

CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH  
TECHNICAL ADVISORY COMMITTEE

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THE ROLE OF  
THE INTERNATIONAL AGRICULTURAL RESEARCH CENTRES  
IN TRAINING  
- MAJOR ISSUES -

(Note by the TAC Secretariat)

(Agenda Item 13)

TAC SECRETARIAT  
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS  
Rome, 1978

PROPOSED AGENDA FOR  
TAC DISCUSSIONS WITH CENTRE DIRECTORS ON  
THE ROLE OF THE IARCs IN TRAINING

The following topics, which are suggested for discussion with Centre Directors comprise most of those points which have been raised, by TAC and the Centres Training Officers in their several discussions, as warranting inclusion in any statement of policy which might be elaborated with respect to education and training at the Centres.

1. The rationale for training at IARCs
  - 1.1 Global perspectives of training needs
  - 1.2 Centre specific training needs (handling of Centres programmes, materials, etc.)
2. The objectives of training
  - 2.1- Six objectives recognized by training officers and TAC (validity
  - 2.6 of these)
3. The orientation of training offered (what courses?)
  - 3.1 To Centres needs
  - 3.2 To countries needs
  - 3.3 Balanced mix
4. The clientele for training programmes (who should be trained)
  - 4.1 At post-doctoral level (more from LDCs)
  - 4.2 At graduate level
  - 4.3 At undergraduate level
  - 4.4 On group courses (production, generally)
  - 4.5 Individual sub-professional and professional level training
  - 4.6 Training in research management
  - 4.7 Training in research station development and operation
5. Selection of trainees
  - 5.1 Criteria for selection
  - 5.2 Dependency of selection on sponsorship - rights of sponsor/centre/country in the selection process
6. Financing of training
  - 6.1 Core financing
  - 6.2 Special Project financing
  - 6.3 Individual sponsorship (cf. 5.2)

7. Balance in programmes

- 7.1 Relationship research/training (May a greater emphasis on IARCs training be expected?)
- 7.2 Relationships training/documentation/conferences or seminars
- 7.3 Balance within training programmes

8. Gaps in training

- 8.1 In crop coverage
- 8.2 In geographical coverage

9. Personnel needs for training

- 9.1 Specialized training cadres
- 9.2 Use of research personnel in training
- 9.3 Contributions of personnel-time from non-centre staff (e.g. bilateral staff, country staff, etc.)
- 9.4 Contributions of Centre personnel to training programmes other than that of centre (e.g. country or regional level)
- 9.5 Possible needs to increase training personnel in response to possible demand

10. Follow-up to trainees

- 10.1 Assurance prior to acceptance of relevance of subsequent work
- 10.2 Possibilities of country level bonding
- 10.3 Maintenance of contacts between Centre staff and former trainees
- 10.4 Feed-back from former trainees (on programme relevance, future needs, etc.)
- 10.5 Validity of training for cooperative programmes

11. Information

Conclusion

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Introduction

Discussion at the 18th TAC Meeting <sup>1/</sup> led to the conclusion that the Secretariat should prepare, for further discussion by TAC and with Centres Directors, a working paper setting out the questions and issues which needed to be addressed before mutually acceptable policy guidelines could be developed for the Centres' activities in training. It was agreed that such a paper should draw on the issues raised in the documents prepared for discussion at the CGIAR forum on this subject, by the Centres' own Training Officers <sup>2/ 3/</sup> and by the TAC. Six objectives for IARCs training were recognized by TAC along with seven broad areas of training to meet those objectives. These are detailed below and in Section 2. TAC also made some recommendations for further progress towards the establishment of a strategy.

The number of issues recognized by various contributors to the subject, between which there is great similarity, emphasizes the need to establish from the outset, and with the agreement of the Centres Directors, a common framework for any subsequent study. This should include the six objectives of training at the IARCs, which directly reflected the thinking of the Centres' own Training Officers.

TAC also recognized at its 18th Meeting the following simple classification of the types of education which are relevant to the programmes of training at the IARCs:

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- 1/ Draft Report of the Eighteenth Meeting of the Technical Advisory Committee of the CGIAR. AGD/TAC:IAR/78/13. TAC Secretariat, FAO, Rome, 1978.
  - 2/ Fernandez, F., Objectives and Content of Training at the International Centres of Agricultural Research, CGIAR, September 1977, Washington.
  - 3/ Report of the Meeting of IARCs' Training Officers, CGIAR, September 1977, Washington.

"(a) Research and Education

- (i) Research internship (e.g. post-doctorate studies)
- (ii) Research education (e.g. M.S., Ph.D. theses)
- (iii) Research training (e.g. research skills)

(b) Research Support

- (iv) Production training (e.g. technological verification)
- (v) Research support services training (e.g. research administration and management including research farm management; documentation)
- (vi) Trainers training
- (vii) Technical assistance to in-country training."

Of the above types of training TAC felt that the first three (i-iii) could be undertaken inter alia at IARCs; and the next three (iv-vi), initially at IARCs but eventually carried on more in regional and national institutions with active backstopping from IARCs. The last type of training was clearly the responsibility of national institutions, but could also require some collaboration between IARCs and appropriate national and other institutions should be exploited to the fullest possible extent.

Having recorded its decisions on these basic assumptions the Committee agreed that, although it would not preclude entirely the possibility of training (to which "education" might now be added) forming the subject of a "stripe review" it would for the moment favour a more gradual development of policy statement which might begin to be clarified following the discussion of certain general issues with the Centres Directors.

1. The rationale for training at the IARCs

The desirable association of research and training, particularly seen in post-graduate education programmes where investment in research not only generates new knowledge, but trains future research personnel, has been adopted by the IARCs to great advantage. Not only has it helped to ensure the relevance of their research to problems encountered by the trainees, but it has also contributed to the strengthening of national research capabilities, so essential to the extension of the Centres results.

1.1 Although the global needs of trained manpower are recognized to be very high <sup>1/</sup> and well beyond either the mandate or the ability of the IARCs to satisfy it is still not clear whether the total effort of all institutions is likely to meet the total demands at some unspecified time in the future or not (see Section 11). In any case, the Centres' role has been more clearly defined than it was originally ("training to strengthen national institution") and a number of more restricted objectives has been spelled out.

1.2 Centres needs. It may be argued that those objectives are not intended to be restricted to the interests of the centre, but merely indicative that any centre could be expected to have comparative advantage in training in its own commodity field. However, given the accumulated expertise at the IARCs it would not seem unreasonable to suggest that some of the centres might now revert to their initial broader training concept of "training to strengthen national institutions". This, according to Ruttan and Hayami <sup>2/</sup> was modified, on the basis of experiences at CIMMYT and IRRI, to a more centre-oriented concept of "training to develop commodity research and diffusion networks of collaborators". The validity of this approach in the early developmental stage of the centres is unquestionable. To what extent it should be maintained as the centre approaches "maturity", when it may be assumed that adequate collaborators have been trained at all levels for the immediate needs of the centres' own programmes, is open to question (see Section 3.2).

## 2. Objectives of Centres Training

The six objectives, recognized by the Centres' Training Officers and endorsed by TAC, are as follows:

- "(1) to train scientists for collaborative research;
- (2) to train production-oriented staff in various disciplines to man networks for field testing, validation and adaptation of new technologies;

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- 1/ Oram, P.A., Training Requirements for Research and its Application - an Overview
  - 2/ Ruttan, Vernon H., and Y. Hayami. cited in - "Fernandez F.", loc.cit.
  - 3/ Report of the Meeting of IARCs Training Officers, CGIAR, September 1977, Washington.

- (3) to train professionals as trainers for the subsequent expansion of training cadres;
- (4) to train research support services personnel;
- (5) to help bridge validative research with extension programmes in the countries;
- (6) to assist scientists and decision-makers to plan and apply research-production strategies for the utilization of new yielding technologies."

[ As indicated above the validity of these objectives is well established. However, the argument could be raised that once Centres' own needs for collaborative personnel are satisfied, then a return to a more fundamental role of training to improve national research capability across the board, might be considered.]

### 3. The Orientation of Training

A much discussed, and still unresolved issue arises automatically from the foregoing. What should be the principal orientation of research education and training at the IARCs?

3.1 Towards their own programmes and commodities and the development at the national level of a capacity to handle their own technology dissemination?

3.2 Or, should it be to strengthen national research capacity with a view to independent technology development under local needs and conditions?

[ It may be that Centres should do both - in practice they certainly do - but it is difficult to deny the need for first developing a strength in their own fields - and then subsequently expanding to more general efforts if funds, time and staff capacity permit.]

[ There is also general agreement that Centres should not accept responsibility for activities beyond those for which they have comparative advantage. However the definition (and interpretation) of "comparative advantage" with respect to Centres' roles could be difficult to arrive at. It may be considered therefore that in this respect considerable flexibility must be maintained, and each situation treated on its merits. Alternatively, the TAC/CGIAR may be called upon to decide where "comparative advantage" lies when reviewing programmes of work and education/training proposals therein.]

3.3 Or should a more balanced approach be followed, such as IRRI's present combination of training programmes, which emphasize both short and long-term institution building objectives?

A related question is whether IARCs should give greater emphasis to "job specific" training courses or internships for field level research agronomists and agricultural economists (such as IRRI's cropping system training programmes) who can work at the farm level in each national research programme to develop production recommendations and/or cropping systems that are appropriate for local needs and conditions?

[ It would appear that the consensus is for a more balanced approach to education/training generally and thus that solution 3.3 would be the most appropriate. However flexibility must again be the keynote and most, if not all of the IARCs will find themselves legitimately called upon to tackle many more types of training than those specified above. The reference in 3.2 to "local needs and conditions" cannot be too strongly emphasized. The ultimate goal of the centres, to increase food supplies and improve the well-being of all people, dictates that the needs and wishes of cooperating countries always receive prime consideration. That these may fluctuate is indicated below (7. Balance in programmes). TAC has also stressed the concept that technology generation, verification and dissemination form a continuum of activities of equal validity; training in these fields should therefore be similarly regarded.]

An issue which is, possibly, one of the most important and yet not completely or satisfactorily resolved by the centres themselves, arises from the foregoing.

#### 4. The "clientele" of IARCs Training Programmes

What are the criteria and methods employed in the assessment of training needs? On resolving to offer training opportunities to any given country does the IARC concerned already have in mind the type and numbers of courses to be offered? Or does it carry out (as TAC and several Quinquennial Review teams believe it should) a careful assessment of needs in collaboration with national authorities?



[ This should result in "tailoring" of courses to needs; again, however, flexibility is desirable, even essential, as especially in the case of group training courses curricula and programmes need to be established for a reasonable length of time and cannot be continuously changed to meet changing needs. ]<sup>7</sup>

4.1 The appropriateness of post-doctorate and post-graduate education/training. The problems relating to post-doctoral programmes, apart from those devolving from budgeting<sup>1/</sup> differences, have been well expressed by Swanson: <sup>2/</sup>

- "- After a student's 4 year absence from his/her national programme to complete a doctoral degree, is a two year post-doctoral programme at an IARC really in the best interest of building national research capability?
- Should post-doctoral fellows from LDCs be brought in for shorter periods (3-6 months) as visiting scientists (junior level) where the objective would be to provide some experience in and an overview of the IARC's research and collaborative programme, but not appreciably delay their return home? "

[ These questions are of particular importance now as a general consensus has been reached on the need for more post-doctoral places to be allocated to LDC students/junior professionals. ]<sup>7</sup>

4.2 The second part of this question relates to post-graduate training in more developed countries, traditionally sponsored by many donors.

[ Alternatively it may be asked if donors should, through the CGIAR, establish or coordinate a mechanism to grant international fellowships at the doctoral level to promising production-oriented research workers in LDCs who are identified by IARC scientists. The IARC contribution to such a competitive fellowship programme might be to support the fellow's thesis research at the respective centre. The greater relevance of a post-graduate qualification gained

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<sup>1/</sup> Some Centres charge these against their training budget, whilst others, in order to obtain more funds for training, or to utilize nearly all training funds for lower level training, charge many of their post-doctorals against the research programme.

<sup>2/</sup> Swanson, Burton E., Research and Production at International Agricultural Research Centres: View from the Outside, CGIAR, September 1977, Washington.

in a more developed society. If the academic institution granting the degree has acceptable status then little can be found to support any claims to advantage of the latter. ]

4.3 Undergraduate level training is not normally offered at the IARCs requiring generally the wider and interdisciplinary approach normally only available in a University department.

[ However the value of first degree "honours dissertation" type of work being undertaken at an international centre could be high, in giving a yet earlier inculcation of research discipline into selected trainees who intend pursuing a research career. Although so far only used by IITA this approach could become more valuable in the future at other Centres also. The proximity and willingness of a local university to cooperate would be a sine qua non. ]

4.4 Group courses, mainly on production training, probably account for the greatest numbers of trainees handled both at the Centres, and by the Centres in those countries where Centres provided local level training. Such training is essential to ensure the proper handling of centres' cooperative programmes.

[ To the extent that this training is oriented to Centres' own programmes it should continue. The total numbers of personnel requiring training are however vastly greater than the centres' mandate or competence to handle. The long-term problem of practical, production level training, therefore, whilst of pressing importance, may not be a major responsibility of the centres system. But see Section 7. ]

4.5 Individual training. The "research intern" type of training is usually non-academic (i.e. not degree earning). They are usually job-specific, individually or small-group designed and form the backbone of the centres/countries relationships. Selection procedures are of the essence if a working team is to result and adequate follow-up (see Section 10) must be provided.

[ That this type of training needs to be ultimately followed up by post-graduate degree training is accepted. It also provides a good selection ground for such further training although in itself not sufficient to adequately strengthen national capabilities. It is essentially Centre rather than country oriented. ]

4.6 A further specific question raised at the last TAC Meeting<sup>1/</sup> referred to a level of training not yet specifically offered by the IARCs,<sup>2/</sup> and yet in which the need is great, viz. research planning and management. It had been suggested that a short, "staff college" type of training might be offered by such regional institutions as SEARCA and CATIE for example, in addition to courses which they already offer. This would have the advantage that training could be carried out in a proper environment and on problems of relevance to the trainees' needs.

[ There is however little expertise to spare for this type of high level training and "who can give such training" has not perhaps been sufficiently considered. It is believed that the IARCs have a fair share of the high level of management competence required of someone who is to teach such a subject. Consequently advantage could be seen in establishing a form of cooperative course in research management, utilizing the staff of regionally sited IARCs and the facilities of regionally supported institutions.]

[ An alternative would be to conduct this training through post-graduate courses at selected universities. Given the concentration of research management experience at the IARCs however it may still be considered that their involvement would be the best of the available alternatives.]

## 5. Selection of Trainees

5.1 A corollary to how training needs are assessed is how are trainees chosen?

[ The prerogative of a Centre to decide whom it wishes to train (from the point of view of qualifications etc.) must always be considered also in the context of countries' wishes. Nevertheless the establishment of more definite principles and procedures for trainee selection, also recommended by several quinquennial reviews, could assist both centres and countries to reach easy mutual agreement on trainee selection.]

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1/ Draft Report of the Eighteenth Meeting of the Technical Advisory Committee of the CGIAR. AGD/TAC:IAR/78/13. TAC Secretariat, FAO, Rome, 1978.

2/ cf. CIMMYT's recent proposal for "Policy maker" seminars and CIAT/UNDP Experiment station management training.

5.2 Sponsorship is also important. Individual CGIAR members may sponsor trainees bilaterally in addition to their centre "core" support. The rights of sponsors, countries and centres to participate in the selection process should be recognized, however, and notwithstanding the desire of a number of donor countries to sponsor training of their nationals at the IARCs, an appropriate balance must be maintained between these and developing country personnel.

## 6. Financing of Training at the IARCs

6.1 TAC took the view that, as training was a valid major activity of the IARCs it should be properly provided for in the IARCs forward planning and consequently should continue to be reflected in the Centres' core budgets.

6.2 This should not preclude, however, additional support from bilateral sources for specific training schemes requested of the IARCs, many of which are already conducted under "Special Project" funding.

[Care will need to be exercised in respect of Special Projects however and experience has shown that some S.P. programmes become so well accepted that they have to be continued on "core" financing in the event of S.P. funds being terminated. Considerable escalation of budgets can thus ensue.]

6.3 Sponsorship has been referred to under 5.2 above.

[The same caution should apply as to S.P. funding. In addition scrupulous fairness in selection must be observed, and the rights of all parties recognized.]

## 7. Balance of Training Programme

7.1 A question frequently asked with reference to the management of the IARCs system relates to the balance between research and training in budgetary allocations. Whilst there is overall and uncontested support for the continuing need of training and the complementary nature of that training within the general activities of the centres, there is no standard ratio of training budgets to research budgets, utilized by all centres, neither is there a standard ratio within training budgets. Each of these factors is governed very much by the internal usages of individual centres and this has led to some problems when certain comparisons have been attempted, on a between centre and between commodity basis.

The contribution of IARCs to research training has however been well recognized by several quinquennial reviews. In fact the opinion has been expressed that training might well prove, in the long-term, to be one of the most important functions of the IARCs. Should therefore the training role of the IARCs be expanded relative to the research programme rather than at its expense? In other words, should the balance between research and training be adjusted in favour of the latter?

[One could foresee a temporary change in balance, favouring an increase in training activities, pending the desirable achievement of self-sufficiency in training by national institutions. Alternatively, training might, as indicated above, become a more important activity in the long-term. This could be desirable perhaps with respect to specialized (e.g. commodity orientated) training but nothing should permanently replace national institutions for more general training.]

[This question has been considered by the centres as rather futile and irrelevant since they claim that this ratio is determined by practical considerations such as the absorptive capacity of research programmes for concurrent training activities, and the experience and technologies which a centre can offer at a certain point in time.]

7.2 [Another obstacle to a comparative analysis of the centre's allocations to training is that there is as yet no standard format or classification for training activities, although one is slowly emerging. It is thus difficult to quantify the resources of the research programmes and research support which are actually devoted to training, in particular the time spent on training by research workers. This varies with the programme and the centre considered. Budgets allocated to conferences are usually merged with training budgets. There is no completely standard terminology adopted throughout the system for different types and levels of training.]

7.3 Balance within a Centre's training programme can be expected to change, as shifts in the relative importance of different levels of training will reflect the evolution of requirements of the developing countries.

[Differences between Centres responsibilities and situations will preclude the laying down of too hard and fast rules regarding the balance between levels and different objectives of training.]

8. Gaps in training, relating specifically to crop coverage and geographical coverage were pointed up by the 18th TAC meeting.

8.1 The specialized nature of most Centres' work could lead to deficiencies in trainees knowledge.

┌ Two possible solutions can be envisaged for resolving these issues: either IARCs could organize training for general production agronomists within their region, with the participation of other IARCs and other institutions; or a national/regional institution could call on several IARCs and other institutions to assist in broad training programmes for production agronomists. ┐

8.2 The IARCs recognize that the geographical coverage of their training programme is still not optimal; this is probably and mainly because of language barriers. Other limitations, such as the existing structures and staff regulations at the national level, in respect of overseas travel, also impose constraints. Several international and bilateral organizations have well established and complementary programmes and have thus been instrumental in broadening the geographical coverage of the centres' training programmes.

┌ This trend should be encouraged. It carries the risk, however, of overlaps and also of overloading the training programmes of the centres. Some degree of control should therefore be exercised by the centres on these initiatives, unless special strengthening of training programmes is undertaken (see above). ┐

## 9. Personnel Needs

9.1 Specialized training cadres have been established in most centres, especially where large, time consuming, multi-disciplinary group training courses form a regular feature. Outside the Centre similar assistance is given by the staff assigned to cooperative programmes at the regional and national level.

┌ It seems generally accepted that specialized staff are needed and that there are real dangers of losing research capacity, if research staff are assigned to assist too frequently, or become too involved in, production-level courses. ┐

9.2 On the other hand the benefits of using research personnel in research training (cf. post-graduate training at Universities) are very real. Each

researcher is said to be able to handle up to two man-years trainees.

[ This may be a low estimate (cf. IRRI Quinquennial Review) - a view shared by some Centres, but again flexibility, and ad-hoc arrangements are probably best. ]

9.3 Centre staff time is often augmented by teachers from local Universities and national institutions. Conversely Centre staff who are recognized University teachers also participate in teaching courses at local Universities.

9.4 [ Such arrangements should continue to be essentially two-way, with Centre staff helping out within reasonable limits, and without prejudice to their own Centres' programmes, whenever possible. ]

[ The real advantages of mutual activities of this nature are augmented by the additional benefits to be gained in country and government level relations and international understanding. ]

9.5 [ It may be foreseen that a longer term future need throughout the system will be for an increase in training cadres to meet an anticipated call for increased training. ]

## 10. Follow-up

It is accepted that Centres have not been sufficiently assiduous in following-up on former trainees' activities. However some centres have made a start and the others may be expected to join the process following this acceptance by their Training Officers.

[ It could be argued that technology transfer is a valid part of the follow-up process.

10.1 In order to ensure that personnel accepted for training at an IARC return to a research function (in the same field or even another) rather than being transferred to e.g. administration, is it justifiable for Centres to seek such an assurance from governments or sponsors?

[ This may have been attempted, and has been strongly recommended by at least one quinquennial review. Directors' views and experiences would be relevant and appreciated. ]

10.2 If such an assurance is sought, should it be in the form of a bond?

[ Many governments bond their overseas trainees to ensure return.  
Is such a scheme used and/or desirable in the IARCs system? ]

10.3/10.4 One of the most valuable facets of Centre training is the contacts forged between centre-staff and trainee.

[ Relatively low expenditure (rerouting an official or leave travel etc.) would permit more maintenance of such contacts. Is this feasible/desirable? ]

10.5 The validity of training from the point of view of subsequent activities, especially of research interns - has already been commented upon.

[ Further discussion of the validity of programmes must to some extent depend on the reaction of the discussants to the orientation of training. Again, the sovereign wishes of the "client" countries must be placed first. ]

## 11. Information

11.1 Finally, given that lack of well trained research staff is a considerable constraint to development, that such staff are in high demand and are expensive to train, could a better coordinated approach to training be made with the help of an improved data base? Does a need exist for better information on existing and potential research training?

[ TAC believes that much more could already be done by IARCs in co-ordinating their efforts and has called upon the TAC/CGIAR Secretariats to examine also information available from UNDP and FAO. Other international agencies activities could also be relevant (e.g. UNESCO, ILO, etc.) and should not be overlooked. ]

[ A further contribution could also be made by the IARCs on the basis of country information compiled in assessing training needs. ]

## Conclusion

In conclusion, the considerable progress already made by the Centres' Training Officers towards reaching a consensus on appropriate policies must be commended. The agreements reached go a long way to providing a sound basis



for a future policy paper on the subject.

[ Before such a paper is finalized it may be desirable for TAC to consult further with the IARCs, in particular their Training Officers. ]