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THE PRESENT AND POTENTIAL CONTRIBUTION OF WOMEN TO ECONOMIC DEVELOPMENT: ELEMENTS OF A METHODOLOGY AND AN ANALYSIS OF THE YEMEN ARAB REPUBLIC

April 1985

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April 1985

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EXECUTIVE SUMMARY

1. In order for the issue of the economic position and role of women to become a regular consideration in development planning and implementation the question of women in development must be clearly redefined in terms of efficient national resource allocation. That is, support for female economic activities must be seen not as a process of distribution of national income to a particular constituency, but as an essential tool in producing that income and in achieving national development goals.

2. The attainment of this objective requires that: a. the current contribution of women to national production be specified; b. the relevance of this contribution to particular development problems be identified; c. the potential increases in the female contribution be estimated; and d. the material obstacles to the realization of this potential contribution be isolated.

3. Because of the common relative isolation of women from direct involvement in the more dynamic poles of economic development, the above requires elucidation of the actual, but often indirect, relations between female activities and desired or planned growth areas. This is particularly important, for enthusiastic endorsement of a major female role in modern sector development often minimizes the importance of (and hence future support for) existing female activities -- in spite of the fact that their contribution is already great, that this contribution could be made considerably greater, and that these activities are destined to remain the economic locus for the majority of women for a long time to come.

4. Of equal significance to the establishment of linkages between female activities and the performance of "point" sectors is the quantification of women's actual and potential production, a particular pressing need in the context of frequently erroneous preconceptions in this area. Unfortunately, the locus of women's activities and the assumption that they are of negligible importance typically involve major gaps in relevant data, necessitating more frequent recourse to informed estimation than is ideally the case. This dictates a careful strategy to guard the legitimacy of data, involving close adherence to published national data where available and the maintenance of a strong iterative component at all stages of analysis and presentation of results.

5. Because the point of an economic analyis as outlined is not to show that women are disadvantaged, but to demonstrate that they are currently and potentially important elements of the productive system, it is necessary to identify concrete

material constraints on female production and solutions to them. In a context in which one of the major constraints on realizing the potential of female labour is the social and technical organization of female domestic responsibilities, it is necessary to emphasize that what might appear "social" rather than "economic" factors and measures do, in fact, have a profound influence over production -- and consequently many social programmes should be seen as part of investment expenditure rather than of the current social consumption account.

6. The importance of the organization of domestic responsibilities indicates the need to identify the special problems facing female producers. Support activities which fail to take into account the specific requirements of intended beneficiaries (e.g., sectoral support programmes which are oriented to an activity rather than to the overall conditions of those who perform it) are unlikely to be effective. The case for attention to the particular conditions of women would seem eloquent where women provide a substantial proportion of the sectoral labour force (e.g., in subsistence agriculture everywhere).

7. The analysis of women in production in the Yemen Arab Republic substantiates the validity of the points raised above. It was possible to demonstrate that women already or can play an important role in relation to two issues of fundamental concern at the highest level of Yemeni policy-making: the external balance and labour supply (both of which have a direct effect upon the viability of plans for modernization of the productive and commercial system). Women are a very important element of the agricultural labour force in a situation where it can be demonstrated that increasing food dependency threatens the continued importation of modern means of production. Women will have to be a major component of the modern sector labour force if the current shortage of labour is to be overcome without cutting into Yemen's major source of foreign exchange, remittances from male migrants.

8. Analysis of labour time allocation in the rural areas revealed that a major obstacle to the expansion of female production (in a context in which the application of significantly greater quantities of male labour is exceedingly unlikely) is the great amount of time that must be spent on basic domestic tasks because of the very low level of development of the social infrastructure. While statistics indicated that a high percentage of women were "idle", suggesting, perhaps, cultural obstacles to increased production, closer study revealed that the level of female absence from the labour force was determined that many were fully employed elsewhere in extremely time-consuming domestic tasks. Operating on the assumption that a certain proportion of time liberated from domestic tasks would be employed in productive activities, it was demonstrated that investment in social projects (e.g., improved water supplies) would

substantially raise the level of agricultural production (by virtue of an increase in female production). If this were to be combined with allowing women equal access to education and extension services, the food deficit that threatens the viability of the Yemeni development effort could be almost entirely eliminated by the year 2000.

9. In the area of the modern sector labour force, projections indicate the emergence of a severe crisis if reliance upon male labour is maintained. However, even a modest annual increase in female education (which is currently severely neglected) would entirely eliminate the labour deficit by the year 2000 -- not only in sectors where reliance upon foreign labour is already high, but throughout the entire economy. It was noted, however, that a viable response to the labour supply situation involved, in addition to expansion of availability of educational opportunities, creation of the conditions for their exploitation and use, which also involved a certain social reorganization of the process of domestic reproduction.

10. The Yemen case confirmed the viability of quantifying the apparently unquantified, and the possibility of establishing clear and measurable links between the attainment of national development goals and supportive measures specifically oriented to the special conditions of female producers. On the basis of the data generated and analysed it appeared not only possible to see women as a productive resource, but necessary to do so if the whole national development process is not to run into the most intractable difficulties.

11. The success in developing an economic case for support for female production and labour qualification in the Yemen Arab Republic inevitably invites speculation about the possibility of developing similar analyses for input to the policy-making level elsewhere. There is no particular reason to believe that the conditions and potential significance of women in the economy are so very different in Yemen, and there is every reason to believe that similar conclusions can be drawn elsewhere. In this regard, the Yemen experience does suggest a fruitful course of analysis and presentation.

12. However, the fact that the study of Yemen was reasonably successful in highlighting and communicating certain important but neglected elements in the general development situation does not imply that the model developed for Yemen can be easily applied elsewhere. The same questions can be fruitfully asked and the same techniques of analysis and presentation applied, but the operational categories themselves are specific to Yemen, expressing the particular problems confronting policy-makers and female producers alike. In fact, it was consciously decided to make the model as specific and "local" as possible to maximize its impact in Yemen -- which is, presumably, the objective of this sort of exercise.

13. Comparison of Yemen with Egypt and Tunisia suggests that the central thrust of analyses developed for the latter two countries would vary considerably from the Yemen study -- because of the different levels of development of their productive systems and quite different conditions of women. For example, in Egypt the issue appears to be less a question of liberating female labour time for commodity production than increasing the productivity of the already large amounts of time expended in "informal" production for minimal returns. In Tunisia. on the other hand, the emphasis should probably be placed much less on support for the informal sector than upon better preparation of females for formal sector employment -- because of the particular path of its development compared, for example, to Egypt, where female modern sector labour force participation is not great and probably cannot expand to absorb anything like the available pool of female labour.

14. In conclusion, the Yemen study indicates that quantified analyses of women's production can serve the dual purpose of clarifying perceptions of national stocks of economic resources and raising awareness of the specific needs and possibilities of female labour. The viability of the method should not, however, be confused with the generalizability of results and operating categories generated from analysis of one area. These are two different levels of phenomena that can be combined only at the expense of accuracy and relevance.

PART ONE. CONCEPTUALIZATION AND METHODOLOGY

INTRODUCTION

Attempts to promote WID concerns have consistently encountered the problem of "positioning" the issue of women in the development process and in the hierarchy of priorities of development planning and resource allocation -- it frequently being unclear whether development is something that happens (for better or worse) to women or something that happens by virtue of their activities. At the risk of generalization, this ambiguity has created obstacles to the elucidation of the issue of women in production at levels of policy formation, with detrimental effects upon connected tasks of establishing a clear relation between women's activities and conditions and the attainment of overall national economic development goals -- as well as upon the ability to capture an audience in major donor agencies and LDC governments capable of shifting women in development concerns from the restricted sphere of women-specific projects to the status of normal elements of national resource distribution deliberation.

The issue of women in development has often been put in terms of a special interest, social emphasis -- emphasizing women's needs and social rights. As such, the question has perhaps inevitably been seen as an aspect of the enhanced distribution of the social product rather than as an element

of the development of production itself. However, the current situation of severe restraints upon the growth of national income in most LDCs and the limited expansion of international assistance support must necessarily concentrate attention at the policy level even more to economic and productive activities and less to what are seen as social and distributive.

The micro-computer simulation model on women's role in production in the Yemen Arab Republic was developed precisely to overcome certain preconceptions about the meaning of the issue of women in development. Its central thrust was an analysis of the current and potential role of women in critical areas of production in the Yemen Arab Republic. Thus, from the outset, the emphasis was upon women as producers rather than consumers, and upon economic rather than social imperatives -- though one of the conclusions of the analysis was that the particular conditions of female production necessitated that a range of "social" factors be understood as economically consequential.

It is widely recognized, of course, that women are significant producers in many areas. The goal of the simulation, however, was to demonstrate not only that women produce, but that their production has a direct bearing upon attainment of national overall development goals -- and to put that demonstration in a form easily and rapidly accessible to the highest level of policy-makers

Because in Yemen the presence of female producers outside the traditional sector broadly defined is minimal, this involved elucidation of the relation between traditional sector performance and the development of modern sectors. The clearest point of measurable linkage in Yemen is the manner in which the inability of the agricultural sector to meet domestic food demand is generating high levels of food imports, thus restricting the availability of scarce foreign exchange for the importation of necessary modern means of production which cannot at this point be produced in the country. Food imports are significant and are projected to increase rapidly in future.

Women already play a major role in food production in Yemen. Moreover, given the relative opportunity cost of male and female labour in a situation in which a high percentage of male labour is abroad earning absolutely essential foreign exchange, it seems likely that any future development of the food sector relaxing pressure upon the availability of foreign exchange for development activities will inevitably be based upon improved utilization of female labour -- if it is to happen at all. However, in order to show that female-based expansion is possible, it was necessary to indicate the constraints upon the expansion of female production. While not a priori discounting cultural and other factors, it was possible to demonstrate, on the basis of local studies of female household labour time allocation, that the major obstacles to the expansion of female production are, in fact,

material -- and express the organization of the system of domestic production/reproduction, whose characteristics act as objective constraints upon female for-the-market production. Using field-based estimates of changes in labour time required for the provision of domestic goods and services with new inputs such as improved water supply and access to commercial fuels, it was demonstrated that it is possible to considerably increase female labour time available for commercial agricultural production (as well as increasing time available for education). Projecting household-level gains to aggregate national production, it was possible to estimate that the gains from improving the conditions of female labour in the rural sector -- in terms of reducing the amount of female labour time spent in the production of domestic inputs (without reducing the level of those inputs), and of increasing productivity at a rate equal to men through provision of extension services to women -- could, on the basis of quite conservative estimates, almost completely eliminate the crippling foreign exchange burden that food imports would otherwise necessarily become, allowing more vigorous pursuit of modernizing the productive base.

In relation to the modern sector, it was demonstrated on the basis of simple projections of skilled and unskilled male labour supply relative to anticipated levels of labour demand that even if rates of male secondary school enrollment were raised to the very high level of 70%, there would be a major

shortfall in labour supply to the modern sector by the year 2000. An alternative projection, involving a simple annual increase in the rate of female primary and secondary enrollment of 1% per annum (equivalent to the historic path for males, but involving lower absolute rates), suggests that the entire deficit of skilled and unskilled labour to the modern sector can be eliminated if women are considered a cultivable productive resource -- thus overcoming the labour supply obstacle and rendering unnecessary major recourse to foreign labour (the foreign currency cost of which, quantifiable for the health and education sectors, would be absolutely prohibitive by the year 2000 if nothing were done about the more effective utilization of female labour resources).

Examination of women in Yemen from the point of view of their actual and potential contribution to the resolution of development blockages, and concrete identification of superable obstacles to the realization of their potential, yields the conclusion that female labour can be a major resource in the attainment of development objectives. In fact, the analysis suggests that in a situation in which a tightening of the availability of foreign exchange necessitates recourse to more efficient utilization of human resources, the attainment of these objectives is predicated upon increased attention to the potential and requirements of females as a productive resource.

Judging from the positive response of the very highest levels of the government of the Yemen Arab Republic the simulation model reached the objectives of gaining attention at the policy-making level and of connecting the issue of women in production to central concerns of economic policy making and planning. In part the success at the level of audience reached expressed a successful redefinition of the issue -- from women as a constituency to be responded to, to women as valuable contributors to economic growth. In part, however, some responsibility must lie with the medium of presentation itself. On the most elementary level, computer-driven graphics displays such as used in the simulation model do command a level of attention in LDCs greater than more conventional media (as well as requiring relative little time to demonstrate basic relations). There are more enduring advantages to the medium: the exclusively quantitative data capacity of the equipment reinforces the orientation of the analysis -- away from any culturally laden (and thus sensitive) variables to simple "dollars and cents" issues; and the iterative character of the programme used facilitates immediate data input and projection reestimation on the basis of audience participation in a situation in which truly "hard" data is not easy to acquire. On an even more basic level, the sort of programme and data base developed for women in production in Yemen engenders its own continuing use as a major element in the process of technology transfer. The point about the simulation case for Yemen is not only that it concerns women, but that it addresses the issue of the

contribution of women within a rational, calculating, long-term planning framework matching means to ends. The hope is that the programme and the extensive data base behind it can be used in the development of general planning activities (both directly and as example for the development of new systems) -- in which the issue of women appears not as a belated "add on" situated uncomfortably between social and economic inputs and objectives, but as a built-in element of the macro-economic modelling structure itself. In this regard, while the particular variables and projections used for assessing the significance of women might be somewhat different in other contexts, the objective remains the same: to place female resources squarely within the inventory of significant means for economic policy attainment; to quantify beyond a shadow of prejudice their actual and potential contribution to crucial national "bottleneck" areas; and to identify the means of realizing full economic potential -- without ignoring the role of material social obstacles in hindering it.

In the case of Yemen it has to be recognized that the "ideals" of macro-economic modelling were not attained. Nor were they attempted. The goal was to develop "ball park" estimates sufficient to draw attention to the general magnitude of the losses in potential production to be incurred if female production was allowed to continue to languish in neglect. The goal was to bring the issue to the

policy table. More detailed cost-benefit analysis can be performed once the issue itself is seen as an important one. It should be noted, however, that it is hard to short-circuit the process -- one cannot go directly to the very detailed cost-benefit analysis that is perhaps ideal for project and programme development until adequate data are generated. On the other hand, those data will never be generated until the issue is recognized as significant on the basis of data which may be "impure", but which enjoy the advantage of being timely and relevant.

The purpose of development of the computer simulation model was two-fold. First, it was intended as a simple case study in subject and technique of analysis and presentation: it was a study of women's actual and potential contribution to attainment of development goals in the Yemen Arab Republic. Second, it was intended as an "experiment" in approaching the issue of Women in Development, with possible relevance for further activities in other areas. This dual goal shapes the content and structure of the following analysis. Part One discusses some of the generic issues that arose in the development and modification of the model and presentation for the Yemen Arab Republic, relating to the particular issues that must be confronted in dealing with female economic activities in most areas (e.g., the relation between traditional and modern sectors; the relation between female domestic production/reproduction and the production of commodities) and to considerations about data bases and forms

of presentation of materials. Part Two describes the issues raised and conclusions reached with specific reference to the Yemeni case. Part Three is an attempt to demonstrate that the economic models developed for women in production must have certain generic elements in common, but also that the position of women in the productive system and obstacles to increased production and productivity cannot be simply generalized. Drawing on observations on the different problems confronted in the traditional and modern sectors in Yemen, two cases from the Middle East are used to emphasize the necessity for analysis of the question of women's economic role in terms of the character of locally dominant systems of production rather than in terms universally applicable formulae.

* The computer simulation model was developed at the request of the Central Planning Office of the Government of the Yemen Arab Republic and USAID Mission Sanaa. Conceptualization of the model and research were performed by Gary Nigel Howe as consultant to PPC/WID and the Futures Group. Steve Hawkins of the Futures Group programmed the model and assisted in conceptualization and research. For the larger part of the work involved the Futures Group acted as contractor funded on the basis of a collaborative effort between NE/TECH/SARD and PPC/WID. USAID Mission Sanaa provided logistical and other support for research and presentation activities.

I. ISSUES IN ECONOMIC DEVELOPMENT

A. Intersectoral Linkages and Resource Allocation in Economic Development.

In the course of development of the computer simulation model relating to women in production in the Yemen Arab Republic with specific reference to attainment of national development goals, it became necessary not only to gather and present economic "facts", but also to define the criteria of relevance for the economic data dealt with. Given that the model was to deal with female productive activities, and given that female activities are at present concentrated in areas that are frequently not considered directly contributive to the goals of economic transformation, it was necessary to elaborate in a preliminary fashion the bases for arguing that a wide range of activities are not merely present in the development context but also arise from and effect the development process. This involved elucidation of objective intersectoral relations "behind" the process of national accumulation.

Viewed from the economic perspective alone, development involves the emergence of new means of production, new productive relations, new products, new systems of distribution. This transformation involves some economic sectors more than others, but no sector of society is irrelevant to, or isolated from, even the most concentrated and partial path of change. Thus the development of an

advanced industrial sector producing for local and international markets is also necessarily linked to changes in other sectors. For example, the agricultural sector is typically the source of labour originally moving into industrial activities, just as agriculture must produce a growing surplus to meet the consumption requirements of population groups which previously produced their own food, but which can no longer do so. Development involves, therefore, a complex set of interrelated changes in all economic sectors which far transcend the dramatically visible material signs of transformation such as modern producing units, power generation and transmission, etc..

To say that development places demands for change and reorganization upon all economic sectors in an inter-related fashion is not to say, however, that such reorganization takes place in a perfectly orderly, complementary, and maximally efficient fashion. The dynamism of some sectors is not always accompanied by the reorganization of other sectors necessary for continued expansion -- not least because of unequal sectoral influence in establishing development priorities at the government level. Typical to any process of change in productive structure, be it in the developing or developed countries, is the emergence of productive, commercial and financial bottlenecks inhibiting expansion in particular areas -- which are only partly attributable to intra-sectoral difficulties.

The transformation of systems of production and commerce involves the development of demand for radically new types of economic inputs -- new means of production and new labour inputs. This gives rise to characteristic bottlenecks in all developing countries. Traditional sectors are by definition incapable of servicing demand for advanced, mechanized means of production (machinery, transport equipment, etc.), necessitating importation. Tendencies towards balance of payments problems are thus chronic, given the exponential rise in import requirements of newly established industries and economic activities.

In fact, traditional structures of production affect modern sector development in at least two, quite distinct ways. On the one hand, traditional sectors do not produce the advanced inputs required by the modern sector. This is perhaps only a formal relation (traditional sectors are not, as it were, what they are not) demonstrating the apparent structural irrelevance of traditional sectors to modern sector requirements. On the other hand (and this is a practical rather than formal relation), there is the problem of the inability of the traditional sector to produce enough of what it can produce -- with direct and indirect consequences for modern sector growth. The latter issue involves, inter alia, the problem emerging when a portion of the labour force withdraws from agricultural production to be reallocated in non-traditional areas -- while continuing to consume agricultural products. The corresponding shortfall in

foodstuffs available to the sphere of non-agricultural production for the reproduction of its workforce precipitates food imports. In this case, the development of the modern sector is governed by both internal factors and the transformation of apparently non-central traditional sectors through their impact upon necessary levels of importation of means of consumption as opposed to means of production. The example of the influence of the traditional agricultural sector may not be characteristic of all areas, but it does indicate that a policy oriented to growth poles must also take into account the conditions of traditional sectors -- conditions which are not necessarily inherent to those sectors, but which can arise in the development process itself, and, therefore, are not immutable and time-honoured but susceptible to the same sort of interventions as the modern sectors themselves.

The relevance of the traditional sectors of production and reproduction also makes itself felt at the level of labour-supply. The development of the modern sector represents an additional demand for labour, as well as demand for non-traditional labour skills (corresponding to the emergence of new means and relations of production and commercialization). The physical volume of available labour is a potential obstacle to the development of new, modern economic sectors -- it being understood that drawing upon labour reserves in traditional sectors might have an inhibiting effect upon the latter's ability to play its productive role in relation to

modern sector commodity requirements. Equally important, however, is the issue of the qualifications of labour. In this regard, it is unnecessary to view labour in the traditional sectors as "unskilled". In fact, this is certainly not the case. However, the skills developed in traditional sectors are frequently in no way directly transferable to the modern sector, with its quite different requirements. Hence the critical issue of formation of a labour force qualified to enter modern occupations, necessitating an education and communication system quite distinct from that required by the traditional order. In this context, the traditional system has a double relevance: on the one hand, it does not produce required skills; on the other, its specific conditions of operation affect both the availability of labour for modern sector employment and the efficacy of the educational system in providing suitably qualified labour.

Just as in the case of agricultural production, the educational bottleneck requires a process of transformation of the traditional areas. As long as these areas represent effective labour reservoirs for the expanding modern sector, education for modern employment has to be carried into the traditional areas themselves. In fact, this appears as a doubly-determined necessity. Not only has the labour reserve to be educated for the modern sector, but there is also need for education for the traditional sector. If the traditional sector is to be expected to play the non-traditional role of

provider of a large surplus product (frequently in non-traditional commodities) to modern economic sectors, it is also to be expected that its own productive and commercial practices must change -- requiring new and more complex forms of education.

Finally, traditional sectors of production and reproduction play another, more subtle, and less immediately visible role in the development process -- albeit with much longer-term relevance. The changing allocation of labour and demands upon productive capacities involve severe pressures upon natural resources. Any disruption of a productive system based on a particular balance between "natural" and economic inputs threatens to induce an equal disruption in the relation established with the natural resource base. This is quite marked in the traditional sectors. Particularly to the extent that labour supply to the traditional sector is reduced (or the prices of traditional goods are depressed to maximize investment in the modern sector), labour devoted to long-term natural resource maintenance declines -- labour is allocated to immediate income-generating activities rather than to the apparently less productive tasks associated with upkeep of the "capital" components of natural resource use. In the context of an emphasis upon development of the modern sector, this dimension of the overall productive process in the traditional sector is frequently neglected, leading to a long-term decline in the productive capacity of the traditional sector and a severe loss in social capital which

threatens the ability of a reorganized traditional sector to play its supportive role in relation to the modern sector.

Given the priorities that tend to come to the fore in development planning, existing traditional resources bases are frequently neglected and allowed to deteriorate in spite of their objective (if frequently unrecognized) current and future role in economic development. Nonetheless, the objective linkages between modern and traditional sector development (be the latter defined in terms of the production of commodities or the reproduction of labour) are such as to invite attention to the possibilities of modifying the latter's organization with a view to greater complementarity with the long run requirements of the modern sector -- particularly in contexts where restricted access to capital makes utilization of existing resources preferable to sectoral reconstruction on the basis of imported inputs.

The severity of incidence of what we might term problems of articulation between modern and traditional (however transformed in the development process) systems varies widely from case to case, depending upon the particular socio-economic structure of each country, the composition of its dominant political interests and forces, and its mode of insertion into the international economy. However, it is clear that the process of development does involve the appearance of bottlenecks which are not derivative from this or that particular government economic policy, but reflect

the structural characteristics of economic transformation. Government-level development policy faces a situation in which the objective of development of modern economic sectors (promising higher productivity and incomes) involves confronting a series of issues which go beyond the modern sector to the overall pattern of allocation of national resources -- and which involve the need to transcend the view of traditional sectors as "cows" to be "milked" without supportive inputs, or as irrelevancies to the development process at hand. Presumably a certain recognition of this need lay behind the attempts of a number of major development agencies in the 1970's to address the needs of small farmers, etc., albeit in a form which frequently failed to address some of the more tangible obstacles to the development of this sector.

The most visible point of emergence of the problem of articulated development is on the level of foreign exchange accounts, crises in which reflect, in some measure, the "lack of fit" between national modern and traditional sectors -- to the extent that that requirements of the former are serviced by imports. In the context of the frequently severe external payments problems confronted by many developing countries, it is apparent that the issue of maximum reorganization of productive sectors for economic complementarity is not one susceptible to easy solution. The bottlenecks are not self-dissolving.

The problem of internal economic integration supporting development of the modern sector and minimizing external disequilibria is necessarily a complex one, involving the entire structure of national economic organization. However, it is possible to identify some rather common problem areas in the rational utilization of national resources to promote attainment of development goals. The discussion above sought to indicate that the development of the modern sector and national external payments conditions is determined by the overall structure of national production and production relations. Modern sector development and external equilibrium are deeply affected by the extent to which the traditional sector is reorganized to satisfy the former's requirements -- i.e., by the submission at the policy and implementation level of national resources to development goals. In these circumstances, it is possible to hypothesize that problems in modern sector development and external equilibrium are greater to the extent that general reorganization complementary to the modern sector does not take place.

B. Women in the Development and Undevelopment of National Resources.

The above is not intended to suggest that problems emerge from a putative shock between "traditionalism" and "modernism". Nor is it intended as a purely academic excursus into development economics. In the case of Yemen, these issues are central to appreciation of the role of female production in the development process. What appears to be

"traditional" is very frequently simply the effect of the development of new means and relations of production transforming prior structures -- but not in a fashion ultimately beneficial to the development of the modern sector. Economic bottlenecks can and do emerge from a situation in which development has severely undermined the viability of traditional sectors in their established modus operandi -- without providing the means by which these sectors can play a more positive role in the overall development process. This is commonly observed in the agricultural sector, where the demands of urban and industrial sectors simultaneously weaken traditional forms of organization and reproduction while reducing the agricultural sector's ability to reorganize itself on new bases (e.g., on the basis of inputs of fixed and circulating capital). Such a phenomenon is characteristic of the dilemma of development of new poles of production. On the one hand, this requires reallocation of resources from other sectors; on the other, precisely this reallocation limits the latter's performance of its complementary productive roles. Returning to the concerns expressed in the previous paragraph, bottlenecks develop not simply in response to "traditional" obstacles, but also in the absence of a positive policy supporting a more or less disorganized traditional sector in its reorganization away from a condition in which it plays neither traditional or modern roles.

As was noted above, the failure of development policy to adequately support traditional sectors and promote efficient utilization of existing resources to optimize productive complementarity to the modern sector appears in different forms and sectors in each nation, corresponding to the political, social and economic characteristics of each social formation. Notwithstanding this necessary diversity, there is one area of effective resource under-support and under-utilization which is regularly encountered in developing areas -- the inadequate utilization of available female labour, labour which constitutes a major proportion of all potentially mobilizeable labour resources in any area, particularly in "non-modern" sectors of production. In this sense, the discussion developed above is acutely germane to the analysis of female productive activities. For quite explicable structural reasons which will be discussed at greater length below, women tend to be highly concentrated in and peculiarly affected by non-modern sectors of production and reproduction. In practical terms, recognition of the linkages between national development objectives and the organization of non-modern sectors of production and reproduction is in many areas the "theoretical" precondition for establishing the female production issue as an economically "relevant" one.

To a certain extent the issue escapes the normal usages of the terminology we have employed. The point is not (only) that women tend to be engaged in non-modern sectors of

commodity production, and that this conventionally recognized problem of articulation has bearing upon the development process. The point also involves problems of efficient use of resources within the modern sector itself, for the issue of articulation of systems of production is not absent from the very heart of the modern sector itself -- even when this appears to stand in splendid isolation. In fact, this issue of the relation between modern and non-modern systems is of thoroughgoing significance for women. Women are, as we noted, heavily engaged in non-modern sectors of commodity production. However, even when not engaged in this sectors, even when within or on the threshold of purely modern sectors, women are engaged in a system of activities which, if not directly producing commodities, has a major impact upon the production of commodities. This is the "traditional" system of reproduction, of domestic responsibilities -- which has an impact upon the conditions of operation of both modern and traditional systems of commodity production. The point of this apparently theoretical exercise is to establish the necessity of understanding the significance of both -- not only for the condition of women, but also for overall economic performance. In the case of Yemen, the impact of both systems, but particularly of the system of domestic reproduction, which is one of the prime factors in maintaining female labour in "non-modern" locations, is demonstrable.

The issue at hand is not that of using a currently non-productive resource, but that of using a resource to its maximum potential in support of economic development objectives. For a variety of reasons there is a tendency in many developing areas to view women as unproductive assets. All objective assessments of female activities show this to be quite incorrect. The vast majority of women, as of men, are engaged in productive activities in all social formations. Indeed, there are many studies indicating that the average daily labour time expended by women is frequently greater than that expended by men. Truly, this labour time is frequently expended on different products which are produced on the basis of different means and relations of production, and which are circulated and consumed in different ways. However, these differences are not such as to justify discounting female labour activities as unproductive from the point of view of national resources. The issue is whether this labour is being used in such a way as to maximize its contribution to economic development goals. In the context of severe constraints upon development resources, female labour constitutes an area in which the question of rational resource allocation is particularly germane -- albeit the issue is not only one of inter-sectoral allocation, but also one of intra-sectoral reorganization.

That certain forms of "marginal" female labour are beneficial to the modern sector is plain enough, what is less clear is that this benefit is being maximized in both

relative and absolute terms -- especially given the rather special, albeit unappreciated, cost characteristics of some means of raising female production. An analogy might be drawn between the condition of women and peasant agriculture: the imposition of disadvantageous terms of trade between agriculture and industry might benefit industry in the short run, but in the long run it reduces peasant production and keeps costs of production high. So it might be that the current benefits enjoyed by the modern sector at the expense of the continued marginality of females to development planning and investment involve considerable opportunity costs -- the existing benefit is not optimal. Given that female labour is already a major resource, the labour allocation issue is purely economic: is a resource which is already used being allocated and supported to give maximum assistance to the development effort in a scarce resource situation?

C. The Inefficiency of Neglect.

It seems quite likely that there is a tendency for female labour activities to operate at quite low levels of productivity -- from the point of view of the requirements of the modern sector. This is a structural effect. At the risk of generalization, a large part of female labour in the developing world (particularly in the Middle East) continues within the domestic orbit. While significant proportions of the male labour force are engaged directly and indirectly in activities organized by and for large concentrations of

productive capital, a great deal of female labour operates on the basis of ostensibly traditional means and relations of production. For example, a large part of "traditional" subsistence agriculture is in reality maintained by female labour. These activities operate under a double disadvantage. On the one hand, as "traditional" and small-scale activities they do not benefit from significant inflows of capital, which is more oriented towards the opportunities presented by large-scale, modern production (it should also be noted that these traditional sectors are frequently penalized in state-sponsored price policies supporting the expansion of the modern sector). On the other hand, the generally low appreciation of the economic significance of female production makes it the last to receive support for reorganization and enhancement of productivity. In this regard, support for female production is often mis-classified as a "social" measure, thus exhibiting a fundamental misunderstanding of the role of female production in overall economic development. It should also be noted that female labour even in the modern sector tends to suffer from relatively low productivity because of low levels of education and training reflecting the propensity to discount women as a "full status" economic resource -- even in situations of major shortages in male trained labour in particular branches and sectors of production. This attitude is not without a certain validity -- once it is understood that it in fact represents not the reality of female labour and production per se but the effects of the organization of

the activities into which female labour is inserted in the domestic and commodity-producing spheres.

The reality or impression of the primarily domestic location of female production (and the classification of the process of domestic reproduction as an economically unproblematic, "social" process) gives rise in many areas to a quite erroneous neglect. The low level of capitalization and high orientation to domestic consumption characteristic of the organization of many female productive activities is taken as naturally characteristic of female production in general, which, in turn, is viewed as economically inconsequential. Thus, as was noted above, it appears that the issues of female production and domestic reproduction properly fall under social welfare programmes raising conditions of life and improving equity without tangible economic benefit -- rather than entering into economic growth strategy proper. In fact, this position is self-confirming. If there is no support for "traditional" activities in which women predominate, they remain largely domestically oriented and do not contribute to the dissolution of development bottlenecks. The reality is, however, considerably more complex. Most of the "traditional" activities in which women predominate (subsistence farming, very petty trading, menial service roles) are not traditional: they are frequently new "informal" activities or the decayed remnants of traditional forms maintained without elements which have disappeared or transferred to modern sector production. In a very real

sense, therefore, the economic roles played by women reflect the conditions of economic development itself. The small-scale and relatively isolated productive activities performed by women as they continue their role in domestic reproduction of labour are consistently starved of capital and social infrastructure in favour of large-scale, modern sector development. At the same time, continuation of female responsibility for domestic reproduction acts as rationale for low levels of preparation of women for productive roles in the modern sector, thus closing the circle of low productivity and low remuneration. Hence the phenomenon of concentration of women in marginally productive activities.

From a purely economic perspective, there is cause for review of current attitudes towards female labour and production in developing countries. As was argued above, improvement of conditions for modern sector development involves reorganization of all other sectors. There is no a priori reason for excluding sectors dominated by women from such reorganization -- once it is demonstrated that female activities do have forward linkages to the general process of accumulation and understood that current levels of female production are themselves the effects of mutable conditions of production and reproduction.

Training and reallocation of female labour always presents itself as one possibility placing female production more obviously in the mainstream of the development process. There

is a danger, however, that enthusiasm for this approach reinforce neglect of women's activities in non-modern sectors by implicitly devaluing the actual and potential economic contribution of women's current activities and their potential response to increased direct and indirect support. Moreover, there is the added danger that the possible effects of such attempted reallocation be vitiated by failure to address the system of domestic reproduction affecting female activities even within modern sectors.

The charisma of the modern does not necessarily make for good economics. It is increasingly recognized that large-scale, highly capitalized production is not more efficient than small-scale production in all areas. Moreover, it is almost inevitably the case that capitalized production has a higher import component than smaller-scale production leaning on more traditional (and therefore native) techniques. In a situation where many women will, for the foreseeable future, engage in productive activities quite outside the limited modern sector, a proper appreciation of the actual and potential roles played by traditional sectors in economic development is imperative -- as is appreciation of the potential effects of reorganization of "traditional" domestic roles upon even modern sector performance. Although development planning is heavily oriented to the emergence of modern economic sectors, traditional sectors play a significant role in overall production in most areas, either because of actual cash cost advantages that can be offered

by traditional production in some areas and/or because of major political difficulties in creating the conditions for radical transformation of extensive basic traditional sectors (such as agriculture). The economic argument in favour of creating the conditions for increased female production and productivity involves facilitation of entry into the modern sector, and also, but not least, support for their activities in non-modern sectors -- support which is contingent upon recognition of the special obstacles to increasing female production, and the particular connection between the social and the economic involved in these.

II. ANALYSIS AND PRESENTATION OF THE CASE FOR THE ACTUAL AND POTENTIAL ECONOMIC ROLE OF WOMEN IN THE DEVELOPMENT PROCESS.

A. Levels and Goals of Analysis.

In developing the Yemen case study of the role of women in economic development, it was apparent that broaching the issue of the economic rationale for increasing assistance to female economic activities involves presentation and analysis on two quite different levels with distinct requirements: the national economic policy level; and the programme/project development level. Logically and practically, the first must precede the second. Prior to the elaboration of any particular programme or project, the subject of women in production has first to be placed on the economic policy and planning agenda -- not as a "social" or "equity" issue, but as an integral element of the resource allocation process subordinated to the attainment of economic development objectives.

In many respects the informational and presentational requirements of introducing the subject at the policy level differ from those at the programme level, being fundamentally concerned with: 1. establishing recognition of the significance of female production in relation to its absolute volume and to overall development policy and implementation; and 2. introducing the possibility of inserting the issue of female production into the ongoing economic planning and implementation process. In essence, the first stage

corresponds to creating the conditions for a change in "location" of the female production issue from the "social" to the "economic" arena -- in a context in which scarcity of resources typically dictates the priority of the latter over the former. The objective is location of the issue within the economic frame of reference. The second stage (the programme/project level of analysis and presentation) concerns analysis of the current and potential economics of women's activities and support for them within the frame of reference established in the first stage.

At both levels there is an evident need for quantification, for demonstration of how much and when. This is obviously the case when it comes to comparative analysis of projects benefitting women relative to other possible resource allocations. Although the need for absolutely precise, sectorally and sub-sectorally disaggregated data is less pressing on the national economic policy level, quantified data on production is important to revise typically prevalent stereotypes of female production. In effect, preconceptions have to be confronted with "hard" data, demonstrating in "dollars and cents" the real economic value of female activities. This is, perhaps, the absolute precondition for a change in perception of the issue of women in production from the rubric of a "woman question" (seen as in part emanating from the cultural concerns of advanced industrial countries) -- to the rubric of optimal resource allocation in pursuit of local development goals. In effect, this requirement acted as

a "filter" for the Yemen case, concentrating attention upon a few key areas in which a certain level of quantification was possible and in which it was possible to draw conclusions which if not irrefutable were debatable only on the level of economic analysis -- i.e., on the level on which it was hoped the issue could be relocated as a prelude for the generation of serious policy concern.

Although it appears that quantification is an imperative, it should be noted that not only is the need the need for exactitude at the first level limited by the primary objective of locating female production within the "ball park" of economic phenomena relevant to national economic planning and implementation, but also that the possibility of exactitude is typically severely limited by the existing data base. Problems in depth and extent of coverage of national economic and demographic statistics in most developing areas are well known, but insufficiencies are apt to be particularly great in the area of women's production. Such data that are disaggregated by gender typically are insufficiently differentiated when it comes to sub-categories of female production and employment, corresponding, in part, to established, albeit not necessarily accurate evaluations of the significance of female activities. Furthermore, the extent of employment and production in female dominated sectors and subsectors tend to be dramatically underestimated because of the prevalence of "informal" forms of organization.

B. Estimation and Approximation.

In this context it appears clear that any attempt to present data on female production and employment necessarily must involve processes of estimation and substitution. Estimated values must be assigned to production where official statistics are distorted by an orientation to "formal" cash exchanges. Where direct values are unavailable, approximate indicators involving measured values must be substituted for "true" but unmeasured values and variables. Thus, for example, while the value of female-produced commodities in traditional agricultural systems is an unmeasured value, it is sometimes possible to use a proximate indicator such as percentage of labour in the sector contributed by women to generate an approximate indicator of proportion of product attributable to female labour.

Although such procedures clearly fall short of the ideal operations in econometric analysis, they are nonetheless necessary. Precise figures on female economic activities will not be developed until national economic agencies recognize their significance, but there will be no recognition of significance until some sort of quantitative value (however approximate) is attached to them through a process of estimation and substitution. However, in preparing the Yemen pilot study it was apparent that this process must be subject to restrictions arising from the context of presentation. Given suspicions in many areas that suggested attention to women's production is ultimately extra-economic in

inspiration, the utmost care must be taken to maintain the legitimacy of quantitative estimates. Minimal preconditions for this are extensive usage of government produced statistics (even when alternative sources might provide a more comprehensive or differentiated data base) and the development of presentations allowing an iterative process in which local understandings can be allowed to influence estimates and predictions. In both cases, grounds for rejection on the basis of external data and inflexible assumptions imported from outside are minimized.

C. Sectorally Specific and Gender Specific Approaches.

The analytical requirements of an initial approach to an assessment and presentation of the contribution of women to overall economic activity and development in fact requires a two-fold approach. The first involves the sort of quantification of female production refered to above. The second is more conceptual in nature, involving the establishment of relevance of female activities to the central development effort, which is frequently operationally defined as the development of the modern sector. Recognition that female production exists is not equivalent to recognition of its relevance. One dimension of this is relatively unproblematic, i.e., the potential for mobilization of female labour in the modern sector labour force. Somewhat more complex is the issue of the connection between traditional and modern sectors. As was noted in Section I, although sometimes viewed in the past as

independent social spheres, these sectors are not in fact independent of each other -- albeit the relations might be indirect.

In many cases, traditional sectors play an important role in providing raw and semi-finished inputs to the modern sector (not least in providing permanent and temporary labourers). In most cases, the performance of the traditional sectors creates the conditions for modern sector competition for scarce resources necessary for its maintenance and expansion (as in the case of poor performance by traditional agriculture creating a drain of foreign exchange to purchase food imports). In spite of the fact that development attention is typically more heavily oriented to the modern sector, traditional sectors do not simply disappear in the development process, neither can their performance be isolated from the conditions of expansion of the modern sector. A basic operation in putting the women's production question on the national economic agenda is, therefore, elucidation of the relation between traditional sectors and actual and potential bottlenecks in modern sector development. Perhaps the most direct way of demonstrating this relationship is at the level of the external balance, which is almost always a major preoccupation in developing areas -- involving the extent to which traditional sectors, particularly those in which women play a major role, either do or can replace imports or actually contribute to foreign earnings through exports. The possibilities afforded by

analysis at the level of the external account are the establishment of implicit sectoral relations quite apart from more direct input-output relations which may not be highly developed -- except, that is, in relation to the production and reproduction of labour used in modern sector processes, an issue which is typically improperly disposed of as a simple "wage" issue.

In some senses, development of a Women in Development perspective appealing to the economic concerns of policy makers involves an approach which emphasizes not the needs of women, but the performance and needs of particular economic sectors of critical direct and indirect importance for the overall development process. The question of women arises solely out of their potential or actual role in these sectors. However, this is not tantamount to stating that identification of the importance of, and problems in, sectors with heavy concentrations of women is sufficient in itself to address both the problem of production and improvement in women's conditions (which are, of course, directly related issues). Unfortunately, the indirect, "trickle down" approach is constitutionally deficient where addressing "the sector as a whole" in fact involves orientation to the requirements of just one group (typically male) of a differentiated population. Rather, the appropriate procedure is to display the importance of the sector, demonstrate the actual and potential role of women within it, and on the basis of an analysis of the practical constraints on production identify

support which is specifically oriented to the conditions of female producers. In the case of Yemen, the principal constraint addressed was that of labour time. This is by no means the only constraint upon female production in Yemen or elsewhere. However, as an issue it enjoyed two advantages which are quite critical to a compelling presentation: a. it was quantifiable within broad parameters; and b. it stands in a direct and obvious relation to production.

From this perspective, the need to specify women as a target group within a priority sector is a purely practical matter. The effectiveness of any support policy is conditioned by at least two factors: 1. the effectiveness of the support delivery mechanism; and, 2. the relevance of the support to the conditions and activities of the mass of producers in the targeted sector. Reliance upon unmodified delivery mechanisms and assumptions about the requirements of producers are likely to produce rather minimal effectiveness in dealing with sectors dominated by women -- precisely because the former tend to have embedded within them negative evaluations of female production and low understanding of female requirements. In the case of extension support to develop the productivity of traditional poultry-raising activities, for example, little sectoral development is to be expected from support activities relying upon male-oriented delivery mechanisms when the mass of production is in the hands of women. The issue here is not equity, but of effectiveness of support activities.

From this point of view, gender is relevant not only with regard to the differential efficacy of existing delivery mechanisms. It is also vital to the formulation of support content. Efficacy of support is conditioned by relevance to producers' needs and circumstances. It is unlikely, however, that these are uniform for all producers in a sector or subsector. It is particularly unlikely in regard to the requirements of males and females, not least because in regard to the latter so many of the problems appear to be derived less from the direct conditions of intra-sectoral production than from the organization of women's activities and statuses in other spheres (e.g., with regard to access to education, credit and marketing facilities -- as well as competing demands on available labour time). Given the rather limited understanding of this inter-"sectoral" linkage in the case of women, it seems necessary that any presentation on the role of women in production should include a component relating to the potential of this production, as well as the specific reasons for disappointing female performance and means of overcoming them -- just as some quantitative analysis of potential gains should be attempted to demonstrate that remedial action is "worthwhile" economically. In addressing the economics of women the point is not to obscure the specificity of women by inserting them in a catch-all economic category, but to highlight their position to establish their real economic contribution and identify the rather particular obstacles many women confront in expanding production for the market.

D. The Status of "Social" Projects in Support for Female Production.

In some respects, addressing the constraints on female production involves an analytical process similar to that involved in examining constraints on modern sector performance. We emphasized above that the development of the modern sector is conditioned by the development of other sectors with which it has direct and indirect relations. This is equally true of female production in particular sectors -- and this point is of absolutely critical importance in reevaluating the potential of female labour and the costs of its mobilization -- albeit one of the crucial "linked" sectors is rather infrequently seen as economically relevant. It is the characteristic feature of female labour that in the course of the working day it is distributed among at least two sectors of production. One of these is a sector of production of commodities (agricultural products, textiles, food prepared on a relatively large scale, etc.) which are at least potentially destined for entry into the market; the other, is a sector of private production destined for consumption within the producer's household -- the sector of domestic reproduction. In other words, female producers are frequently obliged to bear responsibility for two types of production -- with conditions and responsibilities in one sector definitely affecting performance in the other. For example, in the case of the Yemen Arab Republic the time involved in performing domestic roles has a very clear inhibiting effect upon the total labour time available for

allocation to agricultural activities when considering the family unit as a whole. This may be the critical issue in the special economics of female production. It was demonstrated in the case of the Yemen Arab Republic, but it might be more rather than less important in more developed contexts in which all the mass of the population can offer to production is their labour time.

The above has some very notable consequences for supporting the development of women's production for the market, which is probably the prime consideration in development planning. Expansion of production can take place without direct intervention in conditions of sectoral production. It can take place through changing conditions in activities relevant to the "productive" sector, e.g., by reducing the amount of necessary labour time devoted to domestic reproduction. Domestic reproduction is typically characterized by relatively low levels of social division of labour and extremely low levels of capitalization. For example, identical tasks are frequently repeated in every separate household, thereby losing any potential benefits accruing from specialization. Equally, the low levels of capitalization of household tasks makes for extremely labour-intensive operations. In this context, any measure raising the social division of labour in domestic tasks or raising the level of capitalization of domestically related activities has a potentially liberating effect on female labour in production of commodities for the market. Many

forms of intervention previously considered essentially "social" in character thus appear as ultimately economic. Improved water supplies might have the effect of raising sanitary levels. On the other hand, they might also contribute to a reduction in the amount of labour time required to collect necessary domestic water supplies.

This highly gender-specific aspect of creation of conditions for improved female production in market-oriented sectors should not be neglected in the general formulation regarding realization of female productive potential -- in spite of their apparent lack of direct relevance to production. In the case of the Yemen Arab Republic, for example, it was clear that these issues were central to the effective utilization of such sectorally specific support as was provided. Moreover, certain types of "social" support are particularly cost effective and viable means of raising production. On the one hand, some social investments have very special delivery characteristics. Activities which involve provision of goods and services directly to individual producers place a severe strain on the typically limited delivery systems controlled by governments in the developing areas. This is perhaps less the case in services provided to a community as a whole, in which individuals assume responsibility for delivery for individual consumption. On the other hand, because of major economies of scale, some community oriented projects can have a productive impact altogether disproportionate to their historic cost (see Part Two). Furthermore, such social

services (which are not necessarily provided by public agencies) have clear spill-over effects in relation to non-economic goals of some considerable importance for individual welfare. Finally, in many contexts the provision of services to the community is more acceptable than specific programmes for women -- in spite of the fact that women may be, de facto, primary beneficiaries of some community development projects.

The above is not intended as a legitimation of prior tendencies in development programmes to reserve "social" support for women while directing productive and economic support activities almost exclusively to men. It is clear that improvements in the performance of economic sectors in which women play a significant role is also dependent upon specifically economic support directed to their particular needs (albeit the efficiency of the economic support might well be contingent upon the social input -- which is here defined not in terms of any "social revolution" but of specific practical material investments with demonstrable practical effects upon the organization of female labour). However, it must also be recognized at the government and international agency levels that women's particular needs precisely involve attention to both their domestic and market-oriented activities, with the implication that an increased orientation to economics and production does not involve less attention to "social" measures -- because these are, in fact, economic given the articulation between

domestic and market activities in the process of female labour.

E. Culture and Production.

Among the basic decisions made in the course of the development of the model and analysis for the Yemen Arab Republic was that to exclude any consideration of cultural values and (ideological) constraints. Priorities in the development of the model were maintenance of the analysis on the quantitative and economic level (thereby implicitly establishing the proper grounds for the debate), and use of local statistics and openess to local inputs in the process of estimation and projection. Emphasis was put upon these latter factors to maximize involvement in the formulation of the model and to insulate analyses and presentations from any suspicion that they are grounded upon "foreign" cultural values.

The problem of the real or imputed injection of "ethnocentric" cultural values into development analyses are well known. Paradoxically, there would appear to be an equal and opposite temptation to qualify analyses on the grounds of the cultural values imputed to local audiences/policy makers. That is, there is a tendency to display "sensitivity" to local culture by avoiding issues that touch upon factors which are conceived of as central cultural concerns -- an issue of no little relevance when addressing the general economic role of women.

In the formulation of the Yemen model it was thought necessary to differentiate between the mode of broaching a subject and the substantive content of analyses. In relation to the former, it is clearly necessary to exercise some discretion. In particular, it can be argued that any conclusions regarding women's actual and potential economic role should be presented precisely as conclusions. In presentation the grounds of analysis should be presented first, i.e., the macro-economic context should be addressed to make clear from the outset the structuring framework of the presentation -- the concern with overall development goals and identification of the gender issue in terms of optimal employment of national resources. This should not be conceived of as a presentational "tactic". Rather it exhibits the rationale of an econometric approach in which any argument concerning women stems not from an a priori commitment to promotion of women, but from concrete analysis of how and where women's activities could be supported to achieve development goals. In this case, special attention to women reflects not a cultural-political commitment, but an empirically based guiding assumption that female activities do tend to realize a lower than possible productivity -- which is partially attributable to inadequate development support, which is itself derivative from insufficient awareness of the real empirical conditions of female productive activities and their linkages to overall economic goal achievement.

In relation to the substance of the analysis, the goal is clear: to demonstrate actual and potential female contributions to development in particular sectors of production. The issue of culture is not directly relevant to analysis. The point of the presentation is to argue neither for nor against what are perceived as prevailing cultural practices, it is simply to demonstrate an existing situation and to estimate returns in terms of national development objectives from specific types of support for female productive activities. The the issue is, in the last analysis, a dollars and cents one. The goal of the analysis and presentation is to give rough estimates of costs and benefits, enabling local governments to make their own decisions relating to women in an economically informed fashion. Whether or not they wish to pay the implicit costs of pursuing "traditional" policies is the affair of local governments. External agencies can simply indicate how much the costs are. In this sense, the "value" of culture is an "add-on" feature of the model which can be introduced validly only by local interests.

It should be noted that it is not always the case that governments are willing to pay any cost for the maintenance of tradition -- indeed, the very existence of governments pursuing conscious economic development policies is distinctly untraditional. Moreover, the fact that a social practice exists does not ipso facto indicate that it is based upon overwhelming "cultural" dictates -- political, economic

and ecological factors have a rather profound role in shaping social formations. Whatever the particular local circumstances, however, the of the economic analysis of female activities such as was developed for the Yemen Arab Republic is to measure what is and what can be from the point of view of economic development, without perhaps erroneous presumptions about what "culture" makes possible and even debatable.

F. Techniques of Analysis and Presentation

The initial context for the development of these general guidelines for approaching analyses and presentations relating to the economic conditions and performance of women in developing areas was a request from the government of the Yemen Arab Republic for a study on women in production which followed a format similar to that presented to it in a previous analysis and presentation refering to national demographic development and its economic implications. This presentation was based upon computer generated and displayed demographic and economic projections.

It seemed that the requirements of policy-level oriented analyses and presentation refering to the role of women in production such as were requested are relatively specific:

1. Given their location at senior policy levels, presentations must be both brief and attention commanding;

2. The subject requires an extremely quantitative approach;

3. Given relative paucity of hard data on female activities in most areas a great deal of data will be based upon informed extrapolation and substitution, whose credibility will be strengthened by integration of local judgements which might be offered only in the presentation itself. This requires that iterative capabilities be built into the mode of displaying data. In concrete terms, this involves the capability to change data and dependent projections in the course of the presentation itself.

4. In preparing for presentations to different government agencies the mode of presentation should be sufficiently flexible to expand on area-specific elements of the general presentation while excluding others (e.g., the Ministry of Agriculture might require more detailed agricultural figures while being relatively uninterested in the field of education).

In relation to these requirements personal computer based presentations appear to be particularly satisfactory when combining a differentiated data base, a projection capability, and a graphics capability allowing developments and projections to be displayed both numerically and graphically. Computer graphic presentations are sufficiently uncommon at this point in most developing areas to command greater attention than exclusively written and oral reports.

Moreover, they allow for rapid manipulation of quantitative data -- including rapid entry of new assumptions and immediate display/projection of results. In addition, there is no necessity for all elements of a data base to be displayed in any particular presentation, allowing a process of tailoring presentations to specific audiences and their needs.

The particular appeal of "on the spot" graphics presentations made possible by the development of more powerful and portable personal computers is the combination of rapid, attention-catching displays of quantitative date with an effective iterative capability. As such they are useful in making an initial impact. The drawback is that computers display quantitative data, but cannot explain how those data were obtained (or produced) and how the reality they represent came into being. Moreover, the data base behind presentations is not easily accessed without some degree of "computer literacy", thereby limiting the long-term utility of the research behind the presentation. Given these limitations (which are to some extent contextual), it appears that maximum long-term impact is obtained by a mix of media. The computer based data and displays should be accompanied by more conventional documents providing a more elaborated "back up" to graphics presentations (which are always, given their intended audiences, subject to severe time constraints). This should include an explanatory framework indicating the understanding of the national economy behind the choice of

particular economic sectors and "bottleneck" areas, an indication of the major data sources and principal conclusions drawn in previous studies, and "hard copy" versions of data and projections from the computer-based model and analysis.

The significance of the explanatory framework is not that of an "academic" luxury. The computer-based display necessarily must be restricted to the relations between a relatively narrow range of very specific variables. The overall goal is not to argue for the adoption of specific measures, which might appear more or less viable when more detailed cost analysis is available. The goal is to establish the necessity to address the broad range of possibilities and constraints in relation to female production, which requires elaboration of the generic issues involved. That is, the background analysis is the medium for introduction of factors which should be taken into account in all activities, rather than a simple justification for specific measures considered in the computer-based presentation -- as such it provides a series of questions to be asked, and much less a series of definitive answers.

Documentary analysis is valuable for two principal reasons. On the one hand, it allows for greater explanation of background assumptions and, in some cases, more detailed treatment of particular topics than the time allowed for

direct presentation makes possible. On the other hand, it lowers the connection between wider dissemination of analyses and conclusions and the availability of computer equipment and expertise (however limited). While the immediate impact of documentary analyses might be lower, they do have the potential advantage of greater ease of circulation -- albeit the possibility of reproducing video-tapes of the central computer-based presentation represents a potential for combining the attention gathering aspect of the computer presentation with access to a much wider audience (with loss, however, of the iterative capability). The optimal content appears to involve a combination of both the computer-based presentation and documentary analysis, oriented to different communications situations and audiences.

The following case study of the Yemen Arab Republic (Part Two) is intended to serve a dual function. On the one hand, it is intended to provide a certain level of background analysis supplementary to the computer-based analysis and display on women in production in the Yemen Arab Republic developed by the author and Steve Hawkins of The Futures Group under contract to USAID (NE/TECH/SARD and PPC/WID) at the request of the government of the Yemen Arab Republic. On the other, it is intended to serve a larger, more didactic purpose in demonstrating some of the steps involved in generating a data base for a computer-based display and in developing female-related figures and projections from it. These steps are discussed for illustrative purposes solely.

There is no implication that analyses in other areas will have the same general content. Given our previous insistence that the effectiveness of any presentation is heavily dependent upon its orientation to the particular problems faced by development planners, the utility of general models appears severely limited. There is some justification, however, for pointing out some of the issues that will probably arise in the context of developing nations.

In some respects the problems confronted in developing an analysis of the actual and potential role of women in the economic development process in the Yemen Arab Republic are particularly sharp, albeit qualitatively similar to problems in other areas. The direct relevance of women to modern sector development is not clear because of the tiny percentage of female economic activities taking place in the modern sector. To demonstrate this relevance it was necessary to both identify the relevance of current female activities to the modern sector and project the development of the modern sector in the context of currently used resources in such a way as to display an important future role for female labour. In relation to women's current activities there is a double problem: one, their location within "informal" sectors makes general quantification difficult; two, the general problem of measurement is compounded by an almost complete absence of gender differentiation of activities and products. This engendered a necessary process of indicator location, substitution and estimation which furnished two emphases in

our general introduction: 1. initial presentations can never hope to achieve the level of precision required by ideal cost-benefit analyses; and 2. the necessity to base many estimates upon informed estimation makes an iterative component in presentations absolutely essential -- not simply to improve credibility, but also to maximize accuracy on the basis of a broad consensus of informed opinion.

The analysis that follows incorporates a number of graphs. These are direct "hard" copies of graphs displayed in the computer presentation programmed by Steve Hawkins.

PART TWO. WOMEN IN PRODUCTION IN THE YEMEN ARAB REPUBLIC

I. General Economic Conditions

A. Elements of the Historical Background

The Yemen Arab Republic is the most populous country on the Arabian peninsula, with a population (including migrants) estimated at 8,540,119 in 1981 (estimated by Confederation of the Yemeni Development Association). It is also among the poorest countries on the peninsula, with an estimated per capita Gross Domestic Product of $400 (USAID. Yemen Arab Republic: Agricultural Sector Assessment. Sanