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RESEARCH PRIORITIES

Recommendations of the  
A.I.D. Research Advisory Committee

MEETING OF January 26-27, 1989

Office of Research and University Relations  
Bureau for Science and Technology  
Agency for International Development  
Washington, D.C. 20523

## REPORT OF RESEARCH ADVISORY COMMITTEE ON RESEARCH PRIORITIES

After reviewing the record of RAC's deliberations over the past three years and also the current Action Plan of the Bureau for Science and Technology, we offer the following observations and recommendations:

(1) While there are a great many areas where increased knowledge is needed to advance development in Third World countries, USAID must focus its investments in research. The RAC considers its previous recommendations, which cover a wide range of subjects, to be well-founded. Real benefits could result from more and better knowledge on each of the topics examined by the RAC, supported by other funding sources if not by those of USAID. But the Committee recognizes that USAID itself can only give substantial backing to a limited set of topics for research. Accordingly, we have formulated criteria and identified topics for priority research.

(2) Criteria to be considered when setting research priorities include:

(a) the problem or opportunity about which knowledge is needed and sought concerns large numbers of persons in the Third World, particularly those most needy or whose productivity is currently most constrained;

(b) the problem or opportunity is one for which there is demand from LDCs for such knowledge and on which there is some basis for collaborative research efforts and a high probability of end-user utilization;

(c) the problem or opportunity is one for which there are reasonably good prospects of producing useful knowledge within an acceptable period of time at an acceptable and sustainable cost, so that the effort is likely to continue to a fruitful conclusion;

(d) the problem or opportunity is one on which U.S. institutions have some comparative advantage, because of our own experience and accomplishments, or because of how we can carry out research, e.g., integrating interdisciplinary perspectives, dealing not only with the technology involved but also with institutional development;

(e) the problem or opportunity is not being researched by others in an adequate or promising way, and it is unlikely that others will take the needed initiative.

(3) Five priority problem areas are identified in the S&T Bureau's Action Plan, and before that in the "Blueprint for Development" prepared by USAID in 1985. These make sense as focuses for research in support of an overall strategy for Third World development. They can be sharpened by focusing efforts on certain priority subjects within each area which meet the above criteria and give special effect to the objective of sustainability of benefits. The five problem areas are interactive and should be mutually reinforcing, supplemented by cross-cutting (cross-sectoral) research, also suggested. We know that how research is done can be as important as what is studied, so we will comment also on modalities of research initiative. The five general problem areas where knowledge generation is needed are:

(a) Alleviation of Hunger. This involves both increases in agricultural production and preservation and enhancement of the natural resource base in LDCs, along with income generation, discussed next. It requires also appropriate policies and institutional arrangements that can help combat hunger, the most dramatic and lamentable of unnecessary human disasters.

(b) Income Generation. This has both agricultural and non-agricultural bases which require research. Although this objective has long been a goal of USAID development efforts, it has usually been an indirect rather than a direct purpose. The knowledge base for direct action to generate income is not well developed. It is the most integrating objective which USAID has and is currently being given emphasis by the Administrator.

(c) Education. There is much disenchantment with present formal educational systems, but some ways must be found to provide basic education which includes literacy and numeracy skills plus an understanding of scientific and social ideas that enable persons to function as productive citizens. This applies especially for women who are too often bypassed and whose education contributes so greatly to progress in (d) and (e) below. Unless the populations of LDCs can through human resource development become assets rather than burdens, there will be no broad-based economic development.

(d) Health. The emphasis on child survival in A.I.D. programs can best be met by a combination of technological and

institutional advances, promoting well-being, not just curing of disease. Unhealthy populations cannot be productive populations.

(e) Population Growth Reduction. This is absolutely necessary if the desired improvements in other areas are not to be overwhelmed.

(4) A cross-cutting area of research which is crucial to all of these is: (f) Institutional Development, best studied and promoted in connection with the tasks of specific areas rather than as a separate phenomenon. Both current effectiveness and long-term impact depend on this in all sectors. Progress in any sector requires some combination of (i) appropriate technologies; (ii) supportive policies; and (iii) institutional capacities. Whereas the first two are directly associated with specific sectors, the third has some generic aspects about which more should be known for providing sustainable benefits of development assistance. Sector-specific policy research will always be important, but no specific recommendations are made on this here.

