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GOVERNMENT

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Memorandum

date 4/79
Signed [Signature]

Proj. 9310127-①

Re

PD-AAC-569-C1

81.

TO : TA/AGR, Mr. Omer Kelley

DATE: June 24, 1974

FROM : AFR/DS, Princeton Lyman [Signature]

SUBJECT: Report on the ~~Consortium~~
University 211(d) Grant on Tropical Soils

On April 11-12, the review took place at Cornell. Panel members were Princeton Lyman, AFR/DS, (Chairman); Theodore Brown, AA/TA; Walter Furst, PPC/DR; S. H. Krashevski, TA/RIG; and Frank Viets, USDA retired; Tejpal Gill, TA/AGR, served as Executive Secretary.

Cornell provided a full and frank exchange of views on the program and facilitated the review in every way. Professors Drosdoff and Cline were the principal faculty members involved from Cornell.

A. Purpose of Review

As stated in your letter to Cornell University, March 8, the purpose was to "note Cornell's performance and accomplishment in the specific fields of the grant with emphasis on new opportunities, linkages, and actual and potential use of institutional capacity". In addition, as stated in the guidelines for such reviews (memorandum from Raymond Kitchell, January 23, 1974) the team focused on "developing information necessary for AID decisions on expiration, phase-out or extension/revision".

B. Procedure

Basically, the team followed the issues in the Issues Paper, attached, prepared by TA/AGR. However, we grouped the substantive issues under A. into three categories which formed the heart of the discussions:

- ✓ I. Substantive achievements in the field of soil science, including here questions A. 1-4.
- ✓ II. Linkages to the Consortium, other centers of excellence and the LDCs, including here questions A. 5-7.



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✓ III. Utilization of capacity, including (a) relevance of technical knowledge for problem-solving, (b) realistic opportunities for LDCs to tap into this knowledge, and (c) the structure of the program to permit and promote utilization, including here questions A. 8-12.

We then looked at the level of University support for the program, particularly for the future, which is discussed below under C. IV.

C. Conclusions

I. Substantive achievements in soil science.

The field of concentration at Cornell, as distinguished from other schools in the Tropical Soils Consortium, was to be "Cultural Systems of Tropical Soils". As further defined in the grant proposal, the purpose of the grant was to strengthen Cornell's existing program "for the integration of existing knowledge into practical cultural systems for tropical soils under conditions of the developing nations". However, the Team discovered that there was no generally recognized definition of "cultural systems of tropical soils", either in AID or at Cornell. One interpretation which appeared to be the meaning to most persons in AID (and the team) was that it referred to a methodology for systematically integrating knowledge about tropical soils. However, at Cornell, there was a looser definition, referring to the study of the many characteristics of tropical soils but without particularly a systematic integrative focus.

As a result, Cornell has focused on the study of the various "systems" of tropical soils to get a better sense of their variations and variables. Faced with a legion of individual situations, Cornell saw its task as training people who could respond to a variety of situations. The "systematic approach" it followed, and teaches, is the ability to analyze these individual systems when confronted with them. Additionally, and in accordance with this general approach, Cornell did not really specialize within the field, nor does it believe the other members of the Consortium have (the idea of specialization in the grant description, according to one faculty member, was "forced", in response to AID preference, and was never really accepted as valid).

For these and other reasons, the amount of increased substantive capacity resulting from the grant is difficult to measure. The grant did not call for any summarization of the increased knowledge that has developed during the grant period, and Cornell has not undertaken to prepare such a document. It

is clear that Cornell faculty has, during this period, broadened their knowledge of the variety of tropical soils and of their characteristics. Numerous research publications have resulted. One aspect of the subject that has become clearer is its complexity. Dr. Arnold of the faculty stated that 6,000 soil management units have been found to occur in the tropics, each containing at least 60 soil series.

It is precisely because of this complexity that some team members thought a "systems approach" might have been a desirable focus of investigation. There was discussion during the review, for example, of computerizing the many different units and series, from which perhaps systems for analysis, experimentation and cultivation of different categories or combination of units could be developed. Such systems might make easier (and cheaper) the task of LDC researchers and technicians faced with the demands for adaptive research, etc., in the tropical milieu. However, the discussion was inconclusive, because the necessary expertise was not present. The point is that the application of new technologies for analysis, such as computerization, was not built into the definition of the grant's purpose and that the feasibility of "integration" and systems approaches, if this were AID's purpose, have not been explored within the grant program.

In conclusion, the increase in knowledge and capacity at Cornell is to be found in the sum of its faculty's knowledge, quality of students, and research efforts, not in any systematic new body of thought. That sum is evidently considerable.

II. Linkages

Cornell saw its primary function under the grant as improving its teaching capacity at Cornell. That is important to keep in mind in reviewing all aspects of the grant. With this emphasis, Cornell placed first emphasis on the teaching obligation of the faculty, and views research, consultancies, overseas linkages, etc. as primarily serving the objective of increasing that on-campus capacity. Cornell believes that this approach serves AID's interests as well, for it believes that the production of top-quality Ph.Ds for the LDCs has a significant long-range effect on the LDCs, one which it feels AID tends today to underestimate.

A. Consortium linkages.

Because the specialization foreseen in the grant was "forced", the individual institutions have largely pursued similarly broad programs, aimed at improving their individual institutional capacity, and have not developed a general plan of coordination, sharing of expertise or comparative advantage. The linkages that have occurred have been selective and largely geared to mutual interests and capacity. Thus, Cornell appears to have the closest linkage with North Carolina State where the interests and level of faculty research are similar. It has had only limited exchange with Hawaii and perhaps less with Prairie View. No special efforts to build up the capacity of the smaller and more specialized members of the Consortium, such as Prairie View, seem to have been pursued to any significant degree. As an example, money budgeted in the grant for exchange M.A.s has never been used.

B. Other centers of excellence.

Cornell has extensive professional contacts with all the international research centers. Five out of seven of the Directors of these institutions have had some connection with Cornell. Some of Cornell's faculty and students have done research or spent sabbaticals at them. However, Cornell has not given much thought to the idea of a "network" in tropical soils, and the team's suggestions of possibilities in this direction were greeted with skepticism, mainly because of the general feeling that the subject was not easily divisible by "function".

C. The LDCs.

Cornell's linkages with the LDCs are in the numerous individual contacts and occasional research collaboration that has resulted from Cornell graduates back in their home countries. Cornell values these contacts, particularly for the opportunity they provide for arranging faculty and student field research. However, Cornell is extremely hesitant about any deep commitment to technical development of overseas capacity. For the future, Cornell sees as desirable an extending number of personalized linkages (involving correspondence, occasional visits, advice, etc.), but any long-term in-depth involvements as selective, few (2 or 3), and related to research questions of special interest to Cornell as well as the LDC. In these latter commitments, Cornell feels LDC capacity will be enhanced as part of the joint effort.

III. Utilization of capacity of the LDCs

The principal contribution to having its capacity utilized by the LDCs is in the training of Ph.Ds from the LDCs at Cornell. Because there has not been development of "systems approaches" to tropical soils which can be adapted to use by lesser-trained LDC cadres, nor training of sub-Ph.Ds or many in-country persons at all, the training of top level scientists is Cornell's primary means of transferring knowledge and capacity. During the review, there was discussion of the possibility and desirability of more training programs for "para-professionals" in tropical soils analysis, with a special "applied" curricula being developed for this purpose (the analogy being the training of para-medics by a symptom-oriented diagnostic curricula). Some of the Cornell faculty members were intrigued by the idea and the challenge. But it was made clear that this had not been seen as part of the original grant, and any such effort would require a whole new effort (with new, special funding) if AID wished to pursue it.

In sum, direct LDC utilization of Cornell's capacity was not a major focus of the program, nor was it seen as something Cornell had been asked to focus on under the grant. Cornell's one extensive involvement in LDC capacity-building has been at Los Banos in the Philippines. This was an effort of which Cornell is quite proud. But it is a product of a special, long-term institution-institution contract from AID quite separate from (and earlier than) the 211(d). Cornell sees no further such contracts on the horizon, both because of its own reluctance and AID's diminution of this type of effort, but it sees that kind of contract as nearly the only way by which Cornell would involve itself heavily in building up in-country LDC capacity.

IV. University support

Some 53% of support for Cornell's international programs come from its own (New York State) budget. AID's 211(d) grant represents 28%. The total international program is impressive: over 600 students have some interest in international agriculture; 15-20 FTE (full time equivalent) of faculty time is involved; 67 out of 500 research projects had an international emphasis.

Cornell clearly sees the international program as contributing to its own general capacity and service to New York State. The overseas experience of its faculty is deemed essential to the school's effectiveness, especially in an age when the

food issue is seen as an international one rather than as divided between "domestic" and "foreign". Similarly, the Dean saw a recent research contract from the Potato Center in Peru having relevance to the growing of potatoes in New York.

For the future, Cornell is prepared to fund from its own ("hard") budget, the costs of the international program director--now funded from the 211(d)--and a total of 1.8 FTE in the international program compared to zero before the current AID and Ford grants. Beyond this, Cornell sees outside support needed for overseas operating costs (for research and any training), joint overseas research projects or similar institutional linkages with the LDCs, and scholarships for LDC students.

Cornell briefed the team on the Consortuim's ideas for an extension grant that would fund: a secretariat, overseas linkages for joint research at 2 or 3 locations, and further Ph.D level training. The secretariat would provide AID assistance in locating expertise for short or long-term work and in arranging coordinated, consortium arrangements to work on contract research.

D. Recommendations

I. Extension

There was fairly unanimous conclusion by the team that an extension of the present grant was not warranted. Cornell is committed to its program of international involvement, and is clearly dedicated to maintaining the overall high quality of its department. In this regard the 211(d) had served the purpose of further improving and sustaining that capacity. At the same time, there was little doubt that a substantial capacity would be maintained at Cornell without a further 211(d). It was also fairly certain that Cornell would be able to compete effectively for research and other contracts in this field as a means of supplementing its own funds.

There was less agreement on whether any further grant was warranted. Some team members felt that a grant might be warranted to maintain a response capacity if Cornell would commit itself to providing expertise overseas when needed; a Basic Ordering Agreement, however, seemed more appropriate for this than 211(d). One member felt (though alone) that a TAB grant mechanism to support scholarships for Ph.D training at Cornell and at similar quality programs at other universities may be merited since this type of long-term investment in manpower development was not sufficiently covered in individual projects of USAIDs (which increasingly stressed shorter, project-related

training), yet was a valid objective for AID worldwide. While skeptical of the rather diffuse description of objectives given to the team for the proposed consortium secretariat and future overseas "linkages", team members felt that some further arrangement along this line might be worthwhile if the overseas program and expectations of AID and the universities were spelled out in detail.

In general, the team felt that any future grants to Cornell should (a) specify, in much greater detail than in the present 211(d) grant, the product expected and the mutual obligations of AID and the universities, (b) be geared more specifically to building up in-country LDC capacity for independent research, analysis and application of techniques, and (c) lay relatively less stress on Ph.D level training and more on systems of analysis and training relevant to the capacity and education level of most LDC research and extension personnel. It was believed that mechanisms other than 211(d) would probably best serve such objectives.

Further, the team noted that much of the direction of the current program, and the interface with AID, has rested with two persons--Professors Drosdoff and Cline--who will be retiring shortly. The Director of the International Agricultural Program, Dr. K. C. Turk, is also retiring. Other faculty members have participated largely by their normal functions of teaching and research with 211(d) funds, (i.e., getting more funds for overseas students and content), but not in the sense of thinking through what new or special focus might be developed for an LDC-oriented program, per se. The team made a special effort to draw the other faculty members, and some students, into the discussion of the future of the program at Cornell--on such issues as systems approaches, para-professional development, etc. They were intrigued by the ideas, but clearly they had not been focusing on such things and not been in the mainstream of directing the 211(d) program in and of itself. It was clear to the team that any new arrangements with Cornell must be negotiated with those persons, not now involved in directing the program, who will be responsible for carrying out future obligations. This means a largely new dialogue, with a new cast of characters.

II. Actions for the balance of the current grant period.

During the remaining year of the current grant, it would be useful:

A. To obtain from Cornell a summary statement of the state of the field of tropical soils as advanced over the last five years. Because Cornell did not see this as a requirement for the grant, a special, small grant might be necessary to fund this paper.

B. To obtain from Cornell a statement of progress on an inventory of material and documents, and on regular communication between the Consortium and other centers of excellence in this field, and recommendations on how these might be usefully further developed.

C. A statement of major research thrusts that seem essential for the LDCs, based on the combined experience and opinion of the Cornell faculty.

III. General recommendations for AID

Based on experience with this review, the team recommends that in all future 211(d) grants, there be:

A. A very clear, mutually understood and agreed definition of the (1) substantive emphasis, (2) overseas involvement and (3) specific outputs expected from the grant.

B. A requirement at the end of the grant period for a summary by the grantee of the substantive advancement in the state of the art (i.e., of the increase in knowledge and in capacity for analysis and application) achieved during the grant period. This should be a subject-oriented summary, separate from a description of "actions" (courses added, research publications, students trained, etc.) which is already required.

C. Regular reviews which, where necessary, revise and up-date the understandings made at the outset of the grant (based on better understanding of the problems, experience, etc.) and which put these understandings in writing.

D. Greater involvement of more faculty and students at the grantee institution in discussions with AID, understanding of AID's purposes and objectives, and suggestions for improving the focus of the 211(d) program on LDC-relevant problems.