CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH
TECHNICAL ADVISORY COMMITTEE

Nineteenth Meeting, Nairobi, Kenya, 6-13 June, 1978

REVIEW OF PRIORITIES FOR INTERNATIONAL SUPPORT
TO AGRICULTURAL RESEARCH IN DEVELOPING COUNTRIES

- MAJOR ISSUES -

(NOTE BY THE TAC SECRETARIAT)

(Agenda Item 9)

TAC SECRETARIAT
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Rome, 1978
PROPOSED AGENDA FOR TAC DISCUSSIONS
WITH CENTRE DIRECTORS ON PRIORITY SHIFTS

1. General issues
   1.1 Future balance among functional tasks of IARCs (research, training,
       information exchange, advisory and technical assistance services)
   1.2 Future balance of main research activities
       1.2.1 commodity research and farming systems research
       1.2.2 present major crops and potentially important crops
       1.2.3 basic research
           factor oriented research
           research on physical and socio-economic constraints

2. Questions related to specific commodities
   2.1 Cereals
   2.2 Roots and tubers
   2.3 Grain legumes
   2.4 Other commodities

3. Questions related to the geographical balance of CGIAR activities
   3.1 High rainfall tropical lowland areas
   3.2 Tropical highlands
   3.3 Irrigated agriculture in arid and semi-arid areas

4. Future contribution of IARCs in TAC review of priorities
REVIEW OF PRIORITIES FOR INTERNATIONAL SUPPORT TO
AGRICULTURAL RESEARCH IN DEVELOPING COUNTRIES

- MAJOR ISSUES -

(Note by the Secretariat on the proposed agenda for
TAC discussions with Centre Directors)

1. INTRODUCTION

At its 18th meeting, the Committee requested the Secretariat to prepare a
list of issues for further discussion of priorities for international agricultural
research with Centre Directors at its 19th meeting. The purpose of this list as
presented below is to:

(i) identify areas which may require particular attention in considering
the possible needs for priority shifts within the activities of the
CGIAR System, and

(ii) provide a basis for further guidance by the Committee in the overall
review of priorities.

The topics which are suggested below for discussion by the Committee have
been prepared by the Secretariat from a compilation of TAC and other documents,
and from the records of TAC and CGIAR meetings. Mention of a given activity, area
or commodity in this list does not imply suggestions for priority shifts on the part of
the Secretariat. In fact, the Committee may wish to confirm its earlier assessment
on priorities in most of the areas set out below. It may also wish to recommend some
changes in priority ratings or request further analysis of available data before
deciding on the need for priority shifts.

TAC discussions of priorities in the past have concentrated mostly on food
commodities and their relative importance in developing countries. An attempt is
being made in this paper to place the discussion of CGIAR priorities in a wider and
longer term perspective by considering the future roles of the IARCs in the context of
national programmes and of the activities of other international organizations.

TAC, the CGIAR Review Committee, and the CGIAR itself have repeatedly
stressed the need for the Centres to determine the optimum size and balance of their
activities and formulate their future priorities and forward plans. It is clear that TAC
assessment of priorities should be based to a large extent on the individual assessments
made by the Centres themselves and take into account differences in the IARCs
mandates and stages of development. The Committee may therefore wish to consider
jointly with the Centre Directors how this may best be undertaken. Some proposals
are presented at the end of this document.
2. GENERAL ISSUES

2.1 Future balance of the main functional tasks of the IARCs

Should or should not the programmes of the Centres change over the years in favour of greater emphasis on basic functions of "service" to national research programmes such as germplasm collection, preliminary evaluation and distribution, training, information exchange (including basic general studies and compilations) and advisory activities?

If so, in which service functions do the IARCs have comparative advantages on a long term basis over other institutions?

IARCs activities as a percentage of their mean core operating costs in 1977 were as follows: Research and research support 58.7%; Conference and training 8.8%; Library documentation and information 6.2%. It should be noted first that according to available surveys (quinquennial reviews), the IARCs activities most valued by developing countries are training and germplasm distribution. A first question may therefore be, for the older Centres in particular, to consider the need for increasing the resources allocated to these activities, at the expense of those devoted to research activities which might be increasingly carried out at national level.

2.1.1 Should training activities in IARCs be expanded and how?

As far as training is concerned, it should be noted that the IARCs' efforts can never be commensurate with actual needs. The present tendency in several Centres is to decentralize some of the training activities and to obtain a multiplying/catalytic effect by training the trainers. Shifts in the level and in the relative importance of different categories of training should also be expected as the requirements of developing countries evolve.

2.1.2 Should there be any change in the respective roles of IARCs and IBPGR in the next five years in the field of genetic resources conservation?

As to germplasm collection and distribution, major progress has been achieved recently. Germplasm conservation and dissemination can be seen, however, as one of the most permanent tasks of the IARCs. An important question is the respective roles which IBPGR and the IARCs should play in the future in the evaluation and documentation of material collected vis-à-vis that of the regional or national centres and programmes.

2.1.3 Should information exchange activities of IARCs be expanded or reduced in favour of other documentation centres?

Information exchange activities have thus far been concentrated on specialized fields of competence at the IARCs. This activity can also be considered as one of the most durable functions of the IARCs, especially as a support to their cooperative research networks. The IARCs will also continue to organize Symposia and workshops in their specialized fields as long as they remain centres of excellence in particular research fields.

1/ A series of issues have been identified for further discussion of the role of IARCs in training under Agenda Item 13.
A relatively new development is the IARCs collection of a growing amount of data and information of more general interest on some aspects of the physical and socio-economic environments in which they are requested to work. Several centres such as CIAT, ILCA, ICRISAT, ICARDA have embarked on compiling statistics, soil surveys, climatic data and socio-economic surveys as a basis to guide their research and cooperative activities. In some cases, Centres have themselves been collecting the information they require, in many others, use has been made of the data and documentation provided by other institutions. The importance of these activities obviously varies with the Centre's mandate. Centres which have responsibilities for agricultural research in an ecological zone or region may over the years be expected to become major documentation Centres on a very wide range of subjects pertaining to their zone or region. They may also be expected to regularly produce "State of knowledge" reports and other syntheses on diverse subjects and areas. Several Centres have actually started activities in this direction already. This may also be considered as another of the most permanent responsibilities of some, if not all of the IARCs.

The implications of these trends in information exchange in terms of resource requirements, geographical coverage, languages, have not been fully discussed as yet, nor have the limits of these IARC activities been defined as related to those of other information centres, other data systems, and other organizations involved in regional and global compilations of data and information. It may however be considered that several IARCs have by now acquired unique collections of data and documents which have not been sufficiently processed and disseminated, and which could prove extremely useful not only to research workers but also to a wide range of national and international institutions.

2.1.4 Should the IARCs expand their present activities in providing advisory services and technical assistance to national research institutions and to agricultural development institutions?

Whatever the outcome of present attempts to provide increased international support to national agricultural research may be, the IARCs will continue to receive requests for specialized advisory services and technical assistance in those fields in which they have a competence and expertise which can hardly be found elsewhere. Moreover, as some of the Centres have acquired experience in broader areas of agricultural development, they are naturally called upon to provide decision makers and development project managers along with advisory services and assistance to national institutions in particular on the constraints which limit the impact of the IARC technologies. (A Centre has in fact recently proposed holding seminars for policy makers.) Several Centres have set criteria and limits to their involvement in national programmes. The CGIAR Review Committee also formulated guidelines in this regard. Nevertheless, it could be considered that some centres such as ILCA, by the very nature of their mandate, or older centres which have accumulated considerable expertise, might prove in the future to be more useful by providing specialized advisory services to national research and development programmes than by further expanding their own research programmes. The CGIAR Task Force on Strengthening National Agricultural Research is expected to provide further guidance in this respect.

2.2 Future balance of the main research activities of the IARCs

The main research activities considered here are commodity research and farming system research. Priority shifts may be considered toward other types of research, e.g. factor-oriented, basic, exploratory (ground-breaking), research.
2.2.1 What is the appropriate balance between commodity research and farming systems research at the IARCs taking into account the differences in their mandates? Should this balance evolve in time, and how?

It is expected that the Workshop on Farming Systems Research will assist in clarifying this question. In 1977, about 14% of the total research and support expenditure of the IARCs was allocated to farming systems research.

2.2.2 Should IARC research on some major commodities be reduced over time in favour of research on potentially important food commodities which are not receiving sufficient attention at national level?

IARCs have rightly been concentrating their research work on those crops which are now most widely grown and consumed. As major advances are made in improving these crops, it may be worth considering the role which the IARCs could play in the future in conducting research on crops which are of secondary importance in a large number of countries and/or have a high potential for future development but are neglected by national research programmes.

Several centres have included some secondary food crops and non-food crops in their farming systems research programmes and/or are carrying exploratory research on them in a very limited way. Similarly, ILCA is now planning to devote attention to camel and goats. Research on important vegetables is another aspect of the same problem on which a subcommittee of TAC is now working.

2.2.3 Should IARC research programmes shift gradually toward some aspects of basic research in which the IARCs would have a comparative advantage over other research institutions in developing and/or developed countries?

This question has been debated a number of times by TAC, and with Centre Directors. The general feeling was that the IARCs are receiving adequate support from a variety of advanced research institutions and therefore see little point, at present, in adding basic research activities to their programmes. It might, however, be useful to consider needs in a longer term perspective, in particular in relation to a number of research topics which have been identified by recent surveys. As suggested in the IFPRI document on priorities for international agricultural research, TAC may wish to advise the CGIAR on whether it should set aside a certain percentage of its resources for specific basic research activities either at the IARCs or at some other research institutions.

2.2.4 Should the CGIAR system as a whole allocate more resources to factor-oriented research?

TAC views in the past have been that a large part of the factor-oriented research is location-specific and therefore can best be dealt with at national level. Several general aspects which relate to particular crops or farming systems in specific regions were suitably incorporated in the respective research programmes of the Centres. Other aspects may be considered as being inadequately covered such as for example irrigation practices for a number of crops dealt by IARCs, maintenance of soil fertility in farming systems of arid and semi-arid tropics and sub-tropics. More-

over, in view of the importance of production factors such as fertilizers, pesticides and irrigation water in raising the crop yields, it might be considered necessary that some special international efforts be launched to support national research programmes by providing regional facilities for information exchange and training in these fields.

2.2.5 Should the IARCs devote more efforts on research on the constraints, physical and socio-economic, which limit agricultural production in their respective fields?

This question has been raised in the report of the stripe review of farming systems research. As pointed out in the IFPRI document on priorities for international agricultural research, this issue applies to all IARCs both in the regions where arable land resources are limiting and in those which are underutilized. There are obvious risks of duplication among both international and national activities in this field and it is expected that the Farming System Research Workshop will shed some light on this issue.

3. SPECIFIC QUESTIONS RELATED TO PRIORITY COMMODITIES

(The issues listed below are far from making an exhaustive list. These have been prepared by the Secretariat as a starting point for further questions and discussions).

3.1 Cereals

Both the 1977 CGIAR integrative report and the IFPRI document on priorities for international agricultural research suggest that sorghum and millet should be given higher priority in CGIAR resource allocation as compared to other cereals (7% of the funds allocated to cereals by the CGIAR in 1977 were for sorghum and millet). ICRISAT is actually proposing an expansion of its activities on both crops for the years to come, in particular in West Africa.

It has been suggested by several quinquennial reviews that research on rainfed rice be given higher priority, in view of its importance for small farmers in particular and of the major advances made on irrigated rice. Steps have been taken by IARCs to expand their research on upland rice. What is not clear however is whether this expansion should result in a reduction of the present efforts on irrigated rice.

The IFPRI document suggests that CIMMYT concentrate more of its efforts on adaptation of wheat to tropical conditions in view of the increased demands and imports of wheat in tropical countries, while other efforts on wheat should be focussed on Near East and Middle East.

Maize receives considerable resources from the CGIAR as compared with sorghum and millet whereas they provide more or less the same amount of calories in developing countries (9%). The IFPRI document however indicates that the areas under maize have grown considerably over the last few years and therefore more international efforts should be devoted to this crop especially in view of its growing role as an animal feed. The share of barley and particularly triticale in CGIAR resource allocation may also require further assessment.

Reference is invited to the graphs presented in Annex I to this paper which illustrates the relative importance given by the CGIAR to different commodities.
3.2 Roots and tubers

Potato stands out as a commodity which when compared to other roots and tubers, receives relatively high support from the CGIAR (about 50% of the expenditure of CGIAR on roots and tubers) if one considers its present acreage and contribution to calorie supplies. Its higher percentage in protein, its importance for small farmers, its development potential in several developing countries however may justify the present scale of efforts on this crop. Nevertheless, its comparative advantage over other roots and tubers should be further assessed, in particular in the humid tropics.

TAC may wish to consider some readjustments in this whole area, taking into account the priority ratings which were suggested by the IITA Quinquennial Review, and the potential importance of cassava and sweet potato as animal feed.

3.3 Grain legumes

The IFPRI document makes very interesting remarks on geographical distribution of pulse production and its recent trends. This may lead TAC to review its priorities in this field. It is noted that pigeon pea is mostly grown in India and cowpeas in Nigeria and Brazil. It might be argued therefore that in the future both crops should receive international support mostly through national programmes. However, both crops are being grown in several other countries and are recognized as being capable of further development in these countries.

3.4 Other commodities

The statistics analyzed by IFPRI make a strong case for bananas and plantains and sugarcane to be included among the priority crops receiving CGIAR support. As far as plantains is concerned, the IITA Review Panel recommended that attention be given to this crop only as part of farming system research and this where it is essential to the viability of the systems under study. It is clear however that this recommendation was made keeping in mind the optimum size which the Centre should maintain rather than as a result of an assessment of the intrinsic importance of this plant in the diet of the people in the tropics.

The whole issue of non-food crops, which may be high revenue earners, should also be further considered. The share of livestock in CGIAR expenditures requires further examination, especially in some regions. Aquaculture should also be reassessed by TAC.

4. QUESTIONS RELATED TO THE GEOGRAPHICAL BALANCE OF CGIAR ACTIVITIES

4.1 The high rainfall tropical lowlands

With the exception of South East Asia, the CGIAR system has devoted relatively limited resources to the high rainfall tropics. The work of IITA and CIAT has concentrated mostly on tropical areas with moderate rainfall and the high rainfall areas seem still to rate second in their priorities. ILCA is now just starting a limited effort in the humid tropics. On the whole, however, these particular areas where agricultural development is strongly limited by lack of adequate research have been neglected.
4.2 The tropical highlands

Several centres are concerned with some of the crops of the tropical highlands. The present efforts are however scattered and in most cases uncoordinated. Tropical highlands have specific problems which may warrant a more concerted effort especially as regards farming system research.

4.3 Irrigated agriculture in the arid and semi-arid areas

The cooperative programmes of several of the crop-oriented centres cover some of the areas under this type of agriculture. It was TAC's recommendation however to concentrate the work of ICRISAT and ICARDA on rainfed agriculture in the semi-arid tropics and sub-tropics respectively, principally because the food problems are generally more acute in these areas than in those under irrigation. The present rate of development of irrigation works, the size of the capital invested and the complexity of the problems encountered in semi-arid and arid zones may justify a reconsideration of this position.

5. FUTURE CONTRIBUTIONS OF IARCs TO TAC REVIEW OF PRIORITIES FOR INTERNATIONAL AGRICULTURAL RESEARCH

Although the review of priorities requires an analysis "across centres", it appears essential that the views of IARCs on the priorities in their own field of activities be taken into account in the review process. This could be achieved in several ways:

(i) the Secretariat may compile all available statements by IARCs on their priorities and any additional material which the IARCs may provide;

(ii) Centres may be invited to make a statement on their priorities and their rationales, following in common format which could be established on the basis of the above list of issues;

(iii) Centres may be invited to comment on the draft document which will result from the review of priorities;

(iv) Centres may join again TAC discussions or those of a Panel which TAC may establish on this subject.

The above proposals are not mutually exclusive, and can, of course, be combined in different ways.
ANNEX I

% calories provided (food deficit countries)

Example of data relationships to be studied

The bisector indicates a state of balance between the percentage of resource allocated and the criterion considered in this graph (e.g., calories provided).

Source: CGIAR Statistics 1977
The bisector indicates a state of balance between the percentage of resource allocated and the criterion considered in this graph (e.g. area harvested).

Source: CGIAR Statistics 1977
The bisector indicates a state of balance between the percentage of resource allocated and the criterion considered in this graph (e.g., value of production).