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REMARKS:

Attached is a copy of the draft Research Proposal submitted to the Research Committee on February 22.

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WORLD BANK RESEARCH PROGRAM

Project Proposal

Date of Submission

February 22, 1980

## PART I. PROJECT IDENTIFICATION

**Title:** Diversified Secondary Curriculum Study (DiSCuS)

| Department(s) Responsible: | 3. Staff Participation<br>a. Principal Supervisor: W. Haddad<br>b. Others Responsible: |
|---|---|
| Education (CPS) | |
| No. of Contracts: | 5. Estimated Total Cost: |
| 8 | $360,000 |

Estimated Total Staff Time Required (weeks):

Professional: 67 Assistant:

## PART II. COORDINATION AND APPROVAL

Interdepartmental Coordination:

| Department | Name and Signature | Support Project | No Objection | Do not Support Project-Comments Submitted |
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| a. Eastern Africa Projects | | X | | |
| b. Latin America and the Caribbean Projects | | X | | |
| c. Western Africa Projects | | X | | |
| d. EMENA Projects | | X | | |
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# DIVERSIFIED SECONDARY CURRICULUM STUDY
# (DiSCuS)

W.D. Haddad
Education Department (CPS)

SUMMARY

1. Diversification of secondary school education by "vocationalizing" or "practicalizing" the curriculum has been a major component of the Bank's lending program. Of the 174 education projects approved between 1963 and 1978, 79 projects include elements of diversification, drawing about 20 percent of total cost of Bank-IDA-financed education projects. Twenty projects have been completed while the other 59 are at different stages of implementation. The diversified curriculum projects are well divided between two models: Model I in which practical subjects are introduced into a single stream (or nonvocational multiple streams) as one component of a general education curriculum with no occupational aims; and Model II which offers specialization in vocationally oriented streams with occupational aims.

2. Earlier completion and audit reports indicated a number of recurring problems during the implementation of diversification. As a result, a framework for a comprehensive study was formulated to evaluate the effectiveness of diversification within a general matrix of educational, managerial, social and economic factors. The first stage of this study, covering a review of literature on diversification and innovations in education as well as an analysis of Bank experience, has been completed. Results point to three problem areas: implementation, acceptability, and effectiveness of the educational model of diversification. The project completion reports, by virtue of their nature and timing, do not provide an assessment of the policy of diversification as a priority organizing principle for further lending.

3. The present proposal attempts to generate the necessary empirical data to examine in depth (a) the interaction between the socioeconomic educa-educational factors and innovatory projects, (b) the intensity and interrelationship of the implementation matrix, and (c) the comparative effectiveness of the

diversification model. These issues will be investigated by means of two impact case studies in Tanzania (for Model I) and Colombia (for Model II) where diversification has been applied for a period sufficient enough to test its comparative effectiveness against conventional academic and technical education. The impact studies, due to their methodological limitations, will be supplemented by three longitudinal studies as components of ongoing Bank-financed education projects in Thailand, Jordan and Sierra Leone (or Liberia). Results from these studies as well as information gathered from other similar studies will be synthesized into a policy document.

4. To assess the impact of curricular diversification on secondary schools' internal and external efficiency, a cost-effectiveness analytic framework will be applied. To the extent that earnings data can be gathered for recent school graduates and leavers, a cost-benefit approach will be possible and implemented. The cost analysis will focus on differences in societal costs between diversified and and conventional schools. The examination of system effectiveness will use the input-output analysis embodied in economists' educational production function studies (and studies of earnings functions, to the extent possible). This approach will be extended through use of a model comprised of a system of structural equations, rather than a usual single-equation model. Analysis of the model will be facilitated through use of path analytic techniques, widely employed by sociologists.

5. Two additional approaches will be used to "flesh out" and interpret the perspective provided by the quantitative analysis: historical information, interviews with key personnel, and detailed observations will contribute to a qualitative understanding of within-school processes; and existing and newly-gathered data will be used to compare comprehensive and conventional schooling at the macro level with regard to enrollments, droupout rates, graduation rates, and alternative post-secondary school choices made by students.

6. Data gathered will consist of alternative system costs, student background, community characteristics, school and teacher characteristics and student subsequent aspirations and attainments. Included in the school characteristics data will be variables reflecting school type (conventional, vocational, or diversified), and, for diversified schools, levels of implementation. Student attainment includes not only measured achievement, but tracer data which indicates training, occupational, and employment characteristics of graduates and school leavers. Data will be gathered to facilitate comparisons of student attainments across types of school by school year or level. A subset of graduates and school leavers will be traced to assess the degree to which educational and employment experience differ across types of schools. Two earlier cohorts will be traced for the same purpose.

7. Sampling plans for Colombia and Tanzania will differ since their diversification approaches vary significantly. In general, however, a stratified random sample of schools in each country will be used. Should the number of schools with diversified curricula in a country be small, disproportionate sampling within strata will be used. In addition, variables of policy interest and other complexities such as regional distribution and type of diversification may call for cluster sampling for selection of students at the school, classroom or track level. Beyond this, however, characteristics of the sampling design will be geared to the unique traits of the countries studied.

8. Use of educational production and earnings functions in a specified system of equations will enable us to assess the absolute and relative impact of all variables influencing student outcomes. These variables include type of school, level of implementation, students' socioeconomic background, students' attitudes. Furthermore, the structural equation approach allows us to trace through the total (direct and indirect) effects of key policy variables, as well as to simulate the potential effect of possible policy changes.

9. In addition, through stratifying by variables such as type of school and level of implementation, we will be able to make comparisions across schools concerning the influence of socioeconomic status on attitudes and attainments. Specifically, we will be able to determine whether or not the typically strong and positive relationship between socioeconomic status and attitudes and attainments is attenuated for schools with diversified curricula as compared with conventional schools.

10. Collection and analysis of data for the impact studies will be carried out primarily by local research teams, in collaboration with consultants located at the Bank. The longitudinal studies will be implemented within the respective ongoing education projects with professional assistance from the central team of consultants.

11. The present study will contribute substantially to the knowledge of the Bank and its member countries of diversification projects that have already been funded, and provide a mechanism to draw together results of components of education projects dealing with evaluation and monitoring of diversification. The product of the study will assist in understanding the feasibility and effectiveness of diversification within different contexts and provide a policy framework for further lending and project generation in this area.

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DIVERSIFIED SECONDARY CURRICULUM STUDY
(DiSCuS)

I. OBJECTIVES AND STRATEGY

A. Background

1. Diversification of secondary school curricula by introducing practical and/or occupational subjects into an otherwise completely academic program has been a substantial component of Bank lending. It has been partly justified on the basis that:

> The upward push of demand reinforces the built-in tendency of education at any one level to be preparation for the next. As a corollary, the content becomes more theoretical and abstract and less practical; experience drawn on is more universal and less local; and cognitive, or purely mental, skills are emphasized over attitudes and manual, social and leadership skills. This education is dysfunctional for most types of employment--wage or non-wage--and for playing other roles needed in a developing society. 1/

To relate skills taught to jobs, the content of education needs reorientation. "Emphasis on vocational and technical schools and centers, and attempts to 'vocationalize' the curricula of academic schools, are illustrations of attempts to achieve such a reorientation." 2/

2. As a result of the Bank policy to finance such attempts, of the 174 education projects approved by the Board between 1963 and 1978, as many as 79 projects (45.4 percent) included an element of diversification. Although it is difficult to isolate such elements for costing purposes due to the existence of items shared with other components, a conservative estimate is that the cost of the diversified secondary component is about 20 percent of the total cost of Bank/IDA financed education projects. Twenty projects have been completed and their performance evaluated by completion missions and some by project performance audit reports, while 59 are at different stages of implementation. The breakdown of projects by region and status appears in Table 1.

Table 1: DISTRIBUTION OF "DIVERSIFIED SECONDARY" PROJECTS BY STATUS AND REGION

| Status | Eastern Africa | Western Africa | Latin America and the Caribbean | Europe, Middle East and North Africa | Asia | Total |
|---|---|---|---|---|---|---|
| Completed | 6 | 4 | 7 | 2 | 1 | 20 |
| In-Progress | 13 | 10 | 18 | 14 | 4 | 59 |
| Total | 19 | 14 | 25 | 16 | 5 | 79 |

3. Different terms have been used to describe diversification: "introduction of practical subjects (streams);" "prevocational subjects (streams);" "comprehensive schools;" "multilateral schools." These terms reflect different concepts of diversification as specified by the nature of subjects and streams introduced, the percentage of weekly periods allocated and the emphasis given to practical or occupational subjects, and the level at which they are introduced. In general, projects may be classified into two crude modes of diversification.

Model I. Introduction of "practical subjects" into a single stream (or nonvocationally based multiple streams) as one component of a general curriculum but with no direct occupational aims. Students in this case may all take the same practical subjects or choose one or more of them depending upon their availability.

Model II. Specialization in vocationally oriented streams with direct occupational aims. This generally follows an observation period of one or two years that constitute a "pre-vocational" orientation, similar to Model I. Model II schools (sometimes labelled "comprehensive" or "multi-lateral") usually provide a common core of academic and practical coursework with increasing specialization in one academic or "occupational" field.

4. The 20 completed projects are well divided between the two models (Model I - 45 percent and Model II - 55 percent). The 59 ongoing projects are distributed as follows: 27 percent Model I, 54 percent Model II, and 19 percent unspecified. If, during implementation, the last category applies Model I, then the distribution of completed and ongoing projects will be alike.