(5) One topic not coming directly under these headings of concern is Urban Development. The RAC considers this a matter of great and growing significance for LDCs. But given probable funding constraints, we were reluctant to endorse this as a "new start" without sufficient new appropriations for this purpose. Embarking in this area would debilitate work in other needed areas where A.I.D. has more established expertise. The five subjects discussed above, in fact, all contribute to productivity and well-being in urban areas, but they do not address the legitimate and integrative knowledge needs of "Urban Development" as such. Another topic outside these headings, Relations with Advanced Developing Countries, will be considered with reference to modalities of pursuing A.I.D.'s research objectives.

(6) Within the five major problem areas, we recommend the following topics as priorities for research. These will not be adequately "known" through single or one-shot initiatives, but rather would be the focus of well-conceived programs of research and knowledge generation. Amplification on these topics has been provided in the RAC reports referenced in parentheses.

(a) With regard to Alleviation of Hunger, a critical focus of research is Sustainable Agricultural Production. Extensive research investments have been made on agricultural

technology that gives maximum yields, disease resistance, etc. and these have helped the world avert the worst effects of food shortage. But possibilities of soil deterioration, depleted water tables, chemical build-up, etc. prompt concern with having technologies and practices, some or many of them "high-tech", that will sustain high production over the long run. Especially advantageous will be technologies that permit use of land and water resources now only marginally productive, where hunger and income needs are often most acute. This area of research is thus also important for broad-based income generation. Sustainability will require special attention to maintaining the natural resource base, which particularly depends on better methods and policies for forest resource management and maintenance. (See RAC report on Sustainable Agriculture, January 15, 1988.)

(b) Income Generation was addressed systematically in a previous RAC report (May 10, 1987). The World Bank has stated that energy represents the leading constraint on economic activity. We would focus on the development of Indigenous Energy Sources which reduce dependence on imported oil as a means of increasing broad-based income opportunities. Particular benefits could be derived from small-scale, decentralized sources such as solar energy or micro-hydroelectric generation to the extent these can be made more cost-effective. Cheaper, reliable energy can encourage economic activity both directly and indirectly where income growth is most needed. But energy is a subject no less complex than others in development and thus a diversified research program is advisable. (See report on Energy Research, December 9, 1985.) This is an area where cooperation with the private sector is likely to be particularly beneficial.

(c) In the Education area, priority should be given to research on Basic Education, how to strengthen, manage and finance systems, both traditional and non-traditional, that give whole populations literacy, numeracy and useful scientific and social skills. Some solutions may be found in appropriate new educational technologies, including video, radio and other methods for conveying information. Special attention should be given to research and experimentation on basic education for women. (See RAC reports on Financing and Management of Basic Education in LDCs, January 26, 1989, and Educational Technology for Basic Education in LDCs, June 24, 1988.)

(d) Within the Health sector, provision of services by Community-Based Health Programs is now recognized as a critically important, cost-effective strategy to complement the

curative care services now dispensed through hospitals and health centers. Child survival efforts as well as family planning programs can be more effective with this approach, which involves mobilizing the community through education and communication; provision of services by variously trained health personnel and voluntary staff; and monitoring results by ongoing surveillance techniques. New and improved technologies are required<sup>1</sup> as is a better understanding of how best to undertake and sustain such programs. Research should aim to produce interventions which are or could be affordable, highly effective and easy to use. (See RAC review of AID Health Research Strategy, September 9, 1987.) Research is also needed urgently on the epidemiology of AIDS in LDCs. This is still not adequately known so that appropriate prophylactic measures can be promoted. (See RAC report on AIDS, September 15, 1987.)

(e) To deal with Population pressures, there is continuing urgency for development of better Contraceptive Technologies. To be sure, there is also need for continued research on delivery systems and how to enhance availability and acceptability of family planning services. But creating better technologies to be offered remains the most important area for research. (See RAC report on Population Research, August 28, 1986.)

(f) In all the areas considered, RAC finds Institutional Development to be an essential element (see report, May 7, 1985). In all activities, there should be built in some well-designed research, monitoring and evaluation components on institutional development to contribute to

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<sup>1</sup>Examples of such research given to the RAC included studies on (i) diarrheal disease control and immunization, including improvement of existing vaccines and development of new ones, more cost-effective delivery systems, improved evaluation techniques and better diagnostic methods; (ii) the next generation of child survival initiatives, e.g. for acute respiratory disease, low birth weight and nutritional interventions; (iii) micro-nutrient deficiencies amenable to community-based interventions including Vitamin A, iodine, iron supplementation; (iv) alternative approaches to conventional vaccination such as jet injectors and oral and/or percutaneous carrier antigens; and (v) new technologies or adaptations for water and sanitation quality in LDCs.

systematic learning. As there are no agreed frameworks or criteria for such efforts, USAID would be well-advised to make some investment on this, if possible, in cooperation with other agencies so that more comparable and cumulative knowledge results.

(7) In other areas where USAID is involved in project assistance, knowledge needs are less acute than for the above topics, though we still do not have enough satisfactory knowledge on how to achieve reliable, maximally beneficial, sustainable outcomes. (One example of still acutely inadequate knowledge is how to introduce certain available and beneficial vaccines into use in LDCs where cost is presently prohibitive.) When it comes to improving irrigation management for contributing to hunger alleviation or developing microenterprises for income generation, for example, previous investments in research have produced a substantial knowledge base that can be applied, though more should be known about how best to produce effective, lasting results. In all AID projects where knowledge about achieving impacts is still inadequate, research, monitoring and evaluation should be built in so that knowledge can be cumulated on how best to proceed with different kinds of development activity under varied conditions.

(8) As noted already, how research efforts are undertaken can be as important as what is studied. When it comes to research, the best results can only be attained with the best talent. Creativity and thorough grounding in the subject under investigation are essential individual characteristics, but having a good institutional base for carrying out research is also important. RAC members have noted in recent years some tendency for USAID to contract research to entities that have little record or incentive structure for long-term build-up of institutional capacity for research.

(9) RAC understands that it is desirable to expand the pool of contributors to knowledge generation, but it appears that USAID is now less often exploiting the comparative advantage it has of being able to draw on unparalleled intellectual resources in university and business institutions that have demonstrated long-term commitment to research and training. (A recent Wall Street Journal article noted that universities may represent the only sector in which the U.S. has most or even all of the top 10 institutions in the world.) While some might regard this as a matter of interest primarily

to the institutions affected, there are significant national interests at stake in maintaining a substantial base of skilled, knowledgeable Americans who work on international problems not simply as individuals but who work from solid institutional bases that help to drive forward the frontiers of knowledge. The "Green Revolution" in agriculture would not have occurred without a number of centers of excellence not just within the CGIAR network but also in the U.S. and developing countries that are committed to both knowledge building and human resource development. Bypassing or neglecting those institutions which have long-term capacities and stakes in knowledge building and training will have the effect of "decapitalizing" the intellectual and institutional bases that gave America its scientific and technological preeminence in advancing to date the frontiers of developmentally-useful knowledge.

(10) The Agency expresses continuing commitment to institutional development, but with financial pressures shortening time horizons there appears to be less attention and support for using and maintaining institutional centers of strength in the U.S. and LDCs. A prime area for institutional development initiative is establishment of an international network of biomedical research institutions, either in the CGIAR or CRSP modes as pioneered for agriculture. Given the large investments being made in AIDS research, for a relatively modest additional investment, we think some strong and dispersed capacities could be developed in LDCs through appropriate linkages with U.S. institutions.

(11) Along similar lines, the initiative discussed by RAC on work with Advanced Developing Countries represents an opportunity for USAID to play a brokering and leadership role. This will serve U.S. interests by maintaining and developing intellectual, professional, scientific, economic, commercial and other links to individuals and institutions in those developing countries that will play an ever-increasing role in the world at large. Rather than think primarily in terms of "assistance", increasingly the emphasis should be on collaboration and cooperation, with private sector as well as university involvement. (See RAC report, April 19, 1988, for elaboration on this recommendation.)