways, but perhaps critical was the expected evolution of demand, on which little information was given. Priorities vary among regions and were also changing.

The work proposed for in-house research was examined. The consultant envisaged high priority in the short term to plant breeding (to ensure flow of genetic materials) and to research on social science and seed technology, with shifts in the longer term to (mainly contractual arrangements for) advanced research. Because of the importance of resistance to pests and diseases, the plant breeding program should be designed to exploit advances in molecular biology. This implied that staff at headquarters should have the capability of placing and monitoring appropriate contracts for strategic research and of applying the resultant

techniques. It also had implications for training staff in the collaborating NARS. Clarification was sought on the proposed distribution of resources between in-house research and network operations of the entity.

The approach to research appeared to envisage a matrix of commodity x thrust x region, with commodity as the common denominator. How would this come down to the level of work on a specific problem? What would be the lines of communication? Would problem definition and research approach be a matter for scientists or for institutions to propose? How were training needs, which were likely to differ greatly within and among the regions, expected to be met?

Several possible models for the organization and working method of the entity were put forward by TAC members and observers. These included CG and non-CG agricultural research Centers, Institutes and Boards. The special position and potential of AVRDC were given considerable attention. It was also felt that the term "network" in the names proposed for the entity might engender confusion in view of the many existing networks, e.g., in the S. E. Asia region.

Observers queried the choice of location of the entity in S. E. Asia, noting that many existing and new institutions are already present there, whereas on a need basis Subsaharan Africa

might be given preference. However, the consultant's arguments were considered valid, viz. that it was essential to have in the region partners for collaborative research and that also for training and information there was a need to draw on existing strengths. Moreover, it was stressed that there was an urgent need for an international vegetable research activity in Asia which contains the largest number of small farmers who desperately need the technologies and the seeds which the research was expected to yield. Latin America should not be omitted from closer consideration. However, a suggestion to start a network in a few more advanced countries of Latin America which would in time be expanded to include those with weaker NARS, was not accepted.

Much attention was given to the proposed structure of the entity. Some considered it too complex but others countered that it was no more so than some existing, efficiently run networks. The bottom-up approach in developing a strategic plan and the need to maintain contact with developments in the national programs were causes of the complexity, and both purposes needed to be served by an entity seeking to reach its research objectives through a collaborative network.

While the bottom-up approach taken received general endorsement, it was difficult to see how coordination among commodities and regions would be achieved. Other questions were

also raised about details of the proposed structure. The roles of the Board of Trustees and its program committee did not seem to be analogous to those of Boards of CGIAR institutions. Coordinators of network activities respectively for commodities and for continental regions might hold divergent views; how would these be reconciled? What were the links of the entity's management to the advisory committee and the regional working groups? Would capacity and resources for collaboration in research be a criterion for membership in the network? If not, how would it be possible to restrict the field of research to a manageable size? Was a single global network for research preferable to a group of networks each with a narrower scope?

As the entity was expected to facilitate network operations, sufficient capacity was needed in the staff for servicing the network and for drawing up contracts and supervising performance, all of which were very demanding. Regarding resources for contract research, it was agreed that these would have to be substantial in relation to the total budget for the CGIAR-supported effort.

Even if the evolution of an entity could not be clearly envisaged in all aspects, especially those farther removed from the initial stages, it was necessary to provide indicative specifics of structure and operation in the proposal to the CGIAR, on the understanding that these would be reviewed (and



modified as necessary) by the Executing Agency which would be entrusted with the task to bring the entity into existence.

TAC in closed session considered the next steps it would take. The consultant would be asked to amend and refine his proposals, taking into consideration the comments made. In particular, the idea should be to start small, with a more limited number of commodities, and gradually to increase the scope of research activities.

In summary, the main issues that need further clarification are the following:

- the institutional model. A more explicit presentation is needed which includes a clear exposition of the three-dimensional matrix (commodity, thrust, region).
- the organization and working method of the entity/network.
- the phasing of establishment (small) of CGIAR network/entity and its growth, including size (proportion) of funds for contracts.

If the revised proposal was available by the end of the year, a draft commentary could be prepared in time for finalization by TAC 45, March 1987.

DISCUSSION - Vegetables Research

The discussion in plenary and working group sessions spanned a wide range of topics and reflected the concern of TAC that a proposal to the CGIAR on a new initiative had to be sound and well supported by facts or reasoning in every aspect. Clarification was sought and issues were raised on organizational and administrative matters as well as on the clearly important scientific and technical outlines of a proposal that could be elaborated based on preparatory work by Dr. McClung, who received high praise for his thoroughness in assembling information and in analyzing it for the consideration of TAC.

At the scientific level, TAC members raised questions about the species selected for priority attention. Importance of species could be defined in many ways, but perhaps critical was demand, on which little information was given. Priorities vary among regions and were also changing. Experience in more developed countries had shown a shift of preference away from green leafy vegetables, and this might occur in Africa also. From a research standpoint, the species selected might have to be viewed as counting twice each, once in production for food and once in production of seed.

The work proposed for in-house research was examined. The consultant envisaged greater attention in the short term to plant breeding (to ensure flow of genetic materials) and social

science and seed research, with shifts in the longer term to (mainly contractual arrangements for) advanced research. One TAC member averred, and others supported, that an understanding of the potential of the powerful new techniques of "biotechnology," such as DNA probes and RFLP tests, should be part of the capability built into the in-house capacity in view of their possible use in breeding for resistance to pests and diseases. Another TAC member sought to clarify the proposed distribution of resources between in-house research and network operations of the entity.

The approach to research appeared to envisage a matrix of commodity x thrust x region, with commodity as the common denominator. How would this come down to the level of work on a specific problem? What would be the lines of communication? Would problem definition and research approach be a matter for scientists or for institutions to propose? How would the need for site-specific research be addressed? How were the range of training needs, which were likely to differ greatly within and among the regions, expected to be met?

A number of possible models for the organization and working method of the entity were put forward by TAC members and observers. These included CG and non-CG agricultural research Centers, Institutes and Boards. The special position and potential of AVRDC were given considerable attention. One participant noted that the term "network" in the names proposed for the entity might engender confusion in view of the many

existing networks, e.g., in the S. E. Asia region.

Observers queried the choice of location of the entity in S. E. Asia, noting that many existing and new institutions are already present there, whereas on a need basis Subsaharan Africa might be given preference. However, the consultant's arguments were considered valid, viz. that it was essential to have in the region partners for collaborative research and that also for training and information there was a need to draw on existing strengths. A TAC member moreover stressed the urgent need for an international vegetable research activity in Asia which contains the largest number of small farmers who desperately need the technologies and the seeds which the research was expected to yield. Caution and a deliberate pace were considered desirable by one TAC member in setting up an African sub-unit; this might be the lesson of the ICRISAT Sahelian Center. Latin America should not be omitted from closer consideration.

Much attention was given to the proposed structure of the entity. Some considered it too complex but others countered that it was no more so than some existing, efficiently run networks. The bottom-up approach in developing a strategic plan and the need to maintain contact with developments in the national programs were causes of the complexity, and both purposes needed to be served by an entity seeking to reach its research objectives through a collaborative network.

A number of questions were raised, however, about details of the proposed structure. The roles of the Board of Trustees

and its program committee did not seem to be analagous to those of Boards of CGIAR institutions. Coordinators of network activities respectively for commodities and for continental regions might hold divergent views; how would these be reconciled? How would a relative independence of regional units from the hub of the entity be assured? What were the links of the entity's management to the advisory committee of national institution representatives? To the regional working groups? Would capacity and resources for collaboration in research be a criterion for membership in the network? If not, how would it be possible to restrict the field of research to a manageable size? Was a single global network for research preferable to a group of networks each having a narrower focus?

As the entity was expected to facilitate network operations, sufficient capacity was needed in the staff for servicing the network and for drawing up contracts and supervising performance, all of which were very demanding. Regarding resources for contract research, it was agreed that these would have to be substantial in relation to the total budget for the CGIAR-supported effort.

Even if the evolution of an entity could not be clearly envisaged in all aspects, especially those farther removed from the initial stages, it was necessary to provide indicative specifics of structure and operation in the proposal to the CGIAR, on the understanding that these would be reviewed (and modified as necessary) by the Executing Agency which would be

entrusted with the task to bring the entity into existence.

TAC in closed session considered the next steps it would take. The consultant would be asked to amend and refine his proposals, taking into consideration the comments made. If available before the end of the year, this proposal could form the core of a draft which would be prepared by the Secretariat, with recourse to a small group of TAC members, in time for finalization by TAC 45, March 1987.

Agenda Item 6 (a)NEW CGIAR VENTURES: VEGETABLES RESEARCH

The Chairman welcomed to the meeting Dr. Colin McClung of Winrock International, consultant to TAC on the preparation of this agenda item, and greeted other distinguished observers present for the discussion, including Dr. Hugh Murphy (representing Winrock's president Robert Havener), Dr. George Marlowe and Dr. Paul Sun, respectively Director General and Deputy Director General of the Asian Vegetable Research and Development Center. He noted that AVRDC had from the beginning displayed a very cooperative attitude towards the proposed new initiative and should certainly be a major participant in it in some ways. He recalled that TAC had seen a need for additional information which would enable a sound proposal to be made to the Group, and requested Dr. McClung to present this information and his report to the Committee.

Dr. McClung acknowledged the help received from many persons and organizations in his wide-ranging travels, but noted that countries in some important regions, particularly in Central America and the Andean region as well as in some parts of Africa, had not been visited. He had been impressed by progress in vegetable production and by the quality, quantity and range

of vegetables that were now available on rural and urban markets of developing countries.

TAC's earlier documentation had been used to elicit the views of scientists and administrators of vegetable research units in both developing and industrialized countries on issues pertaining to the proposed CGIAR initiative. Strong positive interest was expressed everywhere. In Asia, networking was considered an appropriate mode for the initiative, as well as in the more advanced countries of Latin America visited, but in Africa as a region, and by seed producers as a group, a preference was evident for an international center. Three species of vegetables were accorded high priority by all those contacted, namely tomatoes, peppers and onions, with eggplant and okra also emphasized. A category of green leafy vegetables was of special interest in Africa, but not in Asia nor in Latin America. The five commodities were therefore considered for initial attention by any new entities and the category of green leafy vegetables for attention in respect to Africa.

Dr. McClung had considered TAC's comment that any new initiative should have some in-house capacity for research, and had concluded that this was indeed a vital need in view of the weakness of vegetable research in most developing countries and also in order to ensure a steady flow of genetic materials to the national cooperators. A main purpose was to ensure that



research beyond the capacity of available network partners could be carried forward efficiently. The particular research thrusts for the priority commodities should be identified in the process of establishing the CGIAR entity, with the full participation of the future collaborators.

In line with the experience of the CGIAR, the consultant had considered a single global network organized along commodity-program lines as the preferred structure for the entity. He envisaged that organizing assemblies of wide membership would be held in the three major regions (Africa, Asia, Latin America) to outline research needs and objectives. The assemblies would designate members of an advisory committee which, together with regional and commodity coordinators of the new entity, would draw up a strategic plan that in turn would serve to derive the annual work plan and budget to be submitted by the director of the entity to its CGIAR-style Board of Trustees for approval. The research program would then be implemented largely through contracts with collaborating network partners in developing countries, and also with advanced institutions as necessary, and in part through in-house research carefully designed to complement (and not to substitute or compete with) that carried out in the research network.

Dr. McClung concluded his presentation by giving the reasons for locating the hub of the proposed CGIAR entity

initially in Southeast Asia (Thailand, building on the strengths in vegetable research which exist in the region and the country, including the important contributions expected to be made by AVRDC), and for proposing a finite duration for the entity of 6-8 years, with the possibility of extension after very careful review by TAC. He drew attention to estimates of costs and staff contained in his report, which should be considered tentative.

Report of Working Group I  
IITA's Research Priorities and Strategies

TAC congratulates IITA on the preparation of "Research Priorities and Strategies 1988-2000", which it considers a comprehensive strategy document. The process by which it was prepared enabled IITA to undertake a critical analysis of the ecological and socio-economic background against which agricultural problems of the lowland humid and subhumid tropics of Africa will have to be resolved. This analysis provides the rationale for the goals, priorities, target groups and focus IITA has selected. TAC accepts part of IITA's conclusions drawn from this analysis and considers that the target group should be the small family farmer.

The development of systems for the management and conservation of natural resources for sustainable agricultural production is given as the first of IITA's four primary goals and, in the view of TAC, is essential to the success of IITA in the future. It is therefore with some concern that TAC notes that the improvement of crops is separated from their management by the program structure, and encourages IITA to improve the balance between the commodity and crop management programs and increase their integration.

TAC sees merit in the innovation of interprogram systems-based working groups, as separately funded entities, to integrate the work of the commodity improvement Programs with that of the agronomists and economists of the Resource and Crop Management Program. However, operational details are lacking and it is difficult to see how they would function in performing the necessary integration. Elucidation of some of the fundamental interactions among crops, nutrients, soil and water, and with livestock and arboreal species, is urgently needed if the natural resource base is to be conserved and enhanced in the effort to ensure sustainable agricultural production. TAC wishes to be reassured that these considerations have been taken into account by IITA's operational strategy.

TAC notes that decisions have been taken with respect to the commodities IITA has selected. TAC encourages the Board and management to continue sharpening the focus of programs to maximize collaboration with other institutions on crop productivity research in order to free resources for research into crop and resource management. Closer collaboration with the other Centers having responsibilities for maize, and cassava is essential, especially in joint breeding programs, to make most effective use of expertise within the system and the comparative advantages of the respective Centers. In this context TAC is pleased to endorse the mode of collaboration being worked out with CIMMYT, which could well become a model for other crops and

other Centers. With respect to cassava, TAC would like to see IITA elaborate its strategy for collaboration with CIAT. In the development of materials for the different environments of central and western Africa, full use should be made of CIAT's germplasm and experience.

Rice research is a regional issue which has yet to be resolved. Clearly, rice is important in IITA's mandated region, and it is vital that the experience and progress already made not be lost to the System. However, TAC is supporting WARDA in developing the capacity to assume leadership for rice productivity research in West Africa. WARDA is now in a transitional phase and IITA's rice research must continue during the period as WARDA comes to full strength. Therefore IITA will need to consult with WARDA and participate in joint planning and integrated collaborative research during the interim period.

IITA's collaboration with other centers, both inside and outside the CGIAR, should be clearly spelled out. This applies not only to those centers with responsibilities for the same commodities, but also to such centers as ILCA on livestock, IFPRI on policy, ICRISAT on systems using cowpea, IBSRAM on soils, ICRAF on agroforestry, and IFDC on plant nutrients.

Clearly, IITA's overall program is in a period of rapid evolution on a broad front. TAC notes that a joint IITA/CIAT

agroeconomic study of cassava in Africa in Africa has been funded and wishes to point out that at its June 1987 meeting questioned the estimated time scale and resource requirements. When the two Centers withdrew the project, TAC decided not to endorse it pending its resubmission. In the absence of a formal resubmission, TAC still has the same concerns it expressed in June.

The new resource allocation process currently being implemented by TAC on behalf of the Group, requires that all elements of Center programs are to be reviewed and evaluated as essential, desirable, or inappropriate regardless of the source of funding. TAC will review with interest the medium-term proposals of both Centers during the coming year to determine the nature of the study and will evaluate it according to its appropriate classification.

Turning to IITA's biological control program, TAC endorses the analysis and conclusions of the mid-term review of the Africa-wide Biological Control Program with respect to the continuation and development of IITA's program. Further, TAC also agrees that it is appropriate for IITA to become involved in the operational aspects of the program through the establishment of testing networks in cooperation with national systems.

Although comprehensive with respect to research, TAC is disappointed by the incomplete nature of the plan insofar as it does not include a description of the strategies for collaborating with national systems. Given the importance of the role of Centers in building national programs, this represents an important omission. TAC understands that these strategies which would take explicit account of the various ongoing efforts in the region, will be described in a separate document. TAC would, however, appreciate receiving a single document containing both the revision of the research strategy, and the collaboration strategy in time for its consideration at the March 1988 meeting.

Finally, TAC also expects to receive in time for its 46th meeting in June 1988, IITA's medium-term program proposal, which should consist of an integrated program covering all of IITA's activities regardless of funding sources. There should also be full coherence between the strategic plan and the program proposal with respect to the amount and distribution of all human and financial resources.

Medium-Term Proposal IBPGR

TAC commends IBPGR for the progress made in developing a medium-term proposal, and acknowledges the efforts made to incorporate the suggestions made by TAC during the June meeting. The Committee particularly appreciated that the proposal was submitted together with a draft version of its long-term strategy plan.

TAC endorses the substance of IBPGR's program, but requests that IBPGR revise the document to incorporate the following modifications and suggestions:

- an improvement of the clarity of the proposal by making it more concise and by the consistent use of CGIAR terminology
- the integration into the text of the linkages between IBPGR programs and CGIAR activities
- a clarification of what is essential and what is desirable; reference to what is core and what is a special project should preferably be avoided
- a rationale for the intended scale and the choice of size of staff levels
- a definition of staffing categories including senior staff.

TAC anticipates endorsing IBPGR's medium term proposal after incorporation of these suggestions.



22/10/87

Working Group II

Medium-Term Proposal CIP

TAC is encouraged by CIP's progress in developing a medium-term budget proposal, and appreciates the efforts made by the Center to provide a timely response to the comments made by TAC during the June meeting. TAC welcomed the opportunity to further discuss CIP's choice of a no-growth policy. It notes, however, that this policy has referred only to the Center's number of senior scientists, and that there has been an expansion in the number of scientific, supervisory and support staff.

TAC accepts CIP's offer to redraft its proposal for consideration at TAC 45 and suggests the following modifications and additions:

- integration of the supplementary tables (provided during the meeting) and appendices into the text;
- a balance in the discussion of the thrust-based program approach that derives from its strategy, and the department/activity-based Program and Budget;
- an explicit discussion of CIP's scale of activities and necessary critical mass;

- a rationale for the proposed gradual shift of resources to research on sweet potatoes;
- a clarification of essential and desirable program and capital items;

TAC endorses the substance of the program and anticipates endorsing CIP's medium-term proposal after incorporation of these suggestions. The committee would welcome further discussion with CIP, as soon as it is ready to do so, on the clarification of research networks as desirable or essential. This issue will subsequently be addressed by TAC in the process of implementing the new resource allocation system for the other CG Centers. TAC also notes that CIP may want to incorporate strategic considerations such as its choice of target groups and relations with national programs into the final proposal.

Working Group II

Cassava Demand Studies

TAC greatly appreciates the cassava demand studies undertaken by CIAT. They will provide useful and essential background material for the evaluation of CIAT's medium-term program and budget proposal that is to be considered at TAC 45.

### Report from CSC III

CSC III met on Saturday, 17 October 1987. Participants in the meetings were Alex McCalla (Chairman), Gustavo Nores, Michael Arnold (Standing Committee), Michael Collinson (CGIAR Secretariat), Guido Gryseels (TAC Secretariat) and John Monyo (TAC Executive Secretary).

### Agenda

1. Report from Bellagio meeting.
  1. Discuss paper on "use of quantitative models for setting priorities..."
  3. Implementing priority-setting as a continuing activity.
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1. Bellagio meeting organized by Rockefeller Foundation on "Allocating Resources for Developing-Country Agricultural Research", 6-10 July 1987.

Michael Arnold and Guido Gryseels both attended this meeting and reported on its outcome. The meeting brought together both academics and practitioners with experience in the field of resource allocation in developing-country agricultural research. The outcome was a "state of the art" of various methodological approaches to priority-setting in resource allocation at the national, regional and international levels.

From TAC's point of view, three papers were of particular interest: Jahnke on setting priorities across IARC's, Davis-Oram-Ryan on the ACIAR model, and Herdt-Riely on priorities in international rice research. The Herdt-Riely paper was undoubtedly the highlight of the meeting. Using an elaborate scoring model/delphic approach concerned with benefit-cost procedures, it illustrates a methodology for establishing priorities in international rice research and identifies the possible role biotechnology could play. The approach taken could be a model for other IARC's.

Jahnke's paper contains a set of general reflections on priority-setting, and a proposal to set aside 5% of the CG budget for special research activities. This money would be allocated on the basis of a delphic approach, using the expert views.

The paper by Davis and Ryan described the ACIAR model, of which the strengths and weaknesses have been discussed previously. The authors also discuss use of the results of the model by the Policy Advisory Committee. It is generally thought that ACIAR is making the baby run before it can stand up.

The conference highlighted the rapid progress in the development of quantitative methods to assist in priority-setting, particularly at the national level. The

increased availability of microcomputers has been of strong assistance in supporting this trend. Many useful tools have been developed to assist NARS managers. Less progress is being made at the international level, and the ACIAR model remains only a rudimentary attempt. There are so many imponderables about the methods that it is doubtful whether the efforts are worthwhile. Some of the models also aim for precision nobody wants or needs.

Quantitative methods for priority-setting seems conceivable at the core level, but not at the margin. They are also more appropriate at the commodity level than at the program level. Limitations in data availability remain a major constraint. The application of quantitative methods to priority setting is useful only when goals can be clearly specified. One question that arises is how different the goals and objectives of the CGIAR are in comparison to those of other agencies such as ACIAR.

## 2. Discussion of "use of quantitative models for setting priorities in resource allocation to agricultural research".

This was generally considered an excellent paper that contains a comprehensive review of the relevant literature. It was agreed that the paper should be presented to TAC unchanged. It was also suggested that the paper could ultimately be published as a "TAC discussion paper" but carrying individual

authorship. The preparation of such background papers was seen as an essential role of the TAC Secretariat.

In the final version of the paper, greater attention should be given to the discussion of export and ex-ante research evaluations, and to the sensitivity of each model to particular variables. There was also a slight inconsistency between the recommendations and the discussion of mathematical programming models. The discussion of TAC goals should move to the early part of the paper. As a general comment, Dr. Arnold notes the need for consistency in the use of terms like "factor inputs" and "commodity research".

### 3. Implementation of priority-setting as a continuing activity in TAC.

3.1 It was agreed that TAC should make greater use of quantitative methods in quantitative methods in guiding its discussion on priority-setting. It was felt, however, that two additional background papers were necessary before deciding on a particular model or approach.

One paper would need to discuss the information needs and possible data sources of each particular quantitative approach. The second paper would address the issue of TAC and CGIAR goals,

and how they are to be made operational.

Guido Gryseels and Mike Collinson agreed to prepare both these papers for TAC 45.

3.2 The sub-committee also discussed a paper prepared by Gustavo Nores on impact research assessment. The paper was considered a very good start for a wider discussion by TAC of the topic. The paper is to be circulated to TAC members for discussion together with the paper on quantitative models.

3.3 Centers are to be encouraged to put greater efforts into an ex-ante impact assessment.

They are also to be encouraged to adapt the Herdt/Riely approach to assist in priority-setting of their research activities. Perhaps a joint working group of TAC and Center Directors could work out guidelines for follow-up.

3.4 Steps are to be taken to ensure the implementation of priority-setting as a continuous activity by TAC. A timetable is to be made on revisions of sections of Chapter 4 in the "Priorities and Strategies" document.

Prior to commodity/activity reviews, particular sections of this document are to be reviewed analytically and quantitatively.



This would require an update on the literature (what has been published since the previous review), an analysis of relevant data sets (CG efforts, global data, and national efforts), and trends in resource allocation. The outcome would be an issues paper that would be presented by a TAC member at the TAC meeting. Possible commodity groups would be cereals, livestock, grain legumes, roots and tubers and Resource Management. The TAC discussant would not necessarily have to be an expert on the particular research area.

3.5 The sub-committee also considered the following options:

- organization of a "modellers' day"
- a comparison of the results of the ACIAR model with the TAC analysis of priorities
- contract out the preparation of a model that would, for example, study the efforts of new initiatives on vegetables and aquaculture
- ask Winrock to undertake a Herdt-Riely-type study on vegetables
- should TAC have one staff member to work full-time on issues related to priorities and strategies?

3.6 At the CGIAR meeting in May 1988, TAC is to present a paper on how it intends to develop priority-setting as a continuing activity. This paper would incorporate both the Gryseels and the

Nores documents and identify and operationalize the quantitative approaches to be taken.

AQUACULTUREI. Areas of Agreement

(TAC) reached broad agreement on the following areas:

a) Species

Tilapias and carps were selected as priority species. However, given the importance accorded to income generation and employment for small farmers in recent CGIAR discussions, consideration might be given to adding or selecting other species which would satisfy this need. Shrimps might be such a species.

b) Types of Water

(TAC) has given highest priority to fresh water aquaculture, with brackish water being added as the program expands. Further expansion to include saline water was also considered a possibility because of salinization resulting from irrigation practices in many situations.

c) Research Thrusts

- (i) Genetics and nutrition (but no clear agreement on fish pond dynamics) were considered to be equally important research

areas.

- (ii) Diseases were not considered to be a major problem for the two groups of species in tropical waters, but might become important later.
- (iii) Seed production was given lower priority because of the desire to start small, and on activities where the need for basic or strategic research was greatest.

d) Headquarters' Location

Southeast Asia was suggested for location of the management entity and in-house research capacity due to strength of national programs, their adequate infrastructure, and good prospects for advanced training under tropical conditions.

II. Areas of Contention

Inasmuch as there was broad consensus on the above areas, there were diverse opinions among (TAC) on the following:

(a) Locational Issues:

- Hq, Nutrition Res., Genetics Res. in 3 locations considered excessive.
- Genotype x environment interaction argues for single research location.

- Need for leadership and inspiration argues for having also research direction and network coordination at same location with research.
- Genetics research can be carried out in many places, esp. universities, even in non-tropical countries.
- Tilapia "center of origin in Africa" argument not fully accepted: SE Asia as center of main production needs genetic stocks from Africa for work in SE Asia.
- Site-specific aspects including non-tropical environment work (Pakistan, Egypt and China) to be handled through network (contracts). In-house capacity for strategic research (principles).

(b) Africa

- Agreement that something needs to be done in Africa, from start or very soon after.
- Work on tilapia could start there in a small way, mainly genetics documentation (ongoing by ICLARM) and evaluation (ICLARM says it would be better to bring strains to Asia for work).
- Accepted that simple transfer of technologies from Asia to Africa not likely to work, but

principles/findings on pond dynamics/relationships should be useful for testing and application.

- High general need and special training needs (can be met in good part in SE Asia).
- Inadequate knowledge of institutions and current programs in Africa (no site visits by consultant); ponds and work reported in Cote d'Ivoire, Cameroon, Malawi. ICLARM said to be cooperating with Ghana on tilapia, but could not see genetics work being done there.
- Egypt offer of existing facilities for CGIAR entity (network partner, Asia-Africa link).
- African scientists ought to be asked what they think.
- Note consultant was not asked by TAC to study situation in Africa, but situation is supposed to be described in IDRC publication of 1986 Workshop-Dakar Proceedings (IDRC to provide to TAC members).
- Proposal for a sub-base in Africa mainly on tilapia, and one in Asia mainly on carps.
- Alternative proposal to look at Africa as major CGIAR effort in the long term on aquaculture. Initiate work with tilapia on small scale. African "Genetic center" suggested, in view of being region where tilapia occur naturally with associated

problems of disease, predators, etc. Would increase training opportunities, build up national capacities. Start with genetics, go on to nutrition research. Carps also may come later. (An Asia substation could be considered to secure the rapid impact there which is anticipated.)

### III. Main Issues

The following issues were highlighted for further elaboration and discussion:

- The productivity and character of aquaculture systems (see attached note).
- In order to promote employment and income-generation for poor farmers, it might be desirable to reconsider the choice of species (e.g., inclusion of shrimps).
- The feasibility and implications of extending the system to include brackish and saline waters.
- With respect to research thrusts:
  - (i) What is meant by nutrition and pond dynamics.
  - (ii) The nature and scope of the genetics program.
  - (iii) The feasibility of integrating genetics and

nutrition research.

- Concerning regional needs and priorities to state the pros and cons of having a sub-base in Africa working on the genetics and breeding of tilapia.
- Options related to organizational structure:
  - (i) Strengthen selected national programs as part of the aquaculture network.
  - (ii) Strengthen existing network(s), e.g. NACA, by adding capacity for basic and strategic research to selected collaborating institutions.
  - (iii) Establish a new Center.
  - (iv) Attach the new activity to ICLARM as proposed by the consultant.
  - (v) Establish a headquarters location away from ICLARM but specify a special role for ICLARM in the network.



24.10.87

## AQUACULTURE RESEARCH

### I. Areas of Agreement

#### 1. Initial Areas of Work (Focus)

Tilapias and carps are the priority groups of species.

Freshwater aquaculture in tropical environments.

Genetics and nutrition are the research thrusts (nutrition is not considered synonymous with "pond dynamics") and the principal nature of the research is strategic. Attention to seed production would necessarily be given in genetics research.

Information work and training coordination should be undertaken.

#### 2. Initial Concentration of Activities

Southeast Asia was suggested for location of the management entity and in-house research capacity due to strength of national programs, their adequate infrastructure, and good prospects for research under tropical conditions.

Information work and the coordination of training activities could have global scope from the beginning.

#### 3. Phasing of Subsequent Work Activities

Prior to or upon establishment of a CGIAR-supported entity, an examination and evaluation should be made of other aquatic organisms, environments and research thrusts that could receive attention based on needs and priorities of National Institutions in the various regions, covering such topics as:

- species meeting income-generation, employment and sustainability requirements with the small farmer as target group;
- brackish water (some tilapias can grow in it) and saline water (e.g. resulting from land irrigation), and subtropical and other environments
- diseases of the priority species (but see also No. 5e below)
- reproductive physiology and seed production, a

research need identified earlier.

4. Phasing and Subsequent Concentration of Activities

The earliest possible start of research activities in Subsaharan Africa is desired.

Other regions (Latin America, North Africa/Near East) should be studied to define relevant research needs in those regions and the mechanisms for conducting it.

II. Issues to Be Resolved

5. The needs related to the agreed priorities. These should determine the design of the mechanism to meet them.
  - (a) The productivity and nature of aquaculture systems, including consideration of applicability to small farmer (separate note).
  - (b) The scientific validity of the proposed separation of work on genetics (except basic) from nutrition.
  - (c) Consideration of aspects of sustainability.
  - (d) The nature and scope of the proposed genetics research programs and "pond dynamics" thrust that would feed into them (not modelling per se). The part of research programs conducted by the entity, if any.
  - (e) Consideration whether diseases of both primary production (e.g. algae) and fishes would not need to be addressed from the beginning (multidisciplinary approach).
  
6. Based on such considerations (plus concept of global activities in information work and coordination of training), options for the organizational model and method of operating should be proposed. In particular:
  - (a) single location for entity (multidisciplinary approach) vs. several locations;
  - (b) research (strategic/basic) by programs at entity location vs. by programs of strengthened national institutions (e.g. with entity staff participating on location);

- (c) functions and participation of ICLARM if it does not become (in whole or in part) the CGIAR-supported entity
- (d) How and where to start in Subsaharan Africa (genetics research on tilapia seems to be indicated). Relationships and flexibility needed with expansion of research networking beyond Southeast Asia.

King Baudouin Award (Agenda Item a)

The Deputy Executive Secretary, on the request of the Chairman, briefly outlined the origin, purpose and periodicity of the King Baudouin International Agricultural Research Award, which had been established by the CGIAR to commemorate the bestowal on the Group of the King Baudouin International Development Prize. As the next Award would be made in 1988, the Secretariat had revised and distributed the proposed Arrangements (1).

The Committee reviewed the Arrangements and confirmed their use for the selection of the 1988 Award, which would take place at the June meeting. The Chairman confirmed that the Centers would be invited at an early date to prepare proposals for submission to the Secretariat by 30 April 1988.

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(1) AGR/TAC:IAR/87/23

ANDRE' MAYER FELLOWSHIPS FOR 1988/89

(Agenda Item 10)

The Chairman opened the session by referring to the invitation of Dr. C. H. Bonte'-Friedheim, Assistant Director-General, Agriculture Department of FAO, which TAC had accepted, to assist FAO in the identification of the research proposals that form the basis for the selection of Andre' Mayer Fellowships.

Dr. Muhamed Zehni, on the Chairman's invitation, expressed on behalf of FAO his appreciation of the willingness of TAC to participate in the process. In FAO's opinion, TAC's involvement would enhance the prestige of the Andre' Mayer Fellowships. He apologized for the late transmittal of the projects but explained that to meet the Committee's schedule, the process in FAO had been accelerated.

Following detailed consideration of the proposals, TAC selected six of them, and another four as possible alternatives. In reviewing the process, TAC proposed that for the next round, the following principles should be observed.

1. To be manageable within TAC's agenda, FAO should limit the number of proposals to about twelve and their length to two pages.
2. These proposals should come before TAC on only one occasion.
3. The most suitable time for the selection procedure to take place would be during a closed session of its October meeting.
4. To facilitate TAC's consideration of the proposals, documentation should reach members at their homes. This would normally mean dispatch from the Secretariat in mid-September.

TAC recognized the FAO had speeded up its normal process to accommodate TAC's schedule of meetings but remarked that the clarity and focus of some potentially very good projects had suffered. It expressed the hope that in future a schedule could be established which would allow FAO sufficient time to refine the research proposals, and TAC sufficient time for their in-depth consideration.

24.10.87

DRAFT

The Biological Control Program of IITA

At TAC 43, Dr. M.H. Arnold reported to TAC on the mid-term review of the Africa-wide Biological Control Program. He advised TAC at that time that IFAD, on behalf of the Program's sponsoring group, would request TAC to look at two issues of possible system-wide significance. At the same time the Committee also noted that Dr. Stifel, in presenting IITA's program proposal for 1988, also asked for TAC's views on the proposed new direction for the biological control program.

Following TAC 43, the report of the review was distributed to TAC members for information. The two issues with implications for the system as a whole are:

- (i) the extent to which a Center should work on the biological control of pests not directly affecting its mandated crops;
- (ii) the extent to which a Center should become involved in the operational aspects of a biological control program, as distinct from the research aspects.

In both respects, TAC endorses the analysis and conclusions of the report. On the first issue, TAC agrees that Centers might legitimately become involved in the biological control of pests, including weeds, that are important in the cropping

systems of their mandated crops. TAC also agrees with the suggestion in the report that research on pests of other crops, such as mangoes, might be undertaken through the attachment to the Center of scientists employed by other organizations provided that the research did not become part of IITA's program. In this way, the critical mass of expertise at the Center could be used to the maximum benefit of the national programs.

Regarding the operational aspects of biological control, TAC endorses the proposal in the report that the initial stages of moving from research to operations should be through the establishment of testing networks. In this way the work could be seen as being no different from the establishment of other testing networks, such as those for testing germplasm, and could therefore be regarded as a legitimate function of an International Center. As the Report suggests, however, expansion of operations beyond this testing phase should come into the realm of development projects and would not normally be a proper function of a Center, beyond the consultancy services often provided in such circumstances.

The Report also discusses the further development of biological control in Africa and proposes that mechanisms for coordination should evolve through an annual meeting of representatives of the main institutions involved. It is suggested that the meeting should be planned jointly by ICIPE and IITA and its recommendations should form the basis for



setting priorities. These would then be considered by the management of the participating institutions.

TAC will follow with interest further developments in research on integrated pest management in Africa. In the meantime, the Committee commends the Report for study by the CGIAR as an example of progress in this important area of work.

(This note on aquaculture replaces the note of 24/10/87)

In the CGIAR priority paper it is said that aquaculture enables environmentally sound high-off-take food production from limited areas of land and water.

This high take-off seems to be confirmed on page 27 of the Idyll's report. But, there, high input aquacultural systems are compared with low input pastoral systems. However, the potential primary production of ponds in the tropics that are well supplied with water and nutrients is only 50% of the potential primary production of land area under the same optimal conditions. Since the conversion factor of primary to secondary production of fish is not particularly high, the potential off-take rates are not particularly high either. Moreover, the environmental soundness of intensive aqua systems and of aqua feedlots should be seriously doubted. This holds also for the applicability by the poor. This does not mean that we should not venture in aquaculture research, but before deciding on thrusts, especially in the area of nutrition and pond dynamics, we need more information.

Information on the agro-ecological situations where aquaculture has potential, on the potential production and the necessary inputs of aquaculture systems ranging from semi-natural water bodies to fertilized ponds and aqua feedlots, on their usefulness for the poor, and on their environmental impact.

As to the latter, we are not in a position that we can present at the same CG meeting our sustainability paper and a proposal on aquaculture without considering the sustainability and environmental aspects of the latter.

#### APPENDIX

(1) Maximum sustainable production of plankton in unstirred tropical ponds well supplied with fresh water nutrients in  $4 \text{ g C m}^{-2} \text{ day}^{-1}$  (pers. com. Roger Pullin). The maximum sustainable production of a land area in the tropics well supplied with nutrients and water is about  $10 \text{ g C m}^{-2} \text{ day}^{-1}$  for  $C_4$  species.

(2) A main environmental problem with aquaculture ponds is that we add materials directly to the water (fertilizer, manure) that we call pollutants, if they leach from agricultural land into the water.

24.10.87

## VEGETABLE RESEARCH

### I. Areas of Agreement

TAC reached broad agreement in the following areas:

#### a) Species

Tomatoes, peppers and onions are regarded as meriting highest priority. Candidates for second priority are okra, eggplant, cucurbits and leafy green vegetables. Their merit for inclusion in the network would depend on demand growth potential, researchability of constraints and the views of national systems consulted in the first regional workshops.

#### b) Environments

Tropical environments are regarded as meriting highest priority in research, with emphasis on humid and subhumid conditions. Subtropical environments are assigned initially second priority, until advances are made in tropical environments. Information exchange and training not restricted to first priority environments.

#### c) Research Thrusts

Major research thrusts would depend on the major constraints on productivity and marketability of selected species in tropical environments. Initially emphasis should be placed on:

- collection, characterization and evaluation of land races and cultivars from tropical and subtropical environments in major screening sites at selected locations within a range of tropical environments.

- market and demand analysis leading to the identification of market absorption capacities, marketing constraints, and the selection of target production areas.

- identification of researchable constraints and assessment of potential pay-offs vis-a-vis required time and resources to solve them.

It is envisaged that in a second phase, research would be conducted on:

- Adaptation breeding for various tropical environments;

- Seed production and seed physiology;
- Plant protection (disease-integrated pest management);
- Post-harvest physiology and technology; and
- other areas as might be required (e.g. plant physiology, breeding for disease and pest resistance exploiting advances in molecular biology, germplasm conservation, vegetable production systems, ...).

Early initiation of activities in any particular area would depend on knowledge accumulated by AVDRC and participating national systems.

#### d) Institutional Model

The proposed institutional model combining the network approach with research organized in a three-dimensional matrix of commodity x thrust x region with commodities as the common denominator is regarded as appropriate in general terms. However, a more clear exposition of its articulation is essential (in terms of organization, evolution phases, decision making levels and channels of communication).

#### e) Headquarters Location

There was general agreement about the principles to be used for selecting the locations for headquarters and regional unit(s). A location in South East Asia seems appropriate for drawing on the strength of national systems through a network approach. However, the balance with the sub-unit in Africa does not seem appropriate to the magnitude of problems and the relative strength of national systems.

#### f) Relationships with AVDRC

The nature of the activities to be undertaken by AVDRC were regarded as appropriate for drawing on AVDRC strengths and present comparative advantages. Specifics however should be worked out at a later stage.

## II. Issues

- a) number of species to be included as initial priorities and rationale for inclusion;
- b) size and composition of staff at both locations;

- c) functionality of organizational model proposed;
- d) single network versus regional networks; global information network plus regional research networks; institutional network or research scientists network supported by headquarter's and contract research.
- e) relative emphasis on in-house research versus contractual research;
- f) technical and administrative capability required at headquarters for coordination and monitoring contract research;
- g) the use of the word network in the title (e.g. confusion with other vegetable networks);
- h) scope and nature of network activities in Latin America and the Caribbean;
- i) roles of Board of Trustees and its Program Committee, and of the latter vis-a-vis those of the Network Advisory Committee (or Regional Advisory Committees) and Regional Working Groups;
- j) technical and administrative responsibilities of commodity program coordinators and regional coordinators; lines of command;
- k) relative balance in-house research / contract research / support to national systems' research / network activities in terms of budget at different stages of entity/network development;
- l) phasing-in stages: nature, duration, activities, staffing, and estimated costs

CSC I

Draft Oct. 20, 1987

E.P.

### Relationships between CGIAR Centers and the Private Sector

Among the tasks CSC I accepted to prepare for TAC is a discussion of "Relationships between CGIAR Centers and the Private Sector". In approaching this task, CSC I found that it was unlikely that a useful set of principles could be derived to guide these "relationships". The question then arose what purpose a draft paper should serve. Was it to describe for the Centers what problems might arise and what opportunities could be seized? Was it for the Group to debate and endorse the stance which Centers should take vis-a-vis the private sector? Was it for the Group to use its influence on the private sector (mostly in the more developed countries) to moderate the problems and enhance the opportunities? And what elements of the "private sector" should be considered: those concerned with strategic/basic aspects of interest to agricultural research? with the uptake possibilities of IARC research results, including suppliers of seeds, fertilizers, pesticides, etc.? with indigenous development of agro-industry?

CSC I requests the guidance of the Standing Committee. In the following it brings to attention some of the relationships and issues which have been discussed. Depending on the approach to be taken, others may be added, some discarded from consideration, and some treated in depth. The approach may also affect the need for consultants; e.g., ISNAR is mentioned in item 12 below.

1. Private enterprises related to agriculture are of various kinds, according to their products: machinery, pesticides, vaccines, seeds, and so on. Most are merely adapters. Others, mainly seed producers, are strong in research. Included are non-profit private enterprises.
2. The activities of private enterprises, including their research, can be, and in some instances are, in line with the goals of the CGIAR.
3. In developed countries, seed companies have played a significant role in agricultural development. Recent years have seen increasing activities of private enterprise in developing countries, and everything indicates that this trend will continue (CGIAR Priorities pp. 20-21 and 112-113).

4. In most developing countries so far, the indigenous private sector has had little or no participation in agricultural research. In many cases where research is done, this is adaptive or location-specific; in others, it deals with development aspects like seeds, fertilizer, pesticides, etc.

5. The private sector has been considered to be generally beneficial, in developed countries, because by providing more competition, faster and greater progress was made in reaching higher yields, and there were more employment opportunities for professionals, more options for the farmers, and more guarantees of availability of seeds and other inputs.

6. Public institutions are more vulnerable to suffer as a result of political changes. This implies a greater risk of loss of stability and continuity of research activities. Besides, public institutions can hardly take care of all aspects of agricultural research or even of breeding needs for all crop species.

7. The role of the private sector should not be ignored by the CGIAR Centers, since "the enlarged role of the private sector could mean additional and much-needed resources for agricultural research" (CGIAR Priorities pg. 113).

8. The private sector is usually more dynamic than the public sector, being able to incorporate in a short time new advances of science. This is particularly true regarding "biotechnology."

9. It must be accepted that the private sector will not have much concern for the marginal and difficult areas, for the poor farmers, or for the protection of the environment and for sustainability, which are at present of high priority for the CGIAR.

10. Increased participation of the private sector in agricultural research "could also imply increasing barriers to the hitherto free flow of scientific information and genetic materials in and out of the System" (CGIAR Priorities p. 113).

11. There might be some high-quality advanced research on some problems of interest to the CGIAR that could benefit from interaction and/or cooperation with the private sector. The question arises in such cases as to whether a reorientation of the research by the Centers is called for.

12. To cover all aspects of relationships, and particularly to derive or develop principles, a deep analysis is needed. Since the situation is likely to be location- or country-specific, ISNAR could make a good contribution by examining the role of the private sector in relation to agricultural research in the

different countries.

13. Possible types of cooperation between CGIAR Centers and the private sector that could be mutually beneficial include: training, especially in high-quality advanced techniques; organization of seminars and scientific meetings; and evaluation of a wide range of germplasm. In any event, such collaboration should be subject to the monitoring and evaluation mechanisms of the System (CGIAR Priorities p. 113).

14. Would it be of interest to stimulate the development of the national private sector, particularly so long as there will be no adverse impact on equity and sustainability?

15. Would it be of interest (and, if yes, how would it be possible) to stimulate in developing countries the creation of non-profit private Foundations?

16. For the development of private sector enterprises, an economic return is necessary. In this context, what is the view of TAC regarding Plant Breeders' Rights and tax exemptions as incentives for the development of local corporations or cooperatives? (CGIAR Priorities p. 113).

17. What kind of control, if any, should be envisaged in order to avoid or limit possible abuses by the private sector?



### BIOLOGICAL CONTROL PROGRAM AT IITA

Through IFAD, the sponsoring group of IITA's Africa-wide Biological Control Program requested TAC to comment on two issues identified during the course of a mid-term review of the Program.

The two issues are:

- to what extent should IITA utilize its new biological control research unit in Benin to work on the biological control of pests not affecting its mandated crops or those mandated to other centers in the system
- to what extent should IITA become involved in the operational aspects of the results of its successful research, as distinct from the research itself.

These two issues have implications far beyond IITA and could affect in one way or another most of the CG Centers.

TAC is of the opinion that IITA should encourage other institutions both within and without the CGIAR to utilize any spare capacity for research on the biological control of pests

of direct interest to them. In this way a critical mass of expertise could be assured at the unit which could have greater payoff for all concerned. TAC also recommends that the research programs of these other institutions are kept separate from the IITA programs, and that the facilities are made available under a negotiated cost-recovery basis.

With respect to the question of whether IITA should become involved in the operational aspects of the biological control program, TAC endorses the principle that in the initial stages of moving from research to operations, the Center should establish testing networks analagous in function to germplasm testing networks. Expansion beyond this testing phase becomes "development" which is not a proper function of CGIAR Centers beyond what might be provided as backstopping or consultancy services.