Table 2: DISTRIBUTION OF PROJECTS BY TYPE AND REGION

| Region | Completed | | OnGoing | | |
|---|---|---|---|---|---|
| | Model I | Model II | Model I | Model II | Unspecified |
| E. Africa | 5 | 1 | 3 | 5 | 5 |
| W. Africa | 3 | 1 | 4 | 5 | 1 |
| LAC | 1 | 6 | 4 | 12 | 2 |
| EMENA | 0 | 2 | 3 | 9 | 2 |
| Asia | 0 | 1 | 2 | 1 | 1 |
| Total | 9 | 11 | 16 | 32 | 11 |

5. Earlier completion and audit reports indicated a number of recurring problems during the implementation of diversification in areas such as training of teachers, utilization and maintenance of facilities, attitudes of staff and students, management and sociopolitical constraints. A general meeting of Bank educators on September 9, 1977 reinforced the significance of these problems and the need for a policy-oriented study regarding this educational model. The importance of such a study was also underlined in the Education Division Chiefs' meeting of January 3, 1978.

6. As a result, a framework for a comprehensive study was formulated to (a) review the experiences and problems encountered in the introduction of diversified secondary curriculum in the light of recent thinking regarding innovation implementation and status of diversified curricula; (b) develop a conceptual framework for an indepth study of these experiences and problems; (c) analyze the degree of success of implementation within a management/finance/social/political matrix through indepth studies; and (d) synthesize results into a policy paper. (See Figure 1 for a schematic representation of the study.) The first stage is now completed and three draft papers were produced:

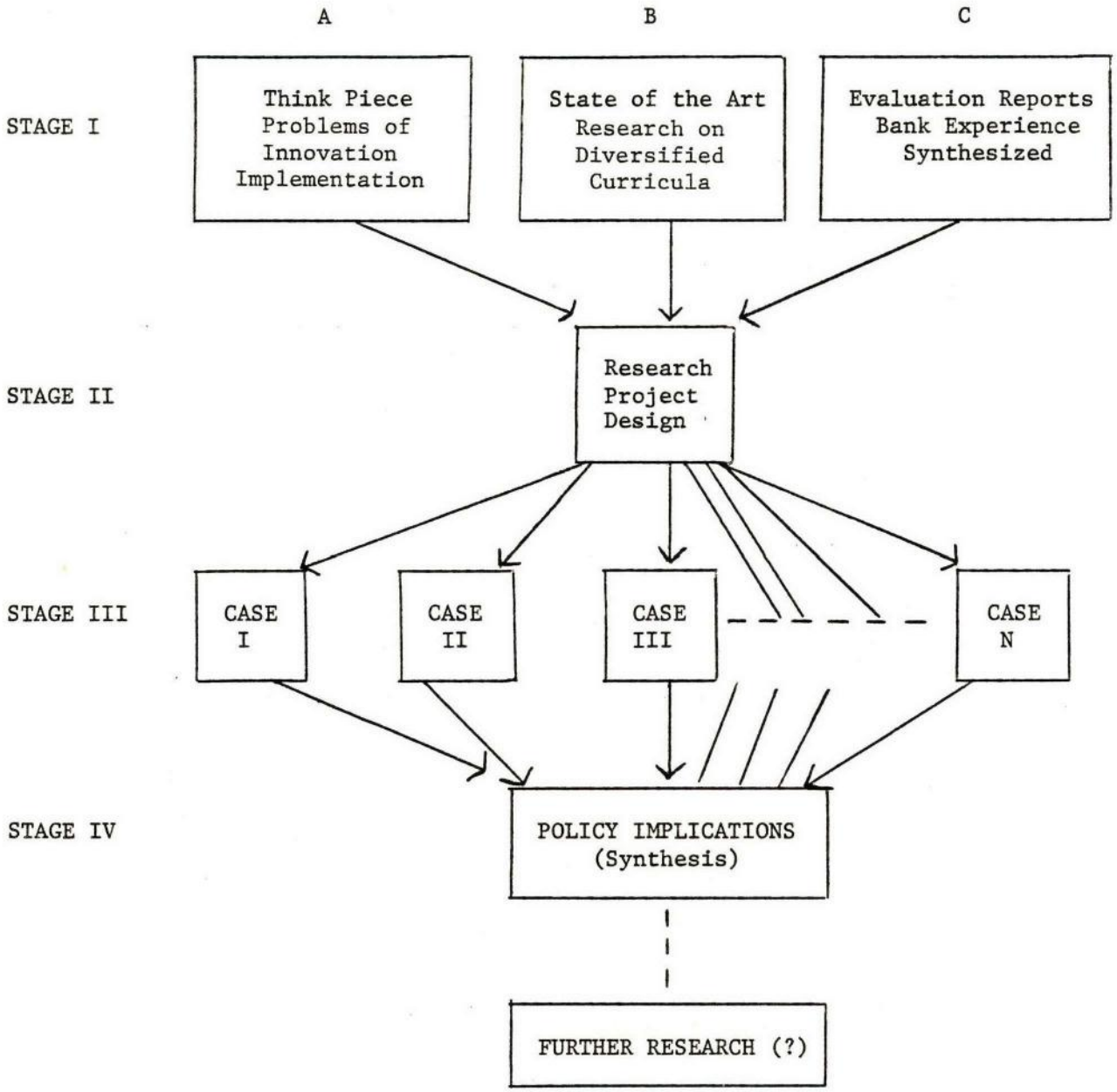
(a) Implementing Innovatory Projects: A Critical Review of the Literature.

(b) Diversification of Secondary Education: A Review of the Literature.

(c) Diversified Secondary Curriculum Study: A Review of World Bank Experience.

Figure 1

FRAMEWORK FOR THE DIVERSIFIED SECONDARY CURRICULUM STUDY (DiSCuS)



7. Results from Stage I of the study point to three problem areas facing the diversification of secondary education. The first type of problem is derived from the process of implementation of the different physical and educational components, and falls into a complex and interactive matrix. The second set of issues relate to the model itself and its educational and cost-effectiveness in comparison with other models such as general education, vocational training, and different combinations of both. The third cluster of problems stem from the fact that diversification is an innovative concept with respect to almost all the educational systems in which it was introduced.

8. The review of Bank experience on the basis of completion reports, focuses, by virtue of the nature and timing of these reports, on success and failure of projects in terms of performance and implementation. An assessment of the policy of diversification as a priority organizing principle for further lending necessitates an evaluation program that investigates all three policy-related areas of innovation, implementation and model effectiveness. To generate the necessary empirical data, the remaining stages of the general design (Figure 1) need to be implemented.

B. Assumptions and Policy Questions

9. As a strategy for modernizing the structure and instructional content of secondary schools, diversification of curricula is based on a set of assumptions concerning relationships between conventional secondary education, the quantity and kinds of inputs and outputs, and the nature of a national economy's employment-opportunity structure. It is assumed in most cases that there is a mismatch or lack-of-fit between types of education and training typically offered in conventional formal schools, and the skills and other characteristics required of job-holders in developing economies. 3/

10. It is also assumed that even painfully slow growth in the number of students completing a traditional academic curriculum often exceeds labor market capacity to absorb relatively highly educated job seekers, giving rise to a surplus of persons who are comparatively well-educated but unemployed or under-employed. Associated with this, it has been argued that traditional "urban-centered" schooling results in high dropout rates among rural and lower class youths, yielding a surplus of under-educated and unemployed. 4/ Moreover, following the argument to its conclusion, this occurs at the same time and in the same setting where middle-level technical jobs, typically unattractive to secondary school graduates, go unfilled. 5/

11. In addition, it is also assumed that the content and ethos of conventional secondary school education unrealistically exaggerate the educational and occupational aspirations of graduates. That is, participation in conventional schooling generates a great deal more educationally legitimated demand for access to highly valued positions and other attainments than a developing society's economy and other institutional resources can provide. 6/ Ironically, in spite of the persistent and ostensibly troublesome problems of wastage in the secondary schools of developing countries, the relatively large number of graduates of these schools who aspire to further general academic training far exceed the capacity of universities and similar institutions to absorb them. 7/ However, among both those who succeed and those who fail in gaining access to post-secondary academic education, heightened aspirations have been interpreted by critics as manifestations of middle class, "Western" values which are pervasive in the culture of traditional secondary schools, but ill-suited to the needs and constraints of most developing countries. This circumstance, it seems plausible to argue, renders conventional secondary

schooling inappropriately class-distinctive and class-reinforcing. 8/ Moreover, labor markets of developing economies are robbed of educated persons who aspire to positions and occupations higher and more prestigious than those available.

