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DEPARTMENT OF INTERNATIONAL HEALTH

Issues Paper for JHU 211-d Review

Contract AID/csd 1939

Johns Hopkins University
School of Hygiene and Public Health
Baltimore, Maryland

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This is not specified in grant

1. ACHIEVEMENT OF GRANT PURPOSE

A. We concur with the statement in the AID "Issues Paper" that it is difficult to allocate "increases in size and quality of staff resulting from the grant" specifically to the three areas: health planning, health sector analysis and low cost delivery systems. The reason is that we were encouraged by AID to keep records of our inputs only according to whether effort was expended on health or population, and we introduced the third categorization of health and population. We did not attempt, therefore, to maintain records of the effort ^{output} input according to the present priorities of TAB/Health.

However, we present below our best estimates of such a categorization together with the increases in staff resulting directly from the 211-d grant. This information is presented as total numbers of faculty, as well as full-time equivalents.

1) Distribution of Effort Prior to Grant Award (levels of staff in June of 1968 and sources of support for fiscal year 1967-68). Seven faculty members by name and field of specialization.

a) Dr. Carl Taylor, Professor. Epidemiology, health administration (special interests in family planning, health planning, health services research).

Note: A copy of AID Issues Statement is attached as Appendix

b) Dr. Timothy Baker, Associate Professor. Epidemiology, health administration (special interests in health manpower planning, health planning and health services).

c) Dr. William Reinke, Associate Professor. Systems analysis, biostatistics, health administration (special interests in health planning including health sector analysis and health services systems).

d) Dr. M. Alfred Haynes, Associate Professor. Health services administration.

e) Miss Alice Forman, Research Associate. Public health nursing, midwifery (special interests in family planning programs).

f) Dr. Joseph Alter, Assistant Professor. Health services administration.

g) Dr. C.A. Alexander, Assistant Professor. Health services administration and health economics.

These seven people contributed approximately four full-time equivalents (man years per year) of core activity the year before the 211-d grant. Of the 4.1 full-time equivalent (man years) at the time of the initiation of the grant: approximately 1.5 man years could be allocated to health planning, 1.0 man years to low-cost health delivery systems and the remainder of the time to other health areas.

2) Distribution of Effort in 5th year of grant (last fully funded year). Fifteen faculty members were provided with support under the 211-d grant for all or part of their salary. Names and field of specialization for faculty members are as follows:

- a) Dr. Carl Taylor, Professor. Epidemiology, health administration (special interests in family planning, health planning, health services research, low cost delivery systems).
- b) Dr. Timothy Baker, Professor. Epidemiology, health administration (special interests in health manpower planning, health planning and health services).
- c) Dr. William Reinke, Professor. Systems analysis, biostatistics, health administration (special interests in health planning including health sector analysis and low cost services systems).
- d) Dr. Robert Wright, Professor. Health services administration (special interests in teaching of health professionals and auxiliaries, and family planning).
- e) Dr. George Graham, Professor. Child nutrition (special interest in nutritional programs for the poor and maternal deprivation)
- f) Dr. Alan Sorkin, Associate Professor. Health economics (special interests in health planning, health economic and health sector analysis).
- g) Dr. Jeanne Newman, Assistant Professor. Demography, human geography (with special interests in population, health sector and locational analysis).
- h) Dr. Melvyn Thorne, Assistant Professor. Family planning services, health administration (with special interests in training of ancillary personnel).
- i) Dr. William Blot, Assistant Professor. Biostatistics
- j) Ms. Alice Forman, Assistant Professor. Public health nursing and midwifery (special interest in midwifery education and MCH programs).

k) Dr. Francoise Hall, Assistant Professor. Medical demography (special interest in population control).

l) Dr. Cecile DeSweemer, Research Associate. Nutrition, family planning and health service systems.

m) Ms. Shirley Bohnert, Research Associate. Public health nursing, family planning and maternal and child health services.

n) Ms. Elizabeth Elliston, Assistant. Tropical medicine and leprosy.

o) Dr. Martin Gorosh, Assistant. Family planning services.

These faculty members provided a total of 7.7 (full-time equivalent) man years per year of effort. The distribution of effort according to TAB/Health priority areas is again only an estimate: Health planning, 2.7 man years/year full-time equivalent; low cost health delivery systems, 1.5 man years/year and family planning and health, 3. man years/year, health sector analysis, .5 man years/year.

3) Distribution of Effort of DIH staff as now supported by extension of 211-d grant at reduced level for past year. Nine faculty members are now receiving partial 211-d core support but two of these have now gone onto a part-time status with Hopkins:

- a) Dr. Carl Taylor, as before.
- b) Dr. Timothy Baker, as before.
- c) Dr. William Reainke, as before.
- d) Dr. Robert Wright, as before but now no longer full-time at Hopkins.
- e) Dr. George Graham, as before.
- f) Dr. Alan Sorkin, as before but no longer full-time at Hopkins.

g) Dr. Jeanne Newman, as before.

h) Dr. Robert Parker, Assistant Professor. Health services administration (special interest in low-cost delivery systems and functional analysis).

i) Dr. Melvyn Thorne, as before.

These faculty members provided a total of 4 full-time equivalents, divided roughly into 1.5 man years/year health planning; 0.5 man years/year health sector analysis; 1.0 man years/year low-cost delivery systems; 1.0 man years/year other health areas, including family planning.

4) Summary comment on changes: As can be seen by the preceding documentation, both the total number of faculty as well as the full-time equivalents (man years/year) increased sharply (almost doubled) over the period of the grant and dropped back again as the grant was curtailed during the carry-over period.

What was the effect?

Particularly traumatic to morale was the fact that as long-term financing prospects diminished, core faculty members left the Department. The data clearly shows that the 211-d grant permitted the Department of International Health to build up an effective core staff and when this 211-d support was reduced during the carry-over period there were simply no available alternative sources of funding. The reduction in effort was much more than just an elimination of the purely family planning and population activities of the core staff. As described in our annual reports, the bulk of the DIH population activity was focussed on the integration of health and family planning and this we feel we should continue. We still have the key faculty members so that, with renewed support, we can again rapidly build up to the

previous operational level. At this time, however, we are greatly over-extended in trying to maintain our previous level of activity.

It must be emphasized that the 211-d grant has had an effect far beyond the immediate number of faculty members who have been supported by the grant. As can be seen from the above data, faculty members, if given a base of support by 211-d funding, have been able to find other sources of funding for the bulk of their own support and thus are able to produce expanded contributions in the field of international health. There are twelve faculty members in the Department, at the instructor level or above, funded completely by funding other than 211-d. However, this support would sharply diminish if the basic 211-d support for more senior faculty were withdrawn. In addition, the 211-d grant makes it possible for the University to have a departmental focus for international health activities. There are seven faculty members from other departments who are actively engaged in international health work and have joint appointments but no financial support from DIH. In addition to this, there are international associates who serve on an honorary basis to work with students and projects of the Department.

B. We share the concern of AID that the Department of International Health does not receive more financial support from the University and that it is overly dependent on continuing government support.

1) Tenure status - while tenure does indicate some University commitment to faculty, the fact is that if the department is abolished because of lack of funding, the commitment to international health would be greatly diluted because activities necessarily follow the sources of funding. Professors Taylor, Baker, Reinke and Graham are "tenured." Professor Wright

has a term appointment, even though a professor. No other faculty members have tenure.

Length of Service at University and Under 211-d Support

		<u>Years at University</u>	<u>Years under 211-d Support</u>
Taylor, C.	EF	12	6
Baker, T.	<u>PHADm</u>	15	6
Reinke, W.	<u>biostat, PHADm, med care</u>	11	6
Wright, R.		8	3
Graham, G.	Pub.	5	5
Sorkin, A.	Econ. Dept	5	5
Newman, J.	Pop, Med. Sci	3	3
Parker, R.		6	1
Thorne, M.	Pop	3	2

During the past year the University has made a concrete financial commitment to the Department by providing approximately \$50,000 for salary support for junior faculty not covered under the 211-d carry-over. They have provided a small sum of money for administrative work in connection with school administration and will probably continue to do so.

2) The funding of the core nine faculty members is shown in table below according to sources of support.

(see next page)

Sources of Support For Core Faculty For Years 1974-75
(in percentages)

Faculty	211-d Carry- Over	School Funds	India Contract	Health Planning	Nigeria Contract	Miles Labs.	From Other Depts.	Total
Taylor T	60		40					100
Baker T	48	28		14			10	100
Reinke T	32		30	18			20	100
Wright PT	51				35		14	100
Graham T	16					28	56	100
Sorkin	50							50
Newman	38		16				46	100
Parker	25		75					100
Thorne	80						20	100

*what does
this say for?*

C. Operative Research Strategy

Statements in the 211-d grant were deliberately broad since the emphasis was on purpose and objectives. The overall research strategy was to explore possibilities in a flexible manner with final decisions being made in accordance with local plans and the wishes of local collaborators. We have insisted on direct involvement in field activities but all of our work is collaborative. To demonstrate the effectiveness of this flexible approach, we could simply recite the listing of our various research projects which fit together in a coherent sequence of development. The projects are so numerous, however, that the descriptions require a long document. We have prepared an overall description of accomplishments as related to each of the seven objectives defined in the original 211-d grant; this is presented as APPENDIX A as a detailed statement of the way our operative strategy has worked. In Section 3-B-2) of this report we also present the

premises on which a "conceptualized research program" focussing on AID priorities are based.

For a more succinct statement of why we have done what we have, we will respond directly to the questions raised in the issues paper.

1) What are the "parameters and priorities for research directly related to the grant purpose?" The general purpose of the grant was "development of research capabilities related to the needs of less developed countries." In trying to determine the "needs of LDCs" we have relied on the following approaches which are presented in an approximate order of their practical usefulness.

a) Personal relationships and discussions with decision-makers in LDCs and in international agencies including AID and WHO is undoubtedly our most important approach even though it is impossible to quantify. As a result of many years of field work our staff have developed intimate working relationships with leaders in all parts of the world. Many of them are old students and this provides a unique channel of communication. Frank discussions give a feel for emerging problems.

b) Some of our most seminal thinking about new directions emerges from research projects themselves. We are great believers in the dictum that any good research project should raise more questions than it answers. A good example is what happened in the Narangwal Annual Conferences. Each year, about 50 of the leading decision makers in India lived in tents in the village for three days. We presented research findings for them to interpret. In 1966, as a major project on the orientation of physicians was terminating, we obtained concensus that the whole rural health team had to be studied and the following three projects evolved: functional analysis as

observational research on what is going on now, and two action research projects on malnutrition and infections and on the integration of health and family planning (See APPENDIX A for fuller description).

c) Ideas emerge from field contacts, but they are refined and checked against other considerations back in Baltimore. This involves intensive review by our multidisciplinary team of: their importance quantitatively, their relevance to policy and political processes, their feasibility for technical attack, the possibilities for support and potential for negotiating working agreements. Ideas are shared with students from all over the world. The final and definitive review, of course, is our continuing dialogue with AID officials.

2) "State of the art review and analyses." Especially useful to our faculty have been the formal periodic reviews which were part of the 211-d grant mechanism. The mutuality of the exchange under Dr. Erwin Long's guidance was helpful, practical and frank. We altered direction as a results of these sessions and the related discussions that preceded and followed them.

3) "What research results are cumulative in expanding the knowledge base?" We have had many examples of instances in which research results led to other more critical projects. For example, the four national health manpower studies that were conducted by the Department led to our involvement in a continuing series of national health manpower studies conducted by the LDCs themselves. All of this experience is now coming together in a monograph on health manpower, which will be published by WHO. Dr. Baker is taking a major part in developing this volume along with Dr. Thomas Hall, who was a member of our faculty when he did the Health Manpower Study of Peru as part of the original series. Another example is a long involvement in studies of the synergism

between malnutrition and infections in weaning age children, a research interest of Dr. Taylor for fifteen years. During this 211-d period that cumulative effort culminated in the successful completion of the Narangwal Nutrition Project which is the definitive study on the question. Last summer, this work was awarded the Edward M. Ryan Prize of \$10,000 for "solution of malnutrition problems in low income countries." Dr. George Graham's work on the nutrition problems of mothers and children in Lima earned the Goldberger Award for Nutrition Research.

4) "What research findings have resulted in implementable projects?"

The DIH firmly rejects research that has little chance of implementation. Problems are selected in consultation with local officials because this increases prospects of implementation. They are conducted collaboratively and after completion we try especially hard to build the results into continuing patterns of work. One of the many examples of this is the great effort that was made after the functional analysis project to work with the Punjab Health Ministry to develop a streamlined adaptation of the method for continuing use in planning and evaluation. A team from the Ministry was trained by working with our team in district surveys while their team progressively took increasing responsibility. The continuing studies of the integration of health and family planning at the village level have been cumulative in their impact as indicated by the fact that our Narangwal pattern of services provided the major new emphasis that was built into India's Fifth Five Year Plan.

country-
spans?

5) "Has the research program involved graduate students and increased research capability in LDCs and in JHU?" There is no way of making graduate training practical that is as good as getting them involved in field projects.

Many of our most effective field workers have been graduate students (See tables in APPENDIX A). In all of our field work we have stressed the importance of developing local scientists as collaborators. For instance, individuals from our staff at Narangwal have gone on to numerous academic and health service positions in Indian institutions. In projects such as those in Turkey and Nigeria our collaborators were already on the faculty of local institutions and the experience has enhanced their productivity.

In summary, however, we would like to stress the general point that the development of competence in international health is easier to illustrate than to measure. In our reports we have presented numerous quantitative measures of achievement resulting from 211-d support, but the fact is that the most important manifestations of competence are qualitative rather than quantitative. Especially significant as evidence that we are doing better work would be such relatively intangible qualities as the ability to select more pertinent research questions and hypotheses, more expertise in consultation, developing the ability to negotiate delicately and sympathetically and providing inspiration to students.

2. GAPS AND REFINEMENTS

A.1) Economic Aspects of Planning:

Economic aspects of health planning methodology have not, in general, been given the attention they deserve for three principal reasons: 1) health professionals tend to be unfamiliar with the basic concepts of economics while economists are generally unfamiliar with the special features of the health care system which affect economic analysis; 2) the economic interactions of health care, the impact of health itself on economic development, and the contributions of economic development to improved health are not well understood; and 3) no clear agreement has been reached concerning the relative importance of health care as an investment in human capital in contrast to its justification as a desired element of consumption.

Despite the fact that work on the economic aspects of planning was not stressed in the original 211-d grant, the Department of ~~International Health~~ International Health has undertaken considerable work in this area. The Department undertook a major study for AID to evaluate work that had been done on the relationship of health to development and this included a set of new research proposals for studying these relationships. This literature review resulted in an annotated bibliography which had so much demand from government and other workers interested in the field that a second printing was required.

The DIH has also greatly expanded its teaching in basic economics, health economics, and economic aspects of health planning (such as cost-effectiveness analysis) to reach increasing numbers of health professionals

and other students of public health not previously versed in economics.

Dr. Alan Sorkin, a health economist joined the Department after the 211-d grant was initiated. In addition to contributing to the teaching in the general International Health courses, Dr. Sorkin developed his own two courses in basic and advanced health economics.

In short, the area of the economic aspects of planning is far from a gap in the achievements attributable to 211-d but is rather an area of specific achievement. Finally, DIH has been actively engaged in the development of a mathematical model in which specific health problems can be related to defined health programs for analysis in cost-effectiveness terms.

what needs to be done?

A.2) Development of Information Materials and their Dissemination

We admit that there seems to be a problem because our objectives under this grant were intermixed with population. There would, however, be no way to separate our health and population activities neatly even if we wanted to since we have consistently worked toward achieving their integration.

a) The standard academic mechanism for disseminating information is through scholarly publications. Since the 211-d grant was started in 1968, the DIH has published 160 articles in Scientific Journals. We have also published the following books:

Buck, A.A., Anderson, R.I., Sasaki, T.T. and Kawata, K. 1970. Health and Disease in Chad: Epidemiology, Culture, and Environment in Five Villages Baltimore: Johns Hopkins University Press

Buck, A.A., Sasaki, T.T. and Anderson, R.I. 1968. Health and Disease in Four Peruvian Villages: Contrasts in Epidemiology Baltimore: Johns Hopkins University Press

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is this sufficient?

Hall, T.L. 1969. Health Manpower in Peru: A Case Study in Planning Baltimore: Johns Hopkins University Press

Takulia, H., Taylor, C.E., Sangal, P. and Alter, J.D. 1967. The Health Center Doctor in India Baltimore: Johns Hopkins University Press

Taylor, C.E., Dirican, R. and Deuschle, K. W. 1968. Health Manpower Planning in Turkey: An International Research Case Study Baltimore: Johns Hopkins University Press

Baker, T.D. and Perlman, M. 1967. Health Manpower in a Developing Economy: Taiwan, A Case Study in Planning Baltimore: Johns Hopkins University Press

Williams, K.N., Baker, T.D., Sorkin, A.L., Newman, J.S., Perlman, M. and Taylor, C.E. 1972. Health and Development: An Annotated, Indexed Bibliography Baltimore: Johns Hopkins University Press

Reinke, W.A., (editor), assisted by K.N. Williams 1972. Health Planning: Qualitative Aspects and Quantitative Techniques Baltimore: Johns Hopkins University Press

Laliberte, D. et al 1974. Child Health Care in Rural Areas: A Manual for Auxiliary Nurse Midwives New Delhi: Asia Publishing House

As noted elsewhere, our text in Health Planning is already in its third printing and has become the standard textbook in health planning with distribution in fifty countries.

b) A major concern of the Department is the production of materials for use in teaching programs for auxiliary and paramedical workers. At the moment this is manifested mainly in efforts to produce manuals. We sponsored a teaching manual produced by one of our students, Dr. Daniel Fountain, for use in Zaire (Africa) "The Art of Diagnosis for Medical Assistants" printed in French and English. At Narangwal we had initiated a major program for producing manuals. The first was "Child Health Care in Rural Areas" which filled such an acute need that within one

year the first printing was almost exhausted. It is being widely distributed by UNICEF and other agencies, and is becoming a standard text for auxiliary nurse midwives schools on the Indian Subcontinent. A Nutrition Manual based on Narangwal experience, adapting the manual produced by Dr. Maurice King for Africa "Nutrition for Developing Countries" is almost ready for publication. Similar manuals, which are less formal and more restricted in their distribution, have been produced by other field projects such as in Lagos, Nigeria and in Shiraz, Iran. We are convinced that this is a major need and that the best manuals are 'specifically' adapted to local conditions. ?

c) The Health Planning Data Bank at DIH was developed mainly for use in our courses in Health Planning. The Workshop part of our planners program requires groups of candidates to develop a health plan from data in our Bank. We have accumulated large masses of information on health conditions and services in an increasing number of countries. A particular problem is to keep ephemeral information in the Data Bank up to date.

d) A collection of teaching manuals for auxiliary and para- medical health programs around the world is being developed. A major need is to make available such a collection for those interested in finding out what has been tried and what has worked under various conditions. ?

e) One of our most innovative efforts has been to develop a bank of videotapes of interesting presentations dealing with International Health problems. When we have world leaders in international health

making a speech here we tape their presentations. These have now been accumulated so that students and visitors can profit from a unique collection of dynamic presentations by an outstanding group of international experts.

f) Our International Health Library continues to grow. It expanded so much that maintaining it became a problem. We therefore incorporated the International Health collection into the Interdepartmental Library of the School. This makes it more widely accessible to students.

g) Presumably, formal presentations by members of our staff to international meetings should also be included under "dissemination". The tremendous demands on our time for such lectures and speeches is worthwhile but very time consuming.

h) The worldwide impact of the International Journal of Health Services deserves special stress. It has become the most widely circulated journal on health care subjects and distribution continues to grow. It is sponsored jointly by DIH and the Department of Health Care Organization at Hopkins. Dr. Vicente Navarro continues as editor.

A.3) Even though institutional linkages were not a major purpose of the original 211-d grant, we have developed several through spontaneous associations.

We have had a long-standing tie with the Institute for Child Health and Medical School in Lagos, Nigeria. Currently we have three full-time staff members and a number of short-term consultants working on an AID project with Professor Ransome-Kuti.

The School of Public Health in Djakarta established a linkage with DIH after a series of Hopkins faculty served as consultants during

the formation of the School. A regular stream of students continues to come to Hopkins from Indonesia and exchange visits have been helpful for both institutions.

Another linkage is with the Department of Community Medicine in Shiraz, Iran. Faculty from Shiraz are coming to Hopkins and residents and short-term faculty have been going to Shiraz. The focus of this Iranian project is specifically on the training of ancillary personnel for low cost health delivery systems. Somewhat more intermittent are linkages with the Institute of Medicine in Kathmandu, the School of Public Health and the Health Planning Unit of the Ministry of Health in Teheran, the Health Planning Unit of the MOH of Thailand, the Kilimanjaro Medical Centre in Moshi, Tanzania, and the School of Public Health in Dacca, Bangladesh.

The existence of these linkages already developed by the Hopkins Department of International Health is clear evidence that we support the concept of linkages and would expect to pursue such endeavors should 211-d support be continued.

B. Priorities of TAB/Health and DIH

There is almost total congruence between the priorities of TAB/Health and those of DIH. As we look to the future we expect to ensure that our mutual interests will coincide even more directly.

1) Health Planning

Our program for senior health planners and the related teaching in health planning for masters and doctor's candidates represents the primary resource for teaching planning in the world today. We are also expecting to develop parallel programs in population planning and nutrition planning because of our continuing conviction that these three

fields can be profitably integrated and developed together.

A major effort of the department has been to extend our involvement in health planning to LDCs through in-country programs. We have undertaken follow-up activities for some of our planning graduates working with them after they return. Such visits are both productive and revealing. It has gotten us involved in the complex and practical realities of the political negotiations needed to get planning established. Local conditions will obviously determine the balance between the benefits of short term consultation and having Hopkins faculty assigned for long term involvement in planning units. Both approaches have their benefits and will have to be judiciously used.

In promoting health planning as a self-generating process at the national level we have found that the most important consideration is to train sufficient numbers of planners to reach a critical mass of competence within the country. In Indonesia, Thailand, Iran, Brazil and other countries we have found that after ten or twelve planners have been to Johns Hopkins for the Planners Course there is a sort of take-off in local initiative and expertise. We have found, for instance, that it is tremendously important not only to train members of the planning unit in the Ministry of Health, but that we must also begin to train a certain number of planners who are working in educational institutions and also some provincial health officers. This combination provides a synergistic reinforcement within the country at central, local and educational levels which makes a real difference in how things are done. We look forward to much more involvement in this kind of activity.



2) Low Cost Delivery Systems for Health and Family Planning

Our first and so far most productive field experiment in low cost delivery systems was our Narangwal project. We are only now just beginning to capitalize on what we have learned during the thirteen years of the Rural Health Research Center work, both in terms of research findings and practical field know-how. As in all good research efforts we feel, however, that we have raised more questions than we have answered. A more complete description is presented in Appendix A.

An example of metastatic extension from Narangwal is the Companyganj Thana Project in Bangladesh. Dr. Colin McCord who used to be Chief of Party at Narangwal, has developed and implemented a low cost delivery system in a population of 120,000 in one of the poorest areas of Bangladesh. Two health centers have been developed. A training program is beginning to produce a whole new cadre of village level workers. Now into its second year, the program seems to be moving along well.

Another example is that Dr. Al Newman was a member of our staff at Narangwal from 1965 to 1968 and the Danfa project in Ghana evolved partly from that experience. Dr. Richard Hart during his residency developed a good project at Kilimanjaro Medical Center in Tanzania. Dr. Darrel Newkirk, also a resident, and Dr. Daniel Fountain developed a rural project in Vanga which now may become a prototype for further expansion in Zaire. We helped the Aroles, who were students at Hopkins five years ago, to develop a project at Jamkhed in Maharashtra which is now the best in India. Through the Christian Medical Commission we have helped the development of a worldwide network of excellent projects in Korea, Indonesia and many African countries. We look forward to involvement in similar projects in other countries.

3) Environmental Health - Tropical Medicine

What about other donor nations?

This is an area in which we recognize that there are major challenges which we have not yet met. Our major activity in the past was through the geographical epidemiology unit headed by Dr. Al Buck. Their country studies of Peru, Chad and Afghanistan included extensive analysis of tropical disease problems and careful investigation of environmental conditions. These resulted in books and major scientific contributions.

An important new development seems probable if funding can be obtained. A Johns Hopkins Center for Tropical Medicine is to be established. A search committee is looking for a director. Since we think there is more competence in tropical medicine in the Johns Hopkins Schools of Hygiene and of Medicine than in almost any other university in the world, we feel we should develop a coordinated teaching program. This interdepartmental center will function under the office of the President of the University and will involve the following departments in the School of Hygiene: International Health; Pathobiology; Environmental Health; Epidemiology - Division of Infectious Diseases; and in the Medical School: Medicine, Ophthalmology and Pediatrics. With further expansion of 211-d funding, it would be possible to help fund the salary of the Director of the Tropical Diseases Center. We would also hope to provide for an associate professor in the Department of Environmental Health who has a particular background and expertise in tropical disease problems.

3. RATIONALE FOR UTILIZATION GRANT

The statement of Agency policy quoted in the Issue Document requires a general response before we proceed to specific questions. The key question raised is whether JHU/DIH can demonstrate its "relevance," "great interest," and "capacity" for work in LDC institutions. It seems worthwhile, therefore, to make some comments about our current institutional response capability under the headings of: problem identification, program and project design and planning, project operations, and evaluation.

Problem Identification: A consistent feature of the DIH effort has been that we have tried to identify problems before they were generally recognized so that when political and administrative conditions became favorable we would be able to provide relevant information on which programs could be based. This happened with the following issues which now represent our major areas of competence:

- National comprehensive health planning and microlevel decentralized planning
- Manpower planning and its relationship to educational expansion and innovation
- Research and demonstration on low cost delivery systems integrating health and family planning
- Interactions between malnutrition and infections in weaning age children
- Interrelationships between population, economic development and health
- Importance of auxiliaries in the health team and the redefinition of roles

We expect to continue these efforts to identify and work in this kind of broad problem definition. For instance, we are beginning to be concerned about the fundamental issue of learning how people at the community level can identify their own problems as part of health planning.

Several members of the department are epidemiologists by training; others come from the disciplines of operations research, systems analysis, economics, social sciences, etc. The close working relationship we have established provides for a broadly ecological view of problems which aids greatly, not only in identifying research issues but also in assessing their importance and suitability for attack. Among the most difficult decisions that we face in international work is to decide which of the many problems that we identify are not worth working on and what should be the relative priority among problems.

Program and Project Design and Planning: There is probably no subject which occupies more time and effort in the Department of International Health than discussions of experimental design and project planning. Much of our advanced teaching focusses on these techniques and skills which we attempt to transmit to our students. Our own diverse multi-disciplinary team brings a wide range of skills into deliberations about our own projects. We have now been working together long enough so that we communicate easily, but we have also learned to share skills and values. Interdisciplinary research becomes effective only after individuals from various disciplines have worked together long enough to overcome the initial communication and value barriers that hamper short term efforts. We have learned that the best planned designs must be flexible in implementation because of the inscrutable complexities of overseas political environments. Sometimes these political constraints introduce major design difficulties but we have to live with these vagaries which interfere with scientific precision and still try to produce high quality research.

Project Operations: The wide range of training, education, research and advisory services that has been described in Appendix A provides an indication of the diversity and depth of competence in DIH. International work is becoming increasingly challenging because the advisory roles have become passee and now we have to work in true collaboration with national leaders. Our philosophy is indicated in Appendix B (International Health Conference Paper on New Style in International Health).

An indication of the caliber of our staff is the ability to handle large amounts of data. In the analysis of data from Narangwal, for instance, our computer team is having to cope with data collected over a 6 1/2 year period on a population of about 30,000. This involved various cross sectional surveys, longitudinal data and health services studies. There have been about 700,000 IBM cards generated. Assuming an average of 50 bits of information per card, this yields a total of 35,000,000 bits of information which will have to be culled, summarized and selectively combined before meaningful analysis can take place.

Evaluation: Most of our active involvement in evaluation occurs as part of our service or consultation activities. We are being called on increasingly to evaluate programs in almost all parts of the world. The expertise in evaluation that is most evident to others is demonstrated in the quality of judgmental decisions and recommendations made by a short term consultant. Real competence in evaluation, however, is shown when the evaluation is built into a program. Evaluation is important in the various projects and programs that we have conducted. Examples are:

Dr. Wm. Reinke and Dr. Baker served as a consultant for APHA in developing an evaluation mechanism for the DEIDS projects, Dr. Taylor has participated

in and chaired WHO scientific groups on health services research and on evaluation of projects concerned with low cost delivery systems, and Dr. Reinke's coauthored the WHO basic monograph on health services research.

A. Sources of Funding

Obviously the DIH balance of funding shifts from year to year. Moreover, it is rather difficult at any point in time to isolate the funds which are clearly hard-core support for the Department. The 211-d report for FY 1973 shows a total of \$275,000 expended by DIH, including \$173,000 related to health or the integration of health and population.

For the current fiscal year we anticipate that total DIH support will be distributed approximately as follows:

		<u>Core</u>	<u>Total</u>
AID Sustaining	2/3	\$191,000	\$191,000
Other U.S. Government AID		23,000	478,000
U.S. Foundations and Private Sources		10,000	15,000
International Organizations		—	62,000
Foreign Governments		12,000	12,000
The Johns Hopkins University		75,000	75,000
		<u>311,000</u>	<u>833,000</u>

This reflects the greatly reduced funding after the 211-d grant termination reduced our core support. The "Other U.S. Government" funds are largely the last year of support for our Narangwal study which is being used for analysis and write-up of results.

B. Purpose of the Proposed Grant

1) Training and Education

It is expected that the DIH will be able to increase somewhat the level of training provided under this grant for the following reasons.

a) In recent years the number of students has been increasing, especially in areas related to health planning and development of low-cost delivery systems. The core faculty already developed has been accommodating somewhat larger classes without loss of teaching quality but we cannot do this unless we get back up to the levels of staffing that we had under 211-d.

b) The trends indicate that international agencies and foreign governments will be sending more students, especially for training in health planning. While tuition funds from these sources are not sufficient to initiate new teaching programs, they do enable candidates to take advantage of the teaching base supported by this grant.

c) Additional courses have been developed from other funding sources which provide increased training opportunities in international health. Some of these are in other departments or as interdepartmental programs. The field of tropical medicine is a major case in point.

Our special two-month program for senior health planners will be continued, including a series of practical workshops in the planning process. We anticipate increased participation in the expanded four-month program as well. Recent expressions of interest by foreign governments, coupled with the prospects for formal institutional linkages suggest that

mortality
Grant proposed limited to health planning
? Staffing is handled by grant?

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it will be possible for us to conduct short courses, workshops, and seminars for substantial numbers of participants in selected countries overseas. Such training programs would have the advantage of dealing with country-specific problems close to the local setting. | OK

The training program is not expected to meet all of LDC potential demands, which may be many and varied. We propose to concentrate on the training of key people in selected LDCs so as to build a critical mass of interest and potential. In addition, we expect that a multiplier effect will be achieved as those trained by us return home and train others, with limited but continuing assistance from DIH.

2) Research

a) The question is raised, "Is there a conceptualized research program that covers the areas of major importance to AID?" Before 1968 we had already defined as our first two priority objectives for research the same two which were later identified by TAB/Health as their top priorities. We expect, therefore, to continue to concentrate on ✓
health planning and low-cost delivery systems.

Our planning is based on the following premises which will be presented in sequence for the sake of simplicity. (1) The immediate need in most LDCs is to get some kind of health coverage to all the people. This requires the simplest and least expensive service program, which should reach the most vulnerable groups - women and children. (2) Mass campaigns directed against single conditions are cost effective only when a simple technique can be extensively applied in a regimented mass program using auxiliaries and when the condition being controlled is either very common and important or potentially near eradication.

Mass campaigns that approach control levels then require a low cost basic delivery system into which they can be integrated for continuing maintenance or control. (3) The greatest need in most LDCs is for an integrated program of family planning, nutrition and maternal and child health care. (4) Comprehensive care combining primary medical care and basic preventive services can be most efficiently and effectively provided by village level auxiliaries who are as close to the people whom they serve as possible in orientation and location. (5) Such an auxiliary based program can be effective only if based on effective training, supervision, referral and logistic support including drugs, supplies and transportation. Clear cut role relationships in the health team need to be established. (6) In a regionalized program, it is tremendously important to develop working linkages between peripheral units, primary health centers, referral hospitals and district administrative services. Most LDCs have moved spontaneously to efforts to develop a regionalized and rationalized health system. (7) Complex health plans often break down in implementation and one solution is to introduce health planning at the local level. (8) In the planning of local health services, a major difficulty has been that in order to relate resources to needs data should be gathered according to the same measurement parameters. In this effort our functional analysis methodology has pioneered a new approach which needs to be tried in different situations and expanded in its implementation. (9) In health planning, the greatest challenge is often in manpower planning because health services are highly labor intensive and there is usually a significant lag period before supply can be adjusted to demand.

(10) Because health is increasingly being recognized to be an important part of general socio-economic development, major effort is needed to demonstrate the linkages between economic parameters, general social development, population growth and health variables. (11) Looking ahead, it has become increasingly evident that many LDCs will be facing disastrous food crises. The whole development process is seriously threatened and this will lead to major distortions in present trends of improvement in health and vital rates. (12) An area of concern which should become an object of research is to study the ethical issues that are now arising in reference to difficult problems such as the allocation of scarce resources.

Although the above listing of premises follows a logical progression, all of the ideas are interlinked and can be conceptually combined in various ways. To define its research priorities, we feel that *stated*
DIH should combine continued concentration on the immediate and practical *in cost*
problems relating to health planning and the development of low cost *approach?*
delivery systems while also making a selective exploration of new frontiers
of research thinking. An example is concern with the adjustments that must
be made in continuing to develop basic services in the face of the
probability of increasing famine and disasters that will demand all
available resources for emergencies and relief.

b) Specific research issues relating to health planning
and low cost delivery systems. In the general statement above we tried to
develop a perspective of relationships between research areas. In depth
exploration of certain issues deserve priority study. In health planning many

challenges have emerged. In local level functional analysis, how can we go beyond our present tendency to focus on government resources because they are most easily manipulated and develop ways of understanding and making better use of general community resources especially those within the village home and in indigenous systems of health care. More sophisticated families regularly cope with most of their own primary health care within the home. Poorer village families tend to use indigenous methods. But the rapidly increasing financial investment in more expensive home medical care by even the poorest families represents a great challenge for local planning.

If we could get communities involved in their own health planning, we would solve many problems of implementation. A key issue for research then is the centralization/decentralization dilemma. Health planning methodology continues to be essentially pragmatic and a great deal needs to be done in improving quantitation.

Research on low-cost delivery systems is in a particularly challenging phase because even though the general conceptualization is widely accepted, the specific implications and applications are poorly understood. Obviously research must be in the field. Focussed studies on key issues include: definition of health measures which have the greatest impact on local combinations of health problems; procedures for establishing care routines to apply these measures; developing task analyses so these routines can be carried out by the most appropriate members of the health team; setting up training programs that will provide the needed expertise.

c) Economic effects of health: The aforementioned cost-effectiveness model relating health problems to potential health resources needs further refinement and testing with actual data. We would also expect to undertake research along the lines specified in proposals presented in the document on the relationships between health and development which was prepared for AID. An example is to study the relation between health and productivity in selected working groups.

Manpower utilization: On the basis of its long involvement it is apparent that DIH will continue research on health manpower. The many unanswered questions include how recommendations for increased use and better supervision of auxiliary health personnel can be implemented and how demand for particular categories can be projected most accurately. The evaluation of health manpower utilization is a fruitful area for research and development.

As indicated earlier, there is considerable research potential at Johns Hopkins in tropical medicine and the environmental factors related to health. A new Center for Tropical Medicine is being organized. If funds can be added to this 211-d grant, basic support for the Director of this Tropical Medicine Center can be included. The Department of Environmental Health also has the potential of initiating effective research on the major ecological problems that loom ahead.

We expect that about two-thirds of the faculty time under this grant will be devoted to teaching and research. This would represent about five full-time-equivalent faculty members per year, sixty percent of which would be for research.

3) Advisory Service Response Capability

If we were to do training and research without responding to requests for advisory services, the value of our work would be reduced in two ways. First, the potential practical benefits would be reduced and the training and research would become sterile academic exercises. Secondly, if we failed to keep abreast of practical field problems and experience, our activities in Baltimore would no longer be stimulating, and in fact, would soon become irrelevant.

Maintenance of an advisory capacity is therefore essential to our total program. While most funding for such consultative services comes from those being advised, basic support is necessary to maintain a continuing capability to respond to requests.

Priorities for responding to requests for advisory services would be determined by the country and its needs and the nature of the service requested. First priority geographically would be given to countries which have high priority for assistance within AID and about which DIH has considerable knowledge. Priorities with respect to type of service would be given to those functional categories in which DIH has special expertise and which have potential for substantial immediate practical benefits. This would include particularly opportunities for productive application of the products of our research.

We also invest considerable time and effort in consultations for WHO, other international agencies and in response to direct requests from LDCs. For instance, we have consulted frequently for WHO in health manpower planning, evaluation of low-cost delivery systems, comprehensive

health planning, integration of health and family planning, epidemiological problems and professional and auxiliary education.

4) Information Collection and Dissemination

*what will
front
buy?*

Many types of information need to be collected and disseminated.

a) Results of Departmental research. This is obviously the most important emphasis and direct responsibility of DIH. Two books are completed and ready for the publishers (Doctors for the Villages and FAP). Another book is almost completed (Beliefs and Attitudes to Diseases). Within the year we expect to produce two more books (Nutrition project and Population project from Narangwal). We are making an effort to reach audiences primarily in LDCs by publishing these books through the Asia Publishing House in Delhi or similar arrangements. Another reason for using these publishers is to keep the cost of these books down to a level where they can be readily afforded by buyers in LDCs.

b) Manuals and textbooks have been published (Child Health Care in Rural Areas and Health Planning). A new manual which is about to be published for auxiliary nurse midwives on nutrition. In connection with our work in Nigeria, we are also preparing manuals adapted to the needs of West Africa. Similar efforts are under way in Iran and other countries.

c) Library File of Auxiliary Manuals. We are developing as a special resource an accumulation of as many auxiliary training and service manuals as we can gather. These will be available for anyone undertaking to develop educational material for any part of the world. They will serve as a much needed resource for personnel preparing to go overseas. We now have some 42 volumes in this file and the number is

steadily increasing.

d) Health Planning Data Bank. Detailed country information for health planning purposes is maintained as a continually up-dated data bank on six countries and less complete information on many more. We have been adding about one country per year to this resource.

e) Bank of Videotapes. This collection of videotapes represents a unique resource showing many of the world's leaders in International Health talking about some of the most important issues. We are constantly pruning and revising these tapes. At present there are 35 lecture tapes in this bank and we have been adding approximately 5 to 10 a year.

f) An important worldwide resource is the International Journal of Health Services. This is jointly sponsored by DIH and the Department of Health Care Organization at Hopkins and it is edited by Professor Vicente Navarro. DIH took responsibility for a greatly expanded special issue on population last year.

5) Institutional Linkages

(programmed for general)

DIH will build on the base of institutional linkages already established and expand as appropriate when areas of joint interest between the Department and the overseas institutions become evident. We have learned that we must make sure that there is clear understanding that we enter such a relationship only on request and that we are really wanted. Additional support will be required to make institutional linkages viable. The 211-d grant would provide a basis for exploration of new institutional linkages and for maintaining linkages already established, such as: the School of Public Health in Djakarta, the Department of Community Medicine

Purpose

in Shiraz, and the Institute of Child Health in Lagos, Nigeria. Institutional linkages are expensive to develop and difficult to maintain. The long experience at the Johns Hopkins School of Hygiene goes back to collaborative international studies in the 1920's on control of hookworm and an intensive ten-year institutional linkage with the School of Public Health in Manila after World War II.

C. Projected Demand

1) Demand for Teaching

Enrollment of degree candidates in this School is expected to be relatively stable for the foreseeable future, and the proportion of students specializing in International Health is likewise not expected to show any marked trends. Enrollment of participants in shorter courses in health planning, development of low-cost delivery systems, and methods of health practice research, on the other hand, is expected to increase substantially. Whereas, we have recently had about 5 to 10 students in our four-month program and about 15 to 20 in the two-month program, we expect these figures to increase to 20 to 25 and 25 respectively. In addition, as indicated earlier we expect to conduct 3 to 5 short courses in selected LDC countries during the next two to three years.

how needed?

2) Demands for Research

Anyone involved in international activities these days is aware of the growing problems created as more and more countries restrict the activities of foreign scientists. We consider this a healthy sign of maturity. Many of the constraints being imposed are overdue. We are all being forced into truly collaborative relationships and are having to relate specifically to national priorities. We are comfortable with this

trend in DIH because we have tried to follow the pattern of local collaboration from the beginning. We continue to have many more requests to conduct projects in LDCs than we can possibly accommodate. As soon as word spread that we had terminated our Narangwal research we had several requests that we consider field projects elsewhere. It is likely that we will be asked to collaborate in research in India again if appropriate funding can be found. Most of these requests come from old students who are now in influential positions in institutions or service programs in their home countries. In summary, the problem is not in defining good projects or in working out arrangements for collaborative work. The major constraint is in getting financial support and then finding the time and patience for the prolonged negotiations that are necessary in order to establish sound field research.

3) Requests for advisory services have been increasing in recent years, and this trend is expected to continue as awareness is increased concerning the competencies which have been developed by DIH. Although it is difficult to estimate the precise level of requests to be anticipated, our best estimate is that by 1976-77 we will receive requests for approximately 18-24 man-months of consultation annually. *2 way of real work*

D. The assumption that only \$100,000/year of the 211-d funds was used for health is incorrect for the following reasons.

1) Much of the work of DIH has been at the interface between health and population. As indicated in our annual reports, the distribution of 211-d funds to DIH was on the basis of: a) projects that could be clearly identified as health; b) projects that could be clearly identified as population and c) projects where health and population were inextricably linked and integrated. This last category was substantial and constituted

almost half of the population funds allocated to DIH. So that the support to be covered really has been over \$200,000 per year.

2) The assumption that a utilization grant would require less funding than a development grant made six years ago ignores the inescapable factor of inflation. Seven percent compounded for six years exceeds a 50% increase. On the basis of the \$100,000 originally allocated for health in the 211-d grant plus approximately 40% of the population funds which were earmarked for integrated health and population activities, when corrected for the effects of inflation, gives a figure of over \$300,000 required to support the same level of activity now.

"What would be the effect on DIH if: a) the grant is not extended." The Department would probably cease to exist or it might be reduced to 2-3 faculty members with secretarial help supported by the School and short term grants. The major focus of international health activities at Johns Hopkins would be lost. b) If \$130,000 per year were provided there would be a dramatic reduction in capacity to less than half of our present staff and what we are now doing. The process has already started with the reduction in staff from 15 to 9 that we experienced due to cutting off 211-d population funds and having to subsist only on carry-over and sustaining funds. Any further decreases in support would require serious cuts in our endeavors because we are all greatly over-extended now. Our prospects for other sources of funding continue to be realistically pessimistic. Over the past six years we have invested much personal time in trying to secure private and foundation funding. We are, of course, continuing these efforts.

The positive consideration is that the world needs for expertise in research teaching and consultation on integrated services for health is greater than ever before. The opportunities for effective collaboration with LDCs are at a particularly fruitful stage for the kind of collaborative efforts that we can contribute.

APPENDIX A

DEPARTMENT OF INTERNATIONAL HEALTH ACCOMPLISHMENTS IN RELATION TO 211-d OBJECTIVES

In the sections that follow we have presented brief statements describing accomplishments on each of the objectives relating to research and teaching which were originally listed in the 211-d grant in 1968.

1. Research Competence

The Department of International Health has been involved in many diverse research activities so that the specific items that will be described should be considered illustrative rather than comprehensive.

a. The Health Division of AID has placed its first priority on health planning and this was also the first priority of the Department of International Health (DIH) in our 211-d application in 1968. The Department had already developed some expertise in health planning prior to the 211-d grant. We had conducted three national health manpower studies and had been running a special course for senior health planners for several years. We had helped to pioneer much of the thinking about health planning for WHO, AID and other international agencies. Up to that time, much of the progress in health planning had consisted largely of applying general principles of planning to the health field. The planning procedures and measures that were available for implementation were most relevant for macroplanning at the national level, particularly in connection with systematizing the processes of situation analysis and making the process

of priority setting and choosing among alternatives more rigorous.

It was apparent that some of the most difficult issues in health planning related to what we have come to call the "centralization-decentralization" dilemma. Little was known about microplanning at the local level. It was generally evident, however, that the greatest deficiency of health planning was in implementation and this depended largely on local participation. It seemed, therefore, that a major challenge in health planning research was to develop better means of local microplanning.

With this objective, we have devoted great effort to developing our functional analysis methodology, starting with the recognition that the primary requirements was to relate local health resources to needs. One of the underlying problems was that the measurement parameters were different. Health needs were usually measured in purely epidemiological terms; health resources were defined in administrative terms and there was no rational framework for putting the two together. By measuring needs and resources in the same functional terms it then became possible, for planning purposes, to relate the two directly. A diagrammatic model has essentially the shape of an hourglass showing the large number of resources, activities, and services linked to an even larger number of needs and demands through a limited number of health functions.

The methodology conceptualizes and streamlines in a standard format the process of moving from measurement to analysis to recommendations. Needs are measured mainly through surveys of households and communities. To measure resources we had to develop new applications of operations research and systems analysis. The methods have been used successfully, not only in the original research projects in Turkey and India, but by the

Punjab health services for statewide planning and evaluation, and in our own research at Narangwal Rural Health Research Center for measuring service inputs into other action research projects. We feel the method has a potential which is just beginning to be tapped.

Progress has also been made in further elaboration of macroplanning methods. Dr. Baker is working with WHO on a book to bring together what we have learned from international studies on manpower planning for health and population. We have developed adaptations of the Delphi and Nominal Group methods of getting group consensus for planning decisions. For example, in a 1973 CENTO conference on Health Planning Methodology, Dr. Reinke applied the Nominal Group method to the determination of the most important current data needs for health planning. This exercise served not only in helping conference participants to clearly define planning issues, but also in acquainting them with a useful technique for use in their own countries.

A major need for better planning has emerged in connection with population problems and nutrition. An effort is being made to include in our research on health planning, parallel efforts relating to population planning and nutrition planning. Both of these fields are characterized by great overlap with other sectors of development. The challenge then is to learn how to work with and to use terms and measurement parameters that make sense to a wide range of other disciplines.

b. The Health Division of AID has placed their second priority on the development of low cost health delivery systems, again this happens to be the second priority stated in the objectives of the 211-d grant in 1968. Research on rural health and family planning services at reasonable cost has been unquestionably the biggest effort of this department. We

have conducted field projects in multiple locations. In some, such as the Narangwal Rural Health Research Center, the Lagos Gbaja Street Program and Companyganj Project in Bangladesh, we have taken primary responsibility, while in others we have supported local teams such as Ronaghy's efforts in Shiraz, Iran; the Arole's in Maharashtra, India; and Maurice King's in Indonesia.

Our largest research effort has been at Narangwal Rural Health Research Center (RHRC). Some members of our staff started to work in the Narangwal Teaching Health Center of the Ludhiana Christian Medical College more than twenty years ago. The RHRC was started in 1961, at the same time as the DIH. The Indian staff grew to more than 160 and most of the time we have had only one or two Hopkins faculty members living at Narangwal, although the number did at one point go as high as five. The effort at Narangwal became a prototype of collaborative research with international colleagues working together at the field level on problems considered important by national planners. A deliberate effort was made to foresee impending health service problems so as to have definitive answers ready when policy makers were prepared to implement. Even though the RHRC was finally closed down because of Indo-United States political tension, it is significant that it was continued for about a year after all other AID projects in India were stopped because the Ministry of Health and the Indian Council of Medical Research were trying to get cabinet level approval for continuing the effort.

The total effort at Narangwal was designed to attempt to combine basic research on rural health and family planning services with practical evolutionary efforts to develop realistic services. This was embodied in

the effort to set up two parallel sets of objectives. In each project, one set of objectives was to test basic hypotheses in a formal research design requiring sophisticated procedures for measurement and analysis. Most of the funds and effort went into these research efforts. The second set of objectives was to evolve simultaneously the practical services of the basic delivery systems for health, family planning and nutrition, emphasizing the use of auxiliaries and inexpensive procedures. The service packages that were evolved served as the inputs into the experimental designs to test the research hypotheses.

The GOI was primarily interested in our practical demonstration of a practical working program. Our village level basic delivery system has served as the prototype for a major new expansion of effort in health and family planning as part of the Fifth Five Year Plan. We showed that auxiliaries could deliver comprehensive care for less than \$2 per capita per year, and that a practical training program and administrative supervisory framework that fitted well with the national health center program was feasible. Prior to the termination of the Narangwal effort, plans were well advanced to use Narangwal as the base from which demonstration projects would be developed in places such as Bihar to begin a nationwide process of implementing the Narangwal pattern of services. Efforts are now being made to proceed with the development of the demonstration projects but this will be hampered greatly by the demise of RHRC as a training and research base. WHO had also approved arrangements for designating Narangwal RHRC as its official research and training center in rural family planning and health for the Southeast Asia Region.

The major research effort at Narangwal focussed on the integration of health and family planning services. This project had an experimental design in which five groups of villages, with approximately 5,000 population in each group, received the following service inputs: Family Planning Only (FP); Family Planning and Womens Services (FP+WS); Family Planning and Child Care (FP+CC); Family Planning, Womens Services and Child Care (FP+WS+CC); and a Control Group of villages (C). A series of hypotheses had been developed relating to the relative impact of these various combinations on family planning utilization within the general framework of the massive socio-economic development that was going on in the Punjab during these years. Most important to theoretical understanding of motivational forces in population dynamics was the opportunity for a prospective test of the child survival hypothesis. We recognized, however, that there would undoubtedly be a lag period of some five years before the child survival hypothesis could be considered to have had a definitive test. Parents need to be given time to develop awareness of increased child survival. The termination of the research makes it necessary to do what we can with the abundant data collected up to this time.

In general, the family planning utilization levels (current use rate) in the control group and in nonstudy villages around Narangwal continued to run at about 10-15% of eligible couples. In villages with an intensive program of population education and family planning (FP), in one and a half years time family planning utilization levels were raised to over 28%. In FP+CC villages over three years time, the utilization was 33%. Over four years time, the utilization level for FP+WS+CC was 35% and in FP+WS it was 45%. A major problem is that differences in starting times of the various

experimental cells create problems in analysis. These differences arose because Indian officials specified the areas of their greatest interest and we had assumed that over a longer period all curves would have had a chance to plateau.

The major surge of interest in recent years in demonstration projects integrating health and family planning has placed considerable pressure on us to accelerate the analysis of our results since there is so little known. Our experience has also clarified many issues for further research.

Other research projects which were based at Narangwal include: the functional analysis of health needs and services (a book is ready for publication); a five year study of the rural orientation of physicians, and the effects of rural internship programs (a book is ready for publication); multiple studies of indigenous medical practitioners and the potentials of using indigenous practitioners and midwives in low cost basic delivery systems (a book is in preparation); the development of auxiliary manuals as part of broader studies of the teaching of auxiliaries (a child care manual was published last year and a nutrition manual is almost ready for publication); detailed correlational studies of the relationships between the decline in fertility in the Punjab and multiple socio-economic development variables; and several epidemiological studies of health problems in rural India.

c. The third objective was to study socio-cultural factors influencing the acceptance of family planning and of health programs and this has been studied in a number of different settings. A specific study referred to in the 211-d grant was of the attitudes of males toward family planning in Latin America; this was carried out in Chile by Dr. M.Francoise Hall.

Seven scientific papers were published reporting these findings. Wide publicity given to the findings in the popular press resulted in a general opening up of policy relating to family planning. The findings showed much more acceptance of family planning by men than had been anticipated and documented a general need for expanded services.

Social scientists have been members of many of our research teams. On the Narangwal staff, for instance, we always had a least five or six Indian social scientists. Studies were done on such subjects as beliefs about diet and disease in seven different parts of India, beliefs about the effects of vasectomy, observations on beliefs about the supernatural causation of marasmus, observations on the dynamics of village leadership as they relate to program development, factors influencing village acceptance of family planning and specific health measures, etc.

Other studies include an indepth anthropological study of attitudes toward health services in villages of Eastern Anatolia in Turkey, attitudes to indigenous practitioners among villagers in Kerala, South India, especially their possible role in family planning programs.

d. The interactions between health, population growth and economic development are complex and difficult to study. A major difficulty has been to conceptualize the whole area of knowledge and review the state of our understanding. A detailed annotated bibliography of the relationships between health and economic development was prepared in 1972, together with detailed statements on a series of projects in selected areas.

For WHO we prepared a background paper for the Bucharest Conference that brought together all the available information on interrelationships between health, population and economic development. This defined areas

where information is available as well as the major gaps. In addition, faculty members prepared and participated in numerous international efforts to clarify and further advance the relevant issues in understanding these interactions, such as WHO Expert Committees and Scientific Groups. We have participated in efforts to set up field projects such as a study of how health services influence productivity on cane plantations in Colombia.

e. Numerous international comparative studies of health and nutrition have been done but they can only briefly be identified here. We have concentrated on epidemiological studies primarily because of the conviction that practical measures to influence disease and nutritional status can be done best in a field situation.

A very large research effort has been carried out by our unit of geographical epidemiology which is jointly sponsored by the DIH and Epidemiology. This team conducted comprehensive epidemiological studies of whole countries, using total village samples to represent the major ecological situations. National studies of Peru, Chad and Afghanistan have resulted in books. Not only did these studies provide fundamental information about the health conditions of these countries as prototypes for their regions, but also numerous specific scientific findings of great importance were made. For example, the studies in Chad opened up a whole new understanding of the pathogenesis of Onchocerciasis. This research has contributed greatly to and now is being incorporated into the massive WHO effort to control Onchocerciasis in SubSaharan Africa. Dr. Al Buck who had been director of this unit at Hopkins, has joined WHO to direct these efforts.

In nutrition, a major continuing effort has been the work of Dr. George Graham in his laboratory, clinical and field studies in Lima. Numerous findings have defined the particular usefulness of various nutrition control programs and have moved increasingly toward policy issues.

One of the largest research efforts at Narangwal RHRC was the study of interactions of malnutrition and infections in weaning age children. This study has just been awarded the Ryan Prize for \$10,000 as the study which contributed most to applied nutrition efforts in less developed countries. We added to current knowledge of the synergism between infections and malnutrition which is one of the most important causes of morbidity, mortality and retarded development in the world by showing that there is also a strong synergism in programs to control these problems. This field study was the first to show that measurable differences in growth can be achieved in total village populations of children through a specified program in comparison with control villages. Mortality of children was reduced by one-half and multiple other health improvements were demonstrated.

All of our field teams get involved in epidemiological studies. We have had long term field studies in Bengal of the natural history of leprosy including efforts to define the role of asymptomatic carriers in the transmission of infection. Another study in Saudi Arabia undertook to define the shift in health status of children among nomadic bedouins as compared with bedouins who had settled or were settling in urban situations.

f. Most of the efforts to improve methods of evaluating family planning programs have been carried out in the Department of Population Dynamics. These include a wide variety of activities such as Dr. L.P.Chow's

continuing research in Taiwan and Ethiopia, and Dr. Mosley's research in Bangladesh and Turkey.

In the Department of International Health, Dr. Melvyn Thorne has conducted several studies in Tunisia and Haiti; Dr. Martin Gorosh developed a new evaluation model which was tested in Kenya, Taiwan and Korea.

g. Recognizing the value of the systems approach and the application of operations research techniques to population and health problems, we have developed the functional analysis methodology through research projects in India and Turkey. The product of this research has been a streamlined system for appraising health and family planning services by means of a coordinated analysis of health center activities in functional terms on the one hand and the investigation of community needs, attitudes, and utilization patterns on the other.

The functional analysis methodology is thus comprehensive; yet it has been simplified to the point where it can be applied routinely by relatively unsophisticated health planners and administrators in developing countries. The methodology specifies the minimum body of coordinated data necessary, the requisite procedures for collecting such data, and analytical techniques which are relatively simple but which maximize the usefulness of the basic information obtained.

Because the functional analysis approach focusses on the community at the interface of provider and client, it has proved useful in the appraisal of inputs, both human and financial, required in innovative programs and in making cost-effectiveness assessments of low-cost delivery systems. It has been used, for example, in analyzing service programs developed at Narangwal.

2. Teaching Competence

a. The 211-d grant had as the first teaching objective, the organization of a rigorous program for doctoral candidates and residents. This requires a judicious combination of sound grounding in theory and technical skills together with practical field experience. Each of our students has to combine an appropriate mix of intensive course work with a period of overseas field work. Because many of our candidates are from LDCs, we have endeavored to maintain flexibility in our requirements if we think the candidate gives evidence of potential for development. Even though it has proved to be extremely difficult, we have maintained the policy that, for a candidate from a less developed country, it is infinitely better for him to do his doctoral field work in his own country rather than in Baltimore and that the problem should be one of importance to his further career development.

Table 1 provides a listing of doctoral candidates in the Department of International Health and the titles of their dissertations. The range of subjects is apparent as is the geographical distribution of the places where the field work was done. This diversity of locations imposes considerable effort and time investment in faculty supervision. We feel that the results justify the extra effort, even though this means that we have to limit somewhat the number of our doctoral candidates.

Similarly, Table 2 provides a listing of the residents in International Health with an indication of their projects and the location of field work. One of our continuing regrets is that we are not able to find more funding for the steady flow of excellent young doctors eager to undertake field residency projects as a first step in developing a career in International Health and Family Planning work. Many of these doctors

are from the top of their medical school classes and have uniquely high motivation and idealism. Our great lack has been the almost total absence of sources of support for candidates of this kind. The one exception has been through the University's Overseas Population Internship Program at Hopkins

b. The second teaching objective was concerned with Master's level students majoring in International Health and Population. The 211-d support was distributed at Johns Hopkins so that two-thirds of the funds came to the Department of International Health to support research, teaching and service in health and population. One-third of the funds were distributed to other departments in the University, especially to the Department of Population Dynamics, primarily to support teaching activities. A large number of Master's level students have majored in International Health and in Population (See Table 3). Most of the U.S. students who have majored in these subjects are looking forward to international careers.

The primary interest of AID is to provide opportunities for education of students from LDCs. The investment made by DIH in this effort is shown in Table 4.

c. The large number of students who have elected to take elective courses indicates the general interest in International Health and Population. The difference between the number of majors and the number of people taking courses represents mostly large numbers of foreign students who happen to be majoring in other departments. This number also includes U.S. health personnel who will probably be employed in the U.S. but would like to have short periods of overseas work.

d. The fourth teaching objective related to short courses for specialized groups. The outstanding example of this effort has been the

special program for senior health planners. This has become the leading health planning course in the world. It started at the same time as the PAHO/Cendes Course in Santiago in 1963. It has served as the primary resource used by both AID and WHO for advanced preparation in health planning.

The program is conducted every year and 99 candidates have come from 34 countries.* Individuals can take either a two-month or four-month program coming either for the fourth quarter session alone or for the third and fourth quarters.

The third quarter emphasizes analytical techniques related to health planning. Methods from many disciplines including statistics, demography, epidemiology, health economics, and systems analysis are brought together within a unified health planning context. The role and techniques of field research contributing to the planning process are also included. For example, we conduct a series of seminars describing our own field projects in health planning and the development of innovative, low-cost delivery systems. In these seminars students also receive instruction in the use of the functional analysis methodology.

The fourth quarter deals more broadly with the planning process, policy formulation, and planning methodology. During this quarter students are assigned to small working groups, each of which develops a health plan for a specified geographical area. A wide range of settings is used and each group is under the guidance of a faculty adviser in order that students may get supervised practical experience in planning within an environment comparable to that in which the student will be ultimately working. This pattern of teaching requires substantial faculty input, as well as considerable effort to maintain an updated data bank on many countries. The pattern has

*This figure includes only those in years covered by 211-d (1968-69 to 1973-74)

proved so successful, however, that we are convinced that the effort expended is well worthwhile.

In addition to our own program for senior health planners, members of our faculty have provided continuing assistance in setting up special courses for health planning in the various regions of the world. In particular, Dr. Reinke has served as a WHO consultant in conducting courses in health planning and health practice research in the Western Pacific, Eastern Mediterranean, and Southeast Asia regions. Dr. Taylor has also assisted in health planning courses in Jamaica and Iran. Dr. Reinke has also collaborated with Dr. Fred Grundy in the publication of a WHO Public Health Paper on Health Practice Research. This volume, along with the book Health Planning, which we have published, serve as basic references for our own students and are increasingly being used elsewhere. The latter book, for example, has been sold in approximately fifty countries to date.

e. One of the most concrete ways in which the quality of health services overseas can be improved is through continuation of intensive efforts to improve the teaching of community medicine in medical schools and to provide a community orientation in all programs training health workers. This emphasis is particularly important in developing new educational approaches appropriate for the introduction of family planning in medical education. The course on Teaching of Community Medicine has become one of the most popular courses in the School. The emphasis is both on modern understanding of teaching methods and on the content of community medicine. Each class is divided and practical experience is provided by having each half of the class teach the other in carefully supervised practical exercises.

f. It has become apparent that the development of basic delivery systems for health and family planning requires a massive expansion of auxiliary and paramedical workers. The greatest educational gap and challenge is to develop innovative approaches to training these workers and to implement mechanisms for fitting them into health care systems. The general approach we have used is to start first with a careful redefinition of roles. In each functional area a consistent effort is made to specify those activities that will have the greatest impact and to develop the most cost/effective routines for primary care. Once this has been done it is much easier to decide what level of personnel will be required to carry out these routines and then to train them specifically for such tasks.

We have at Johns Hopkins a tremendous resource in the newly developed School of Health Services. Numerous innovative activities and approaches to auxiliary and paramedical training are being developed. These contribute directly to expertise and methods that can be applied overseas.

Our most ambitious program in this regard is in Nigeria. Under an AID grant to the Lagos Institute of Child Health we are serving as consultants to a nationwide effort to train personnel for rural MCH and family planning. Demonstrations have been established of the use of nurse practitioners. Teams of trainers will be trained who will then establish training programs in each state.

Similarly in Iran we have been working with Dr. Ronaghy in Shiraz to develop two training programs for rural auxiliaries. One is for middle level personnel who will be fitted into the health corps framework. The second is for simply trained village level personnel.

At Narangwal RHRC intensive efforts to train our own family health workers led to numerous educational innovations. We found that we were able to reduce the training time required from about six months to six weeks. The major change was that we learned to alternate one week of intensive academic work at the rural center with a week of field experience working in a preceptorship relationship with a good family health worker.

Department of International Health

Table 1: Doctoral Students, 1968-1974

Name	Title of Dissertation
Sunny Andrews	Feasibility of Involving Indigenous Medicine Practitioners for Family Planning Service Delivery in Kerala, India - 1973
Nicholas Cunningham	The Effect of a Nurse in an "Under-Fives" Clinic in Nigeria in Reducing Childhood Mortality (in progress)
Asfaw Desta	National Health Planning in Ethiopia - 1971
Cecile DeSweemer	Growth and Morbidity - 1974
Martin Gorosh	A Planning Model for Family Planning Manpower and Training - 1973
Prakash Grover	Decision-Making for Planned Fertility: A Study of Correlates - 1974
Richard Hart	Orientation and Pattern of Practice Among Rural Medical Assistants in Tanzania (in progress)
Arnfried Kielmann	Interactions of Nutrition and Infections (in progress)
A. Torab Mehra	Orientation of Iranian Physicians Toward Rural Health Practice - 1969
Prakash Sangal	Operations Research in Rural Health Services - 1972
Zohair Sebai	Health of the Bedouin Family in a Changing Arabia - 1969
John Wellman	Gbaja Family Health Nurse Project; Family Planning Impact - 1971
Y.T. (Ernest) Yen	Functional Analysis of Health Services System: Health Centers in Taiwan - 1969

DEPARTMENT OF INTERNATIONAL HEALTH

TABLE 2: RESIDENTS

Name	Location field work	Project
Adams, Elvin	Maryland	Community Health Program
Alley, James W.	Bolivia	Director General, Public Health Program, Montero
	Georgia	Health Commissioner
Bavington, William	Newfoundland	Grenfell Mission
Bonnlander, Benjamin	Ethiopia	School of Public Health
	Oregon	Private Group Practice
Clinton, J. Jarrett	Indonesia	Population Officer, AID
Cunningham, Nicholas	Nigeria	Under 5's Program, Gbaja, Nigeria
	New York	East Harlem Project, Mt. Sinai Medical School
Davis, Joseph	Chile	PAHO Center for Health Planning, Santiago
	Washington, D.C.	Deputy Associate Director, HEW
		Manager, health planning activities, AID
Diaz, Alberto	Chile	Ministry of Public Health and AID
	Maryland	West Baltimore Health Center
Dodge, R. Edward	Ethiopia	School of Public Health
	Florida	Health Officer, Inverness
Eidsvold, Gary	Ethiopia	School of Public Health
	New York	Health Officer, Bronx
Farley, Eugene	New York	Associate Professor Medical & Community Health, Un. of Rochester; Head, Family Planning Medical Programs
Fischer, Robert	Washington	HEW-Office of International Health
Gwon, Nancy	New York	Instructor, Department of Community Health
Hall, M. Francoise	Peru	Family Planning
	North Carolina	Psychiatry Residency
Hall, Thomas	Peru	Health Manpower Plan, Peru
	North Carolina	Acting Director, Population Center, Un. of North Carolina

Table 2 - Residents (continued)

Name	Location of field work	Project
Hart, Richard	Moshi, Tanzania	Evaluation of program for training of ancillary health professionals
	Dar es Salaam, Tanzania	Ministry of Health
Hyslop, Thomas	Chile	USAID
Kielmann, Arnfried	India	Narangwal Project
Kozoll, Richard	New Mexico	Indian Health Service, Gallup
Lavoie, Gilbert	Maryland	Master of Public Health
	Massachusetts	Deaconess Hospital
Lawrence, David	Chile	Health Manpower Plan for Chile
	Washington	Director, MEDEX Training Program, Seattle
LeBow, Robert	Idaho	Migrant Labor Health Project, Nampa
LeSar, John W.	Hawaii	MEDEX Training Program
Missett, James	Maryland	Master of Public Health
	California	Psychiatry Residency
Mumm, Alan	Laos	AID Refugee Health Program, Laos
Newkirk, Darrel	Zaire	Family Planning and Training of Health Auxiliaries
O'Byrne, David	California	Pediatrics Residency
	Hawaii,	MEDEX Training Program
Parker, Robert	India	Narangwal Project
	Maryland	Assistant Professor, Johns Hopkins Department of International Health
Rights, Theodore	Pennsylvania	County Health Officer
Roht, Lewis	Japan	Abortion Study
	Texas	Asst. Professor, University of Houston
Rutherford, Carver	Washington	Regional Medical Program
Skrovan, Clarence	Maryland	USPHS
	Texas	University of Texas, Associate Professor

Table 2 - Residents (continued)

Name	Location of field work	Project
Solter, Steven	Iran	Development of project for training auxiliaries for regionalized health program and teaching preventive medicine, Un. of Shiraz
	California	Office of Family Planning, affiliated with CDC Program
Taylor, B. Brooks	Bolivia	Public Health Program, with James Alley
	Bolivia	Director of Education, Montero
Van Arsdell, William	Arizona	Indian Health Service
	Massachusetts	Medical Director, Family Life Center
Wallace, Donald	Vietnam	AMA program; AID office in Saigon
	Washington, D.C.	District of Columbia Department of Health
Wellman, John	Lagos, Nigeria	Gbaja Family Health Nurse Project, Lagos: 1967-1970
	Texas	Preventive Medicine Officer, United States Air Force
Winkler, Warren	Turkey	Director of Admiral Bristol Hospital, Istanbul
Yen, Ernest	Taipei	Health Centers, Taiwan
	New York	Community Medicine Program

TABLE 3

Students Majoring in International Health and Population

DEPARTMENT OF INTERNATIONAL HEALTH

Category	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74
Master of Public Health	18	15	19	17	20	33
Doctor of Public Health	2	1		3	2	5
I.H. Resident	9	5	3	6	6	13
Senior Health Planners	12	20	19	16	18	18
Total	41	41	41	42	46	69

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DEPARTMENT OF POPULATION DYNAMICS

Category	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74
Master of Public Health	20	24	26	14	11	13
Doctor of Public Health	8	10	7	7	6	9
D.Sc., Ph.D.M.Sc.	16	16	18	25	33	29
Total	44	50	51	46	50	51

TABLE 4

DEPARTMENT OF INTERNATIONAL HEALTH
STUDENT LISTS BY COUNTRY OF ORIGIN AND AREA, 1962-1974

AFRICA	Total	SOUTH AMERICA	Total
Nigeria	10	Brazil	15
Ghana	5	Peru	4
Ethiopia	5	Colombia	3
Sierra Leone	1	Argentina	3
Liberia	1	Paraguay	2
Swaziland	1	Dom. Republic	1
Sudan	2	Nicaragua	2
Congo	2	Bolivia	1
Botswana	1	Guatemala	1
Guinea	1	Guyana	1
Zambia	1 (30)	Jamaica	1
		Honduras	3
NEAR EAST		Virgin Islands	1
Egypt (UAR)	7	Costa Rica	1
Iran	13	Puerto Rico	1
Iraq	1	Haiti	2 (42)
Israel	2		
Syria	1	EUROPE	
Jordan	1	Austria	5
Cyprus	1	Belgium	2
Lebanon	1 (27)	Netherlands	3
		France	4
SOUTH ASIA		U.K. & Canada	9
India	29	Switzerland	7
Pakistan	8	Germany	7
Nepal	2	Spain	1
Afghanistan	1	Poland	1
Saudi Arabia	1 (41)	Finland	2
		Sweden	3
FAR EAST AND ASIA		Norway	2
Indonesia	11	U.S.S.R.	1
Thailand	14	Ireland	2
S. Vietnam	9	Portugal	1 (50)
Korea	4		
Fiji	1	United States	174 (174)
China	2		
Japan	2	Total	411
Philippines	2		
Malaysia	1		
New Zealand	1 (47)		

ISSUES PAPER FOR JOHNS HOPKINS UNIVERSITY 211(d) REVIEW

Contract AID/csd 1939

The purpose of the 211(d) grant instituted in 1968 was:

1. To strengthen educational competence in the university by expanding its teaching capacity and curriculum in international health, population dynamics and family planning as related to the needs of the LDCs.

2. To strengthen research capability in these fields as an integral part of the institutional grant program.

Since the original grant involved both population and health funding, this issues paper will address primarily health issues although it is felt these two programs are mutually supportive as the training program for health planning and delivery systems encompasses the same principles and techniques.

The following issues have been identified after analysis of the recent annual report, PAR and other relevant documents.

1. Achievement of Grant Purpose

A. Given the lack of detail in the grant agreement itself and subsequent reports, it is not possible to compare increases in size and quality of staff resulting directly or indirectly from grant-provided activity.

Please provide team with following data related to the fields of specialization, i.e., health planning, health sector analysis and low-cost health delivery systems: (1) base at time of grant award by number, name, man-years, and field of specialization; (2) same information as of this date; and (3) summary comment on net change.

B. There is some concern that the faculty of DIH is not fully supported by the university and is over-dependent on outside and continuing support.

Please provide data on status of current staff including: (1) tenure status; (2) sources and percentage of funding; length of service. Also comment on extent of university commitment including involvement of faculty outside DIH in international health work.

C. Notwithstanding the excellent work done in developing a functional analyses methodology and the pilot research on health care delivery systems carried out in Narangwal, we are concerned that there is no operative research strategy in place which provides the parameters and priorities for research directly related to the grant purpose.

What kind of state-of-the-art review and analyses have been conducted? What research results are cumulative in the sense of expanding the knowledge base? What research findings have resulted in implementable projects? Has the research program involving graduate students at JHU resulted in research capability of individuals or institutions in the LDCs and at JHU?

2. Gaps and Refinements

A. Given the fact that the original grant objectives were both vague and intermixed with population, there is concern that health areas pertinent to current AID priorities have not been sufficiently developed.

Specific examples of the above include:

- 1) Economic aspects of planning;
- 2) Development of information materials and their dissemination;
- 3) Development and utilization of institutional linkages-- domestic and LDC--faculty exchange and joint projects for research and pilot projects.

B. An important overlap in university and AID objectives is almost a sine qua non for an effective relationship. Given the key problem areas assigned to TA/H (listed below), how do they coincide with the interest of JHU?

- 1) In health planning (including functional analysis, cost-effectiveness and economic analysis).
- 2) In low-cost delivery systems.
- 3) In environmental health (including tropical medicine).

3. Rationale for Utilization Grant

Agency policy is to consider extension of original 211(d) institutional grants only "to achieve fuller and continuing utilization of their capacity separate from specific contracts, because, although these institutions are peculiarly relevant and have shown great interest and capacity to work with LDC institutions, they are not ready to take

on the full financial burden of sustained utilization of capacity." The proposal of JHU is not sufficiently developed to permit adequate analysis in the context of moving from primary emphasis on the development of institutional response capabilities to the next phase of primary emphasis on facilitating fuller continuing utilization of response capabilities.

A. In the Department of International Health, what are the sources of funding? What activities are:

- 1) Funded under the current 211(d) grant.
- 2) Funded by other U.S. government support.
- 3) Funded by foundations.
- 4) Funded by international organizations.
- 5) Funded by foreign governments.
- 6) Funded by JHU.

B. What are the specific objectives, i.e., outputs and results, which will be funded by the proposed revision/extension and related to a redefined or focussed grant purpose and selected response capabilities?

Purpose of the Proposed Grant

The purpose of the proposed grant is to maintain and improve the institutional capacity of Johns Hopkins Department of International Health in training and education, research, advisory service response capability, information collection and dissemination, and the establishment and strengthening of institutional linkages, toward the objective of providing improved health planning and low cost delivery systems to the LDCs.

The proposed grant is requested to fund the following activities (outputs):

- 1) Training and Education.
- 2) Research.
- 3) Response Capability for Technical Advisory Services.
- 4) Information Collection and Dissemination.
- 5) Institutional Linkages.

1) Training and Education

The Department of International Health since 1962 has devoted the major part of its resources to training participants for leadership in international health. The participants included candidates for MPH degrees and those in specialized graduate courses in health planning and delivery of low cost health services. The number of participants has now stabilized at approximately 32 per year (12 senior planners and 20 or more MPH students majoring in international health).

Will the DIH be able to maintain this level of training with the grant?

Will training be relevant to the expressed priorities of the AID Key Problem Areas? Will the curriculum be oriented toward AID objectives?

What special courses, workshops, and conferences will be funded under the grant?

Can the training program meet the potential demands of LDCs.

2) Research

Is there a conceptualized research program that covers the areas of major importance to AID?

In this connection, does the JHU program cover gaps in knowledge of health planning methodology and low cost delivery system techniques?

Will the university utilize the grant to develop research designs for economic effects of health, manpower utilization the effects of environmental factors on health?

How much faculty time will be devoted to research?
How much of the grant will be devoted to research?

3) Advisory Service Response Capability

Does JHU have the resources and capability to respond to LDC and AID requests for advisory services in health planning and low cost delivery systems? Estimate the proportion of manpower and resources that might be utilized for advisory services. Describe how policies and priorities of DIH would be directed toward this objective.

4) Collection and Dissemination of Health Data and Information

The collection and dissemination of information on international health is at present inadequate or wholly lacking in U.S. institutions and international organizations.

How does the grant propose to support the establishment of collection of documents, data and other information at JHU? Is there a quantitative goal that the university intends to establish? How is it to be administered?

5) Institutional Linkages

A desired output of the utilization grant is the establishment of new LDC and domestic linkages. What are the present JHU relationships and what efforts are being made to increase and strengthen these?

C. Utilization assumes some base and projected demand by AID, other donors and LDCs for the response capabilities being developed and/or sustained. In specific terms, please give your projection of demand over the next two to three years and the basis for these estimates.

D. The requested funding of \$260,000 per year is approximately \$160,000 over the current grant rate for health, i.e., exclusive of population. The usual assumption is that the utilization made will cost less than the development phase. Please justify, including responding to the following:

What would be the effect of the DIH in terms of training, research and advisory services if (a) the grant is not extended and (b) only \$130,000 per year is provided? What assumptions are being made about other sources of funding?