12. Diversification of secondary school curricula, it is contended, will assure that more students, including those with less-advantaged backgrounds, will receive education and training better suited to the social and economic conditions prevailing in their developing homelands. Schooling will be more closely attuned to the varied and changing requirements of industrialization and growth in the developing world, the number of trained persons selecting middle-level jobs will be increased. Related to this, diversification is expected to serve as a solvent for ossified barriers to reducing exaggerated social and economic differences by facilitating upward mobility and breaking down systematic class-based differences in the distribution of persons across valued social and occupational positions and roles. 9/ By providing now-unavailable combinations of education and vocational and occupational training, it is anticipated that students will attain more useful and accurate assessments of the non-traditional jobs available in their developing economies, and develop more receptive, positive, and realistic attitudes and aspirations. In short, it is expected that diversified curricula will promote a clearer understanding of the modernizing world of work, and that this will facilitate the development of enhanced congruence of values and aspirations with the requirements of the labor market. 10/

13. There is evidence to suggest that conventional academic education may have been dismissed too quickly, without adequate appreciation of its value. Specifically, the structure and content of general secondary education,

as traditionally understood and practiced, may have outcomes which are necessary prerequisites for higher level technical training. In addition, conventional secondary training may, in itself, be an invaluable form of vocational education. 11/ There are also recent developments--newer innovations--in post-primary education and training which may be more cost-effective and otherwise more useful as alternatives to traditional secondary education than diversification of conventional school curricula. 12/

C. Objectives and Significance of the Study

14. The interest of the developing countries in diversification of secondary school curricula appears to be not only durable but growing in breadth and intensity. The World Bank's already-large investment in diversification, coupled with unremitting requests for additional assistance, indicate an undeniable need to reach an informed judgement as to the nature and extent of the contribution of diversification to the useful modification of traditional academic secondary schooling.

15. We propose that a systematic, detailed policy study be conducted to test some of the assumptions that underlie diversification and to evaluate the implementation, operation, and significant outcomes of diversified secondary school curricula. In particular, we wish to focus on identification and measurement of factors which may facilitate or impede attainment of the objectives of diversification, and assess the costs of comprehensive schools compared to other educational efforts with similar aims and goals. In specific, the study will aim to examine in depth (a) the interaction between the socioeconomic educational factors and the innovatory projects, (b) the intensity and interrelations of the implementation matrix, and (c) the comparative effectiveness of the diversification model.

16. These questions will be investigated by means of two impact case studies in countries where diversification has been applied for a period sufficient enough to test its comparative effectiveness. The impact studies, due to their shortcomings in dealing with implementation and innovation issues, are supplemented by three longitudinal studies as components of ongoing Bank-financed education projects. The two impact studies are designed to evaluate each of the two models of diversification (see para. 3). Tanzania is selected for the study of the impact of Model I, especially that completed projects of this type are concentrated in Eastern Africa. Moreover, diversification is a well-established program based on the ideology of self-reliance and is spread throughout the system. Model II projects are concentrated in Latin America and Colombia is chosen for the case study of this type because it has had three projects supporting diversification. In addition, both countries meet the following pre-set criteria: (1) programs have been sufficiently well implemented to enable an evaluation of the model; (2) diversification has been introduced on a large scale to permit appropriate sampling; and (3) there is an acceptable local research capacity to collaborate in the design and execution of the study. The countries selected for the longitudinal case studies are Thailand, Jordan and Sierra Leone (or Liberia), to provide a balanced geographical distribution. Moreover, these countries already have some experience with diversification which can be studied, and ongoing projects within which implementation strategies can be formulated, tested and modified.

17. This project will ultimately synthesize the results of the two impact case studies, the successive data from the three longitudinal studies, available information from tracer and evaluation studies in other Bank-financed education projects, and the results of similar studies that may be carried out by other agencies (see para. 67). Policy implications will then be drawn regarding the suitability, feasibility and effectiveness of the various types of diversification within different educational and socio-economic contexts.

18. This project will contribute substantially to the World Bank's knowledge of diversification projects it has already funded, and complement related, ongoing research and evaluation projects, such as the Co-operative Assessment Project of the Thirty-Two Rural Secondary Schools in Thailand. 13/ In short, information gathered in the proposed policy study would constitute a significant contribution to understanding the role and utility of diversified secondary curricula in developing countries; as a guide to decisionmaking with regard to already-funded projects and requests for additional assistance, it could easily prove indispensable. This assertion as to the singularly pertinent nature of the proposed policy study is based, in part, on our understanding of completion reports and audits of completed projects, and insights provided by current literature on educational innovation. That is, as with numerous other innovations in a variety of settings, there is reason to suspect that diversification, in many instances, has been adopted as an important element of educational policy, but never successfully implemented. 14/ Therefore, in contrast with past studies, we will focus on implementation itself as one decisive factor in determining the success or failure of an

innovative project. As a result, we will avoid erroneous conclusions concerning an innovation's value which, in the past, have proceeded from the unfounded assumption that adoption and successful implementation are coterminus (see Appendix B).

II. RESEARCH DESIGN (IMPACT STUDY)

A. Analytical Framework

19. A vast and growing literature exists concerning the identification and interpretation of determinants of educational achievement and occupational and income attainment. 15/ Most of the empirical reseaach aimed at formulation and refinement of theoretical models of status attainment processes has focused on developed countries, particularly the United States. However, important and useful contributions have also been made concerning developing countries, and interesting differences, apparently occasioned by the contrast between developed and developing contexts, have been identified. 16/ Almost without exception, extant research has affirmed the analytical value of antecedents' socioeconomic status as an important determinant of educational, occupational, and income attainment. In the case of developed countries, socioeconomic background is typically presented as the one most important predictor of status attainment. With regard to developing countries, however, while "inherited" status advantages remain significant factors in any dynamic model of social stratification, their dominance is somewhat less clear. Specifically, the measured relationship between educational achievement and occupational and income attainment is rather tenuous in developed countries, typically being overshadowed by other factors with which it is associated, especially socioeconomic background; in developing countries, however, where

a relatively high level of educational attainment is often quite unusual, the relationship between educational achievement and other attainments is sometimes quite strong. 17/

20. The point is that, while the role of education in the general development process is not well understood, there is evidence to suggest that its value in promoting progressive social change in a developing context may be quite substantial. Certainly, it would be premature, if not simply misguided, to follow the lead of some American scholars in drastically minimizing the potential value of investment in education. 18/ However, this still leaves the following critical question unanswered: what type of education is most appropriate for developing nations given the need to achieve relatively high levels of internal and external efficiency in balance with the need for achieving a relatively high level of distributive justice? Very specifically, does diversification of secondary school curricula constitute a good educational investment for developing countries? Does it represent a better investment than traditional academic or technical secondary education? Assuming that diversification is potentially valuable, under what conditions are the certainty and magnitude of its "payoff" greatest? Under what circumstances is diversification likely to yield a diminished or uncertain return?

21. Obviously, there are a variety of ways to approach questions of this kind. One of the most efficient, widely used, and readily interpretable is the economist's production function. However, before we begin our discussion of methodology, it is important to clarify further the kinds of comparisons that are indispensable to a useful policy study.

22. First, and most obviously, comparisons need to be made between conventional academic and technical secondary schools and schools with diversified curricula. The crucial question at this juncture becomes "comparisons with regard to what"? With regard to "outputs," certainly. That is, we want to be able to make interpretable comparisons concerning differential consequences for students and, less directly, for their nations, with regard to measured academic achievement, educational and occupational aspirations, demonstrated occupational skills and attainments, and a variety of other output characteristics.

23. In addition, it will be essential to make comparisons with regard to "inputs," namely the characteristics of entering students. This is necessary not only because measured differences in the consequences of different types of schooling may be predetermined by initial differences in characteristics of inputs, but also because we are interested in any connections between different schools' recruitment practices and systematic social class differences which may exist across schools. The assumption is, we may recall, that curricular diversification will contribute to the elimination of class-linked barriers to social mobility and educational and occupational attainment. However, it is conceivable that in settings where conventional academic secondary schools exist side by side with schools with diversified curricula, the non-traditional, innovative school may be a less prestiguous "track" for less-advantaged students in a dualistic school system.

24. In addressing issues of the kind just mentioned, it is useful to have information concerning other kinds of inputs, as well. For example, if one type of school, say, the conventional academic secondary school, is systematically favored with more modern facilities, more experienced and

better trained teachers, and other advantages, differences in outputs which are closely related to differences in schools' resources may be erroneously attributed to differences in type of school. Thus, comparisons will be made to identify any differences in schools' access to high quality resources.

25. Finally, an additional set of comparisons between schools of different types need to be made to identify differences in the processes occurring within them. This, of course, represents a departure from the production function approach. Nevertheless, skilled and influential students of the educational production function, including Jencks 19/ and Coleman 20/, have asserted that differences in the ways that the same schools treat students with different characteristics may be more important than differences between schools. This argument has received substantial support in the ethnographic work of Henry 21/, Mehan 22/, Erickson 23/, and numerous others. Rist 24/ has presented especially persuasive reports of field work concerning processes occurring within schools whereby particularistic criteria such as race and class become decisive in determining students' success or failure. Thus, while the production function is a useful tool, one that we shall rely on most heavily in our analysis, its "black box" orientation to in-school processes should be augmented with an ethnographic component. Without this additional information, comparisons across school types may be misinterpreted. In addition, inclusion of an ethnographic supplement to the production function approach will contribute to our understanding of associations which may appear between characteristics of entering students and wastage, the concrete ways in which differences in schools' resources become translated into differences in outputs, and a variety of other questions which are raised

but not directly addressed by the production function (this ethnographic component will hopefully provide information that can be used in the longitudinal study to be conducted in ongoing projects in three other countries; see Section III).

26. While the need to make a variety of comparisons between traditional secondary schools and schools with diversified curricula is obvious, it will also be essential to make comparisons across a number of schools with diversified curricula. In part, this is attributable to interests discussed above. There are, however, at least two additional, and especially important, reasons. To begin with, recent literature on a variety of public service organizations and institutions indicates forcefully that successful implementation of a significant innovation may take strikingly different forms and yield markedly different consequences from one concrete setting to another. Because of this, questions concerning the degree of implementation are much less straightforward than they might otherwise seem. In spite of this ambiguity, such questions must be answered. That is, questions concerning the meaning of successful implementation from one context to another must be addressed.

27. At the same time, it is undeniable that there will be numerous instances in which the success, failure, and level of implementation will be clearly ascertainable. As a result, we will be able to estimate the consequences of different degrees of success in implementation by using direct extensions of the production function approach. 25/ In view of the results of World Bank audits discussed above, this should prove an especially interesting and useful element of the proposed policy study.

B. Methodology

28. In order to address the numerous and varied issues outlined above, quantitative measures concerning a rather large set of variables must be

efficiently organized, analyzed, and interpreted. As mentioned in the foregoing, our primary analytical framework for this purpose will be the education production function. Specification of the function is, of course, largely a matter of formulating a useful theoretical model. At this stage, it is essential that variables producing systematic, significant variation in criterion measures not be excluded, and that the nature of expected relationships among factors included in the model be clearly stated.

29. Beyond this, in the absence of troublesome specification error, use of multiple regression techniques to estimate the production function's coefficients enables us to assess the relative effects of independent or predictor variables with respect to outcomes of interest. 26/

30. Moreover, in contrast with most educational research which has used the production function approach, we will not restrict our analysis to single-equation models for predicting educational outcomes. That is, we will borrow the econometrician's structural equation techniques and couple these with the now-widely used analytical and heuristic tools of path analysis. 27/ In doing so, we will close the gap between the theoretical model and the statistical model. 28/ Moreover, we will no longer be restricted to speaking of "effects" and "relative effects"; instead, we will be able to identify and measure significant relationships among all variables in the model and assess the degree to which effects are direct, indirect, and "spurious" 29/. "Explanation," thus, is no longer restricted to discussions of "percentage of variance explained" given the inclusion or deletion of one or more predictors from a single equation: "explanation" now extends to identifying the theoretically interesting ways in which independent variables are related

to determined outcomes and to each other. 30/ An additional benefit of the path analytic approach stems from the fact that it facilitates interpretation of the consequences of multi-collinearity. 31/

31. The variables to be used in this study consist of four related categories or blocks. Taken together, they represent an hypothesized model of the determination of educational outcomes. At this juncture, the model inevitably remains rudimentary (see Figure 2); however, the relevance and ordering of the blocks is well-founded. 32/

32. The first block contains factors which influence students and begin contributing to the determination of their long-term prospects well before schooling begins. These include the usual complement of socioeconomic background variables, such as parents' education and parents' occupational status, parents' income and wealth, number of siblings, an index of "life style," and so on (see Appendix C).

33. The second block contains factors pertaining to characteristics of schools and their resources. These include the crucial variables: type of school, nature of diversification, and level of implementation (see Appendix B). Additional factors in the second block include rural-urban location, annual expenditure per pupil, and level of teachers' training and experience (see Appendix D).

34. At this point, it is important to recognize that the arrangement of variables into blocks, while it reflects close relationships among concepts and facilitates presentation, is not immutable. More specifically, if assumptions as to the beneficial consequences of diversified curricula relative to conventional schooling are accurate, there would be at least

two models of educational outcomes: one for schools with diversified curricula, and one for conventional schools. As a result, the "type-of-school" variable would have an altered analytical status: instead of appearing as an exogenous variable in each path model, each of its categories would subsume a different model, reflecting the consequences of interaction between "type-of-school" and other factors. It is conceivable that much the same phenomenon might be observed with regard to other factors, such as categories of an ordinal "level-of-implementation" variable. Nevertheless, while the composition and arrangement of blocks is rudimentary and simplified, it accurately reflects information available in current literature. Elaboration of the model, of course, will entail assessment of the importance and interrelationships among individual variables, and require abandoning the heuristic convenience of blocks of variables.

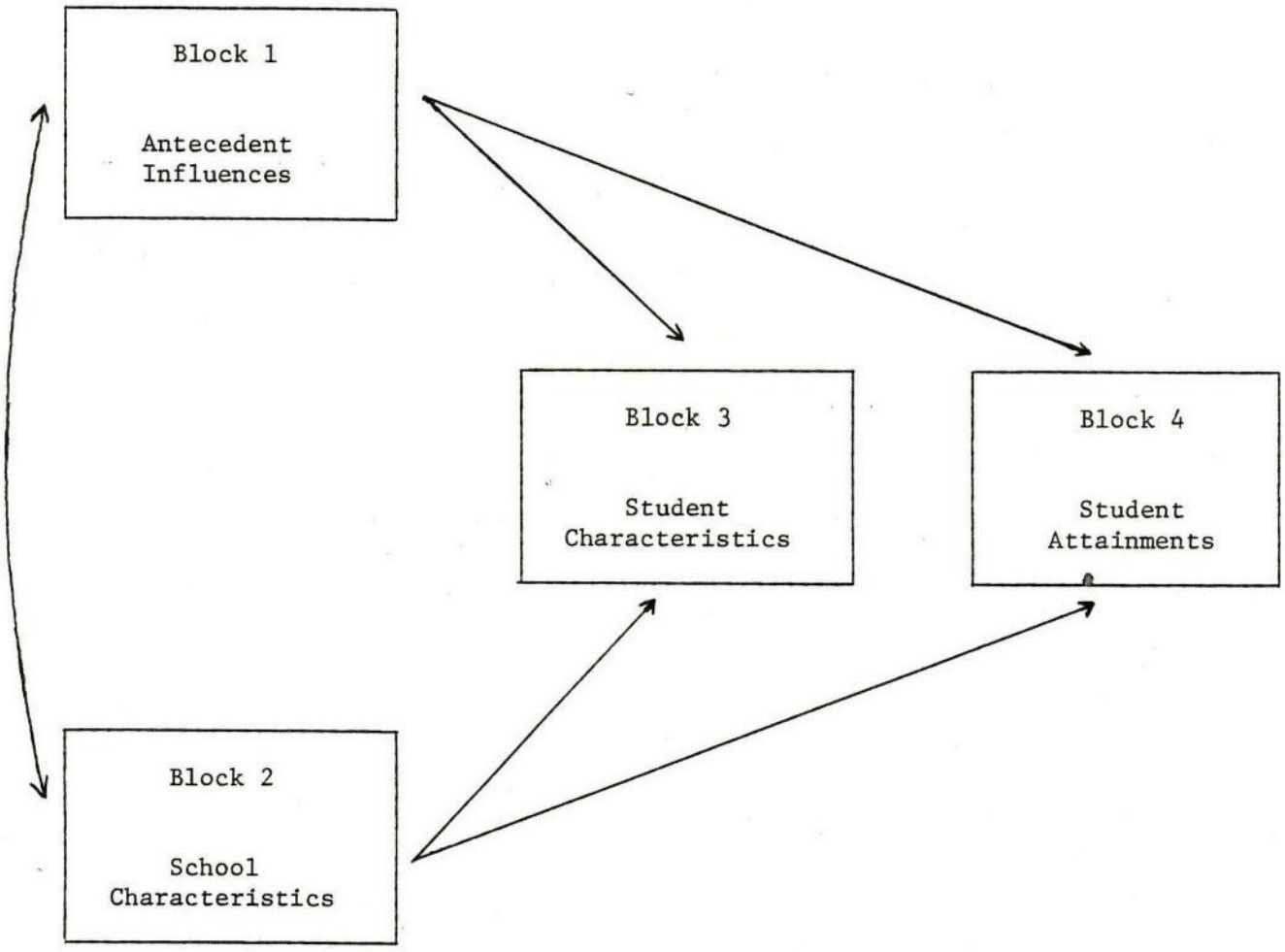
35. The third block contains the first set of endogenous criterion variables. These include academic achievement, attitudes toward work, educational and occupational aspirations, educational and occupational expectations, useful occupational skills and knowledge, and so on. Again, it is obvious that "blocking" introduces problematic simplifications by treating all variables in the third block as if they had precisely the same status in the model, when it is not at all clear that they do. For example, the relationships between aspirations and expectations remain undetermined, and may be nonrecursive. However, the important point at this preliminary stage is that the variables in block three are most usefully viewed as consequences, rather than determinants, of the variables in blocks one and two.

36. The fourth block contains the second set of criterion variables. These include occupational, educational, and training attainments.

37. The details of the design will be worked out for each country separately. Moreover, since there will be considerable development and modification of the constructs and their indicators such as the implementation variable, a pilot test will be carried out to assess procedures and instruments prior to the main data-gathering process.

Figure 2

HEURISTIC DIAGRAM OF OUTCOME/ATTAINMENT MODEL



C. Sampling: A Special Note

38. In view of the complexities of the proposed study--the ambitious research design, the issues identified as central concerns, and the concrete contexts in which the research may be done--sampling is an especially important consideration. Since we will be concerned with at least two different types of schools occurring within the same national settings, stratification of the sample with respect to type of school is an obvious and useful strategy. Beyond this, however, characteristics of the sampling design will be geared to the unique characteristics of the countries under investigation. For example, if we are concerned with nations in which both conventional secondary schools and secondary schools with diversified curricula occur in relatively large numbers, proportional random sampling within each stratum will be appropriate. If, however, we are focusing on countries in which, say, adoption of the diversified curriculum is quite rare, disproportionate random sampling may be indispensable; in fact, if the population of schools with diversified curricula were quite small, it would be useful to include all such schools in our sample.

39. While stratification of the sample is a useful strategy, it does not begin to exhaust the kinds of complexities that may be essential to a useful sampling design. For example, practical logistical considerations will almost certainly require that we limit the number of identifiable geographical areas from which we select schools, each area constituting a "cluster," presumably representative in its heterogeneity with regard to variables of interest. Clustering is also apt to be useful when selecting students within each school. That is, instead of sampling students from the entire roster of each school, we might first select tracks or classrooms, and then sample within these. In any

event, while the sample design inevitably will be complex, the most useful sampling strategy cannot be precisely specified until we have up-to-date information concerning diversified curricula in Colombian and Tanzanian schools.

40. It should be noted that the sampling plans for each of the two countries will differ since their approaches to diversification are different. For instance, in Tanzania diversification occurs at the school level, i.e., some have an agricultural bias while others a commerce bias, etc. In Colombia diversification appears to be similar across each diversified school. In other words, in Colombia the curricular options have been expanded in a standard and uniform way. The different forms of diversification require distinct sampling plans. For reasons such as these, consultation with indigenous research personnel is obviously indispensable.

41. Sampling is also a crucial consideration in identifying students to be "traced" to determine pertinent characteristics of graduates and school leavers. Specifically, if the outcomes of conventional academic secondary schools and innovative schools with diversified curricula are durably different, these differences will be manifest in educational, occupational, and employment experiences of students who leave these schools. To test for such differences, it will be necessary to identify a useful subsample of students to follow after they leave school. The importance of a tracer study for our purposes is at least matched by the practical difficulties posed by such an undertaking, especially when conducted on a national scale. Actually tracing students, even for a relatively short period, requires that we first elicit their cooperation before they leave school. Without students' active participation, and in the absence of an accessible national "Continuing

Register" of all citizens' movements, periodic follow-up will be virtually impossible. Again, the assistance of indigenous personnel will be essential.

42. Assuming reasonable success in tracing students' movements, their active and willing participation will also be necessary to assure an adequate rate of return for mail-out questionnaires. Of course, it is possible that mail-out questionnaires will be supplanted or augmented by interviews conducted with the entire tracer study subsample or a still-smaller group of students. Data collection questions of this sort, however, are best answered in consultation with local research teams who have an intimate knowledge of the research settings and who will be directly responsible for the tracer study. In any event, survey research of this kind will almost certainly require a careful pilot study in each of the two countries to assess the utility of data collection instruments and the tracing process itself.

43. Even at this stage, it seems undeniable that the tracer study, if it is to be usefully done, will be one of the most difficult and potentially troublesome elements in the entire project. However, this is typical of longitudinal survey research, and no cross-sectional alternative seems even remotely practicable. One must bear in mind, however, that insofar as we are interested in durable differences in the outcomes of different types of schooling, follow-up over a suitable period of time is an indispensable component of this study. Moreover, such an undertaking is well within the technical capabilities of domestic research personnel.

44. In addition, attempts will be made to trace at least two earlier cohorts either on the basis of existing tracer schemes or possibly by utilizing data from other Bank-financed research projects such as Sabot's study on employment in Tanzania, or Ingram's Bogota City Study.

## III. THE LONGITUDINAL STUDY: A CRITICAL COMPONENT

### A. Some Shortcomings of the Impact Study

45. The education production function is a sophisticated analytical tool which is quite useful in addressing a rather clearly delimited set of policy issues. At the same time, however, it typically provides very little information concerning a variety of other, equally important, questions. Specifically, within constraints determined by the power of pertinent theory and the precision of instruments and procedures for measurement, the production function is an efficient technique for analyzing large quantities of numerical data to discern complex relationships between "inputs" and "outputs." As a result, very diverse input variables, such as students' socioeconomic status, students' educational aspirations, teachers' years of instructional experience, type of curriculum, annual expenditures per pupil, rural-urban location, etc., can be assessed with regard to their effects on interesting criterion variables; these might include achievement test scores, years of education completed, or subsequent occupational or income attainments.

46. Moreover, given an unusually well-developed theoretical framework, unobtrusive, fine-grained measurement techniques, and massive data collection resources, the "black-box" limitations of the production function may be significantly diminished. With the introduction of an ever-larger complement of "intervening" variables in an increasingly complex multi-equation model, one might plausibly argue that the usual input-output character of the production function is effectively augmented through gradual illumination of processes occurring within the "black box."

47. For example, it may be observed that students with parents of high socioeconomic status typically obtain high-income employment after leaving school. An interpretation of this association may not be readily apparent. However, examination of additional data may reveal that high socioeconomic status students are almost invariably routed into academic tracks, while the less advantaged are routed into vocational tracks. Moreover, tracking decisions may be unrelated to intelligence test scores. Furthermore, tracking by social class, and independent of measured intelligence, may be closely related to wastage and educational attainment, which are related to significant occupational and income differences. Thus, in some instances, the production function may seem to provide a plausible approximation of a "process explanation" of an observed association.

48. In practice, however, unavoidable deficiencies in theory, measurement, and data collection resources place rather narrow limits on the degree to which the conceptual gap between inputs and outputs can be filled. As a result, the concrete processes whereby inputs become transformed into impact remain largely unknown.

49. Even the simple and seemingly straightforward example outlined above leaves a host of important questions unanswered. For example, what are the specific class-linked criteria in terms of which tracking decisions are made? 33/ Who are the institutional "gatekeepers" and what are the concrete processes through which they actually reach their decisions? 34/ How is students' willing compliance assured? 35/ How is use of particularistic, class-based attributes instead of putatively universalistic factors such as measured intelligence justified and perpetuated? 36/ And so on.

50. In concrete school settings in which innovations are introduced, explanations based solely on the education production function are certain to be still more problematic. To illustrate, diversified curricula might be adopted in a subset of a developing country's secondary schools in an attempt to equalize educational outcomes across social class categories. The results, however, might be disappointing, misleading, or simply uninterpretable. Comparison of conventional academic schools with schools with diversified curricula might show that the association between social class and educational and occupational outcomes remained unchanged.

51. Or, comparisons across school types might suggest that the relationship between social class and outcomes is markedly attenuated for schools with diversified curricula, while it remains unchanged for conventional schools. These encouraging findings, however, might mask the fact that schools' requirement practices lead to an overrepresentation of high socioeconomic status students in conventional schools and a disproportionately large number of low socioeconomic status students in schools with diversified curricula.

52. As still another possibility, inexplicable differences may appear when comparing schools with diversified curricula with each other. That is, in some innovative schools usual relationships between students' socioeconomic status and outputs may continue to hold, while in other, virtually identical schools, they may not.

B. <u>The Need for an Implementation Study</u>

53. The list of suggestive examples of consequences of innovation which may resist useful interpretation when using just the production function could be extended indefinitely. However, the crucial complicating factor which we wish to introduce here is <u>implementation</u>. By now it is clear that formal

adoption of an innovation as wide-spread educational policy is clearly not coterminus with effective implementation. Moreover, insofar as education is a significant variable in an education production function, it need not be defined by the simple dichotomy "success" or "failure." Instead, it seems much more promising to conceive of a variable which presumes more precise ranking in terms of levels of implementation.

54. In addition, it is important to recognize that the same level of implementation may have sharply different consequences from one concrete setting to another. Further, identical implementation strategies may lead to a high level of implementation in one context but fail miserably in another.

55. To complicate matters further, level of implementation may be associated with a "threshold" effect. That is, below a yet-to-be-determined level the innovation may yield no positive consequences. Above that level, however, payoffs may increase quite rapidly. On the other hand, desired outcomes may be most closely associated with but a small set of components in a complex innovation. Should this be the case, successful implementation of nothing but this small set could provide substantial gains, while an otherwise totally successful, full scale implementation that neglected one crucial component could be a practical failure.

56. In spite of difficulties such as these, a level-of-implementation variable is indispensable in specifying our production function. After all, what reason is there for comparing conventional and innovative schools if the innovation has not been implemented? A finding of "no difference" tells us nothing about the intrinsic value of the innovation. Nevertheless, in the absence of information concerning the degree of success or failure in implementation, we might make the erroneous judgment that the innovation is worthless.

57. In much the same way, comparisons across schools of the same, innovative type might demonstrate that their outcomes are quite different. Such contrasting findings could easily be due to differences in levels of implementation. However, if we have not measured this variable and included it in our model, our findings may be uninterpretable.

58. Even if a diversified curriculum is fully implemented with technical success, its potential value may be systematically subverted in a variety of ways. Erickson, for example, observed counseling sesions in junior colleges in the United States. 37/ He concluded that counselor's perceptions and judgements of class and ethnic characteristics were often decisive in determining recommendations as to academic or vocational curriculum and the probability of transferring to a four-year college. Rist spent nearly three years observing elementary school classrooms in which all students, teachers, and other participants were black. 38/ He rigorously documented teachers' use of students' class-linked characteristics to organize an informed, but durable and perniciously effective, three-tiered tracking system.

C. Formative Evaluation in Ongoing Projects

59. The obvious inference from all of this is that implementation is an extremely complex and poorly understood phenomenon. Because of its importance, however, we must study it intensively so as to be able to use it in analytically effective ways. It seems clear that the only way to accomplish this with a realistic expectation of success is through use of on-site, formative evaluation. That is, trained program evaluators must spend rather lengthy periods studying ongoing attempts to implement diversified curricula. Only in this way can questions as to barriers to implementation and differences in the meaning and consequences of implementation from one setting to another be usefully addressed.

D. The Development of an Implementation Strategy for Future Projects

60. Formative evaluation also provides an invaluable opportunity to develop implementation strategies. That is, such work may demonstrate that successful implementation in most contexts requires ongoing formative evaluation throughout the implementation stage to adapt the innovation to the complex peculiarities of local contexts. Our efforts, thus, might lead to formulation of a flexible formative evaluation strategy which could be applied in a variety of settings and lead to a marked increase in the incidence of implementation "successes." It should be noted that the usefulness of this strategy would not be limited to diversified curricula projects. Indeed, it could be that an implementation strategy is a minimum requirement for any effort in educational innovation.

61. In any event, insofar as implementation problems pose significant barriers to effective use of educational innovations such as diversified curricula, application of formative evaluation to develop an implementation strategy is a crucial supplement to the impact study.

## IV. ORGANIZATION

62. The work program and sequencing of research tasks appear in Figure 3. An interim progress report can be made after the pilot test.

63. Schematically the organization of the project is shown in Figure 4. The principal supervisor has been assisted by two main consultants in the development of the proposal (a third, an economist of education, has also participated). The same consultants will provide, on an intermittent basis, assistance in (a) modification of the design to fit local conditions, (b) development of an evaluation scheme for the longitudinal study, (c) conducting workshops for local team leaders, (d) data analysis, and (e) final synthesis. A full-time consultant will oversee the implementation of the project and support the local teams in the different tasks, with the assistance of a part-time research assistant. It is anticipated that the principal supervisor will make one trip to each of the five countries to finalize administrative arrangements. The consultant overseeing implementation is expected to make an average of two visits to each country.

64. The development and testing of instruments as well as the collection and analysis of data will be primarily carried out by research teams in the countries concerned. Once the research teams are selected, team leaders will join the principal supervisor, appropriate consultants and steering team in a seminar to work out a detailed design and strategy for each country to fit the constraints and requirements of local contexts. Team leaders are also expected to make two other visits to Washington, one for data analysis (if local capacity is not sufficient) and final report writing, and one for a workshop to synthesize all the results.

65. Since national studies are seldom initiated and carried out by local research institutes, in most instances because of lack of funding, this approach will provide talented indigenous researchers with a valuable and scarce opportunity to carry out a policy study. At the same time, their familiarity with local circumstances and research resources will contribute to assuring that the data gathered is genuinely useful and consistent with the objectives of the study.

66. A Steering Group, representing the Regional Education Divisions, CPS and DPS, has been formed to assist the principal supervisor at the different stages of the project and to coordinate among different Bank departments. The Steering Group has been involved in discussions regarding research design and methodology, choice of countries, time schedule, and resource requirements. The Group will be involved in the seminar of local team leaders, discussions of results, final synthesis, formulation of policy implications and dissemination efforts.

67. The development of this proposal has been coordinated with other organizations that have supported diversification and are interested in its evaluation. The proposal will be discussed in a meeting of bilateral and multilateral aid agencies in Rotterdam in late April, 1980. It is very likely that certain agencies will support additional case studies using the design developed in this proposal. For example, the International Development Research Research Centre (Canada) is interested in supporting such a study in Guyana, and the Swedish International Development Agency (Sweden) is considering supporting a similar one in Kenya.

Figure 3

TIME LINE


Initial Field Visits and Administrative Arrangements

Finalization of Research and Sampling Plan

Development of Instruments

Pilot Test

Data Collection

Data Coding and Processing

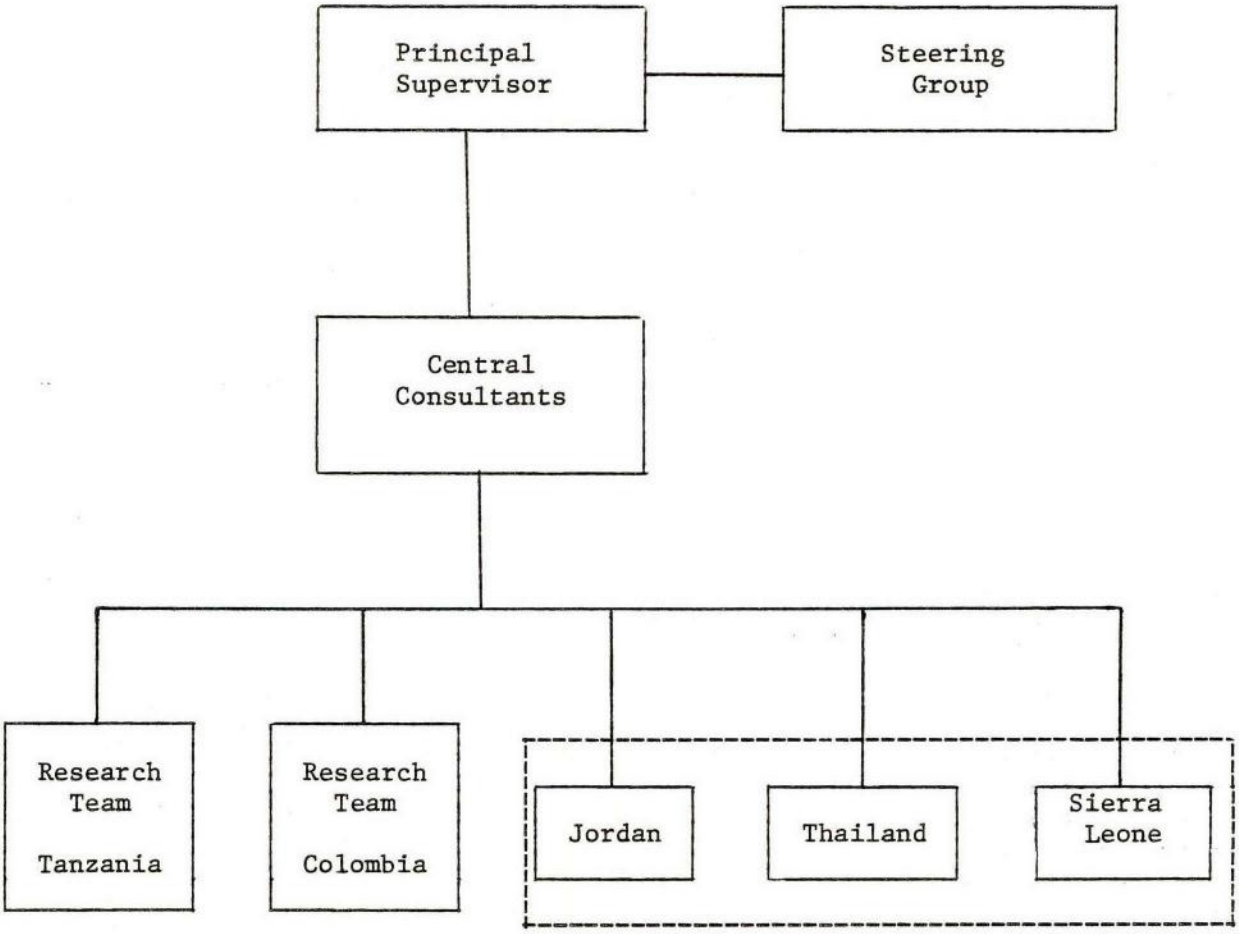
Data Analysis

Individual Reports

Synthesis of Results and Policy Paper

Figure 4

ORGANIZATION



## V. RESOURCE REQUIREMENTS

### A. Staff Requirements

| (in staff-weeks) | FY80 | FY81 | FY82 | FY83 | TOTAL |
|---|---|---|---|---|---|
| a. Principal Supervisor | 5 | 10 | 15 | 15 | 45 |
| b. Steering Group | 4 | 6 | 6 | 6 | 22 |
| Total | | | | | |
| Total | 9 | 16 | 21 | 21 | 67 |

### B. Case Study -- Tanzania

| | | | | |
|---|---|---|---|---|
| Consultant Fees (300 days x $50) | 6,000 | 7,500 | 1,500 | 15,000 |
| Travel | | | | |
| International | | | | |
| Round Trip--Washington | 1,800 | 1,800 | 1,800 | 5,400 |
| Per diem ($95/day) | 1,000 | 2,000 | 1,000 | 4,000 |
| Internal | | | | |
| Transportation | 29,000 * | 2,000 | | 31,000 |
| Subsistence (300 days x $50) | 10,000 | 5,000 | | 15,000 |
| Subtotal Travel | 41,800 | 10,800 | 2,800 | 55,400 |
| Data Processing | 1,000 | 3,000 | | 4,000 |
| Other Contractual Services | | | | |
| Research Asst's ($20/day) | 4,000 | 4,000 | | 8,000 |
| Secretarial Support | 500 | 500 | | 1,000 |
| Materials | 8,000 | 2,000 | | 10,000 |
| Subtotal Services | 12,500 | 6,500 | | 19,000 |
| Total | 61,300 | 27,800 | 4,300 | 93,400 |

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* Including the cost of purchase, licencing and maintenance of a vehicle, because of the scarcity of means of transportation in Tanzania after the latest war with Uganda.

| | FY80 | FY81 | FY82 | FY83 | TOTAL |
|---|---|---|---|---|---|
| C. Case Study -- Colombia | | | | | |
| Consultant Fees (300 days x $100) | | 12,000 | 15,000 | 3,000 | 30,000 |
| Travel | | | | | |
| International | | | | | |
| Round Trip--Washington | | 600 | 600 | 600 | 1,800 |
| Per diem ($95/day) | | 1,000 | 2,000 | 1,000 | 4,000 |
| Internal | | | | | |
| Transportation | | 6,000 | 3,000 | | 9,000 |
| Subsistence (300 days x $50) | | 10,000 | 5,000 | | 15,000 |
| Subtotal Travel | | 17,600 | 10,600 | 1,600 | 29,800 |
| Data Processing | | 1,000 | 3,000 | | 4,000 |
| Other Contractual Services | | | | | |
| Research Asst's ($30/day) | | 6,000 | 6,000 | | 12,000 |
| Secretarial Support | | 500 | 500 | | 1,000 |
| Materials | | 8,000 | 2,000 | | 10,000 |
| Subtotal Services | | 14,500 | 8,500 | | 23,000 |
| Total | | 45,100 | 37,100 | 4,600 | 86,800 |
| D. Central Resources | | | | | |
| Consultant fees | | | | | |
| Senior consultants (100 days x $175) | 1,750 | 5,250 | 5,250 | 5,250 | 17,500 |
| Full-time consultant | | 25,000 | 25,000 | 12,500 | 62,500 |
| Research Assistant (part-time) | | 6,600 | 6,600 | 3,300 | 16,500 |
| Subtotal Consultants | 1,750 | 36,850 | 36,850 | 21,050 | 96,500 |
| Travel | | | | | |
| Two senior consultants | | | | | |
| Round Trip--Washington | | 1,500 | 1,500 | 1,500 | 4,500 |
| Per diem (100 days x $95) | | 3,000 | 4,000 | 3,000 | 10,000 |

| | FY80 | FY81 | FY82 | FY83 | TOTAL |
|---|---|---|---|---|---|
| Principal supervisor | | | | | |
| One visit to each country | 2,400 | 5,000 | | | 7,400 |
| Subsistence | 1,500 | 3,000 | | | 4,500 |
| Full-time consultant | | | | | |
| Two visits to each country | | 7,400 | 7,400 | | 14,800 |
| Subsistence (10 days per visit) | | 4,500 | 4,500 | | 9,000 |
| Subtotal Travel | 3,900 | 24,400 | 17,400 | 4,500 | 50,200 |
| Total | 5,650 | 61,250 | 54,250 | 25,550 | 146,700 |

ENDNOTES

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37. F. Erickson, Ibid.

38. R. Rist, Ibid.

# Appendices

# Appendix A

## Curriculum Vitae

# Record Removal Notice

The World Bank Group Archives & Records Management

| File Title | Barcode No. |
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| Research - Education | 1064763 |

| Document Date | Document Type | |
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| undated | CV / Resumé | |

**Correspondents / Participants**

**Subject / Title**
CVs of Garrett Richard Foster, George Papagaiannis and James Cobbe

**Exception(s)**
Personal Information

**Additional Comments**

The item(s) identified above has/have been removed in accordance with The World Bank Policy on Access to Information or other disclosure policies of the World Bank Group.

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| Ann May | August 04, 2022 |

Appendix B

## IMPLEMENTATION LEVEL: SOME NOTES

The level and quality of program implementation has long been the major concern of formative evaluation and has recently become a variable of major concern in summative or impact evaluation. One major reason for such concern is the growing awareness that efforts on the part of governments to initiate or hasten educational reform have met with little success, largely because of inadequate implementation of proposed programs (Hurst, 1978; Fullan & Pomfret, 1977). The reasons or causes for this lack of implementation are largely a matter of interpretation, and interpretations vary widely according to one's theory of educational reform. Evolutionary reform theory would explain lack of implementation in terms of readiness, systems theory in terms of planning and technological deficiencies, conflict theory in terms of failure to accommodate certain political factions, and so forth (Paulston, 1978). Given the concern about lack of implementation of diversified education projects expressed in the Haddad report (1979), it is important that implementation be conceptualized and measured in a way that will facilitate the identification of explanatory factors.

The term implementation, as used in the literature, refers to the presence, use, and/or acceptance of new facilities, equipment, materials, and practices in an educational innovation or reform. In recent years, the emphasis has shifted away from the simple documentation of the "presence of" and use of new material, procedures, etc., toward the acceptance of assimilation of innovative or reform features of a program (Post, 1979; Hall & Foucks, 1977; Hurst, 1978). Thus, the results of several recent studies indicate that

teacher satisfaction with implementation may be a more valid measure than the extent of use of materials and practices (Foster, 1979; Rand, 1974, 1975). There are also indications that quality of use of an innovative process is not adequately represented by the concept of fidelity, i.e., the degree to which a product or process is employed as intended. Rather, it seems that adaptation of new products and processes is characterisitic of successful change efforts (Fullan & Pomfret, 1977).

Another important aspect to be considered in the measurement of implementation is that of perspective, i.e., the quantitative and qualitative description of an innovative program will certainly be influenced by the perspective of the data source, whether it be external observers, teachers, or students. Measuring implementation from the student perspective avoids the fallacious assumption that the "treatment" is constant for all students. The student has the distinct advantage of allowing the researcher to investigate the various ways the program is experienced by different groups of students, and to relate implementation (i.e., what happens to the student) to student characteristics, such as socioeconomic level and achievement level (Fehrenbacher, 1979). There are, of course, important aspects of program implementation that can be ascertained best from the teacher perspective. In one of the few formal theories of implementation reported in the literature, Hall and Foucks refer to levels of implementation from the perspective of the teacher: (1) orientation, (2) preparation, (3) mechanical use, (4) routine, (5) refinement, (6) integration, and (7) renewal (Hall & Foucks, 1979). As can be seen, Hall's conceptualization gives emphasis to both the effective and adaptive aspects of implementation.

The levels of understanding, use, and acceptance of program components are most efficiently measured by carefully field tested questionnaires with follow-up observation and interviews for validation purposes. The initial draft of such questionnaires or "status" surveys will be based on the descriptive and perspective designs, plans, laws, etc., currently in use in a given country. This initial "idealized" or theoretical draft will then be reviewed and revised by school officials to provide a more realistic model of diversified education to serve as a basis for developing a first draft of instruments. This draft of implementation instruments would then be field tested on a small sample of the target population and revised as necessary.

The final dimension of implementation to be considered is that of time. Implementation at the time of project completion is, of course, no guarantee that the new program or practice will become assimilated and institutionalized on a more permanent basis. Furthermore, assimilation is an adaptive process, the results of which can be understood only in terms of the major circumstantial factors operating in the assimilation process. This assimilation dimension of implementation requires a more openended, historical approach to documentation in programs which have been in operation for more than 5 years. In addition, Gene Hall's instrument will be considered for assessing the extent of assimilation from the teacher perspective. Extent of implementation and assimilation will then be related to outcomes.

Appendix C

## PRE-SCHOOL INFLUENCES AND THEIR MEASUREMENT

Innumerable studies have affirmed the relationship between socio-economic background and educational and occupational attainment. In the Untied States research based on three extensive data bases--the ISA studies (Blau and Duncan, 1967), the Wisconsin Paval Data (Duncan, Featherman and Duncan, 1972) an the EEOS (Coleman, et al., 1966; Jencks, et al., 1975)--have been the cornerstones of the occupational mobility literature. The relationship between SES background and status attainment has been confirmed internationally in numerous studies. (IEA Studies, See T. Neville Postlethwaite and Areh Lewy, (eds.), Annotated Bibliography.)

Measures of SES have typically included the dimensions of education, income and occupation. The operationalization of the first two are generally linear measures of years of education and actual earnings. There has been less manimity, however, concerning a measure of occupational status.

Several scales for ranking occupations have been used in the literature. An early example is the North-Hatt scale, a 1947 measure of occupational prestige (Reiss, 1961). The most frequently used measure in the American literature has been the Duncan socioeconomic index (Duncan, 1961), though more recent scales have been developed, e.g., the NORC occupational prestige scores (Siegel, 1970). Treiman (1977) has developed an occupational prestige scale which has been validated for use in comparative studies.

Recent research has attempted to supplement the linear occupational status scales taking into account structural features of the workplace. Wright and Perrone (1977) trichotomized occupations by imposing the categories of

capitalist, manager and worker on various occupations. Robinson and Kelly (1979) found two distinct stratification systems based on a control of the means of production and authority in the workplace. Beck, Horan and Tolbert (1978) found the status attainment process to differ based on the worker's position in the dual labor economy.

Several writers have emphasized the importance of including a fourth dimension in a measure of socioeconomic status, that of lifestyle. The operationalization of this measure has typically been an index of household characteristics. Although Warner (1949) included a house type component in his index of status characterisitics, his operationalization is rarely seen in the current research. Aside from providing another dimension to the measurement of SES, the household inventory has been used as a surrogate for income in cases where reliable measures for income are inaccessible.

Appendix D

# COSTING

In the research strategy being proposed a production function type study will be used to compare comprehensive secondary schools with other types of secondary schools. Such studies will be performed individually for each country in the project and comparison will be made with such of the following types of institutions that exist within each country in question: (1) general or academic secondary schools, (2) vocational or technical secondary schools, (3) short-term post secondary technical training programs.

Although it is not proposed to attempt a full cost benefit study of comprehensive schools against these alternatives (because of the difficulties and ambiguities on the benefit side), it is proposed to make as thorough an evaluation of relative costs and immediate outputs as is feasible. In addition to the collection of data on outputs, addressed elsewhere, this requires the collection of data on costs for each type of school in existence in each country.

A variety of cost concepts can be relevant in an exercise of this type, dependent partly on the specific policy question to be addressed. The most important ways in which to divide the alternative cost concepts are (a) between recurrent costs (which generally correspond to avoidable budgetary financial costs) and estimates of full financial costs (including allowances for capital costs), and (b) between financial costs (i.e., costs measured in terms of actual local prices) and opportunity costs (e.g., costs measured in terms of what society gives up elsewhere by devoting resources to this project). Opportunity costs may diverge from financial costs if local prices do not

and not real resource costs should be excluded. The second type of adjustment is required where prices do not reflect social opportunity costs. The most important probable items are adjustments to personnel costs if salaries do not reflect opportunity cost for some categories of labor input, 1/ and adjustments to consumable material costs where these involve foreign exchange costs and the official foreign exchange rate does not reflect opportunity costs or tariffs, subsidies, or other trade distortions are involved. 2/ This cost concept is the most relevant from the point of view of comparing the cost effectiveness of the alternative schools in existence.

III. Full Financial. This concept expands I to take account of capital costs in a financial sense. It requires in addition to data under I estimates of the building and equipment costs of the different types of school, together with estimates of expected life and appropriate interest rates. This allows an estimate of the financial cost of the various types of school including

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1/ Again, estimation at this point obviously requires information on local labor market conditions. It may be necessary to subcontract for advice from local labor economists or to consult with country-specialist economists. A further complication with respect to both evaluation and estimation would occur if, particularly in instructional posts of a technical type, the personnel in post do not actually have the desired technical qualifications, since this would imply both that actual financial and opportunity costs may differ from those under ideal conditions, and that outputs may differ from the intended because of the sub-optimal actual nature of inputs. It may be necessary to run an early check on whether actual staffing corresponds to planned staffing, and to reconsider the appropriate details of the research strategy if there are large divergences between desired and actual staffing.

2/ We do not propose to make our own estimates of shadow foreign exchange rates; we assume we would be able to obtain such estimates from other sources. We would propose to attempt to collect foreign exchange costs in a separate category from local costs.

reflect marginal social costs, e.g., for reasons of labor market imperfections or because of a distorted foreign exchange market. This suggests four possible cost measures, all of which the research strategy would propose to attempt to measure. Figure 5 illustrates the relationship between them.

Figure 5

Proposed Alternative Cost Concepts

| | Financial | Opportunity |
|---|---|---|
| Recurrent | I | II |
| Full | III | IV |

I. Recurrent Financial. This is a measure of the annual out-of-pocket costs measured in local prices. It includes personnel costs, costs for materials consumed, costs of maintenance and repair of buildings and equipment, and any scholarship or maintenance costs for students. Depending on institutional structures, it will normally approximate closely to the avoidable local-currency budgetary costs of the schools in question.

II. Recurrent Opportunity. This concept attempts to measure opportunity costs, ingnoring questions of capital equipment. Two types of adjustments are needed to derive this measure from measure I. The first is the inclusion of items omitted from I, or exclusion of inappropriate items included in I; the most important possible item of this type is the foregone earnings of pupils. If pupil profiles do not vary over types of schools, this may be omitted; but if pupil profiles do differ significantly, some estimate of this item should be included. This will require some information on labor market conditions in those cases. Alternatively, items included in I (such as scholarships, subsidies for pupil maintenance in boarding schools) which are in fact trasfers

Possible Problems and Difficulties

A few potential difficulties exist with the costing elements of the proposal that should be noted. Two of the more important are listed:

1. Joint products and cost allocation. In some cases, elements of a particular school program may be used for the production of more outputs than those being evaluated; e.g., school buildings may be used for adult education in the evenings, or for other community purposes. This raises problems concerning the appropriate allocation of costs to products; where facilities are used for purposes other than the primary purpose being evaluated, it will be necessary to collect some data on other uses and allocate costs in some arbitrary way (e.g. in proportion to estimated percent of use).

2. Treatment of opportunity costs. The ideal approach would use a systematic methodology and a consistent set of shadow or accounting prices for all inputs (e.g. Squire and van der Tak (1975), Little and Mirrless (1974); but see also Porter and Walsch (1978). In practice, this is likely to require a greater-than-appropriate country-specific research effort for those countries for which suitable sets of accounting prices and conversion factors have not been previously estimated. Given that the major recurrent costs of schools are typically personnel costs, and that equipment and materials are significant, or where the income levels and consumption patterns of personnel vary significantly between schools, more detailed approaches to estimating opportunity costs might be warranted. The choice of numeraire for opportunity costs estimates has not been addressed, but does not appear important if consistency is maintained. Public income measured in foreign exchange (as used by Squire and van der Tak (1975) and Little and Mirrless (1974)) would probably be acceptable for use as numeraire.

capital costs, and is appropriate to questions concerning advisability of expansion of the different types of school in terms of budgetary (financial) costs.

IV. Full Opportunity. Major possible adjustments may exist if (1) financial costs of construction differ from opportunity costs, e.g., because of labor market imperfections, (2) construction and equipment contain significant imported elements and foreign exchange rates are distorted or imports restricted, (3) if the interest rates used in III above (most likely the local currency borrowing rate for government) differs from the estimated appropriate social discount rate. Some local expertise would have to be called on to make judgements but in principle IV is the most appropriate cost concept to use for judgements about expansion of different types of schools.

The list which follows indicates the types of data which it will be necessary to collect for each type of school and each country.

Types of Data Needed for Costing

Recurrent

Financial I:
- Personnel costs
- Costs of consumable materials
- Costs of maintenance and repair of equipment and buildings
- Costs of scholarship and maintenance subsidies for pupils

Opportunity II:
- Actual characteristics of personnel (qualifications, experience, etc.), plus labor market information
- Foreign exchange element of consumables and repair, etc. (possibly), pupil profiles and labor market information
- Transfer elements under I

Capital

Financial III:
- Construction costs and buildings standards
- Interest rates
- Equipment costs
- Expected lives of buildings and equipment

Opportunity IV:
- Foreign exchange elements
- Interest rate adjustment if appropriate
- Construction cost adjustment

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WORLD BANK / INTERNATIONAL FINANCE CORPORATION

V Research - Education
cc: - Education

# OFFICE MEMORANDUM

TO: Files

DATE: February 15, 1980

FROM: R. C. Prosser, EDC

SUBJECT: Funding Symposium/Research
Adult Education, Aid and Poverty
International Council for Adult Education (ICAE)

1. On February 14, 1980 Messrs. Aklilu and Prosser met with Dr. B. Hall (ICAE) and Mr. Gonzales-Reyes (Vice President KAE/Education Director OAS) to discuss possible Bank assistance to a research program focussing broadly on the lessons of past experience and new directions in which adult education should be moving to address more effectively the eradication of poverty.

2. It was noted that the Bank supported the execution of such a program especially where it linked up with the Bank's own experience in lending for adult education programs. It was agreed that although no funding was available in this fiscal year (1979/80) to help cover costs involved in the initial phase of the planning, "seed money" funds, together with funds for selected case studies and a final report could be available in FY80/81.

cc: Mr. Aklilu Habte, EDC
Mr. R. Gomez, EDC

RP:th

c Research - Education

cc SATC.

December 19, 1979

Dr. Bill H. Kinsey
Overseas Development Group
School of Development of East Anglia
Norwich NR 4 7TJ

Dear Bill:

1. Many thanks for your letter dated October 3rd. I have just returned from a months mission to Indonesia and this explains my delay in answering. I have also received a letter from a member of your East Anglia Group, John Cameron, with an enclosed research proposal for the formulation and evaluation of policy towards small scale manufacturing/repairing enterprise in Nepal. Our own education division has been split up and the responsibility for Nepal has been transferred to the South Asia Region. I have forwarded Cameron's proposal to colleagues of mine in the programs division which deals with Nepal (Ms. Jane Loos) and in the newly created education division (Richard Cambridge). The programs division is in the process of undertaking a study or surveying the small scale enterprise sector in Nepal. The person in charge (Ms. Nancy Barry) will be back in January.

2. About three months ago, you forwarded to me another research proposal "Training for Production Village and Small Town Industry. For the proposed study to become more manageable and operational, I believe it should be:

(a) reduced in scope;
(b) set out in a regional framework;
(c) start with planning from the bottom-up, exploring the interests and motivation of the target groups, i.e. village artisans and entrepreneurs - without whose participation, no delivery system for technical assistance (cum credit) can be effective; and
the constraints identified, e.g. availability and cost of public utilities, materials, equipment, finance, skilled labor, training facilities and market access, including distribution channels.

3.3. In January, I would like to discuss this proposal with some of my colleagues.. I then hope to determine the general interest in pursuing the type of study outlined and ascertain how and where such proposals can be carried out. If since October, this proposal has been revised or amended, I would appreciate hearing from you. It would also be useful to have the name and C.V. of the author proposing the research.

With best wishes for the New Year,

Sincerely yours,

Per Eklund
Education Division
Projects Department
East Asia and Pacific Regional Office

cc: Messrs. Johanson/terWeele (AEP), Hemingway (AEP), Ms. N. Barry (ASP)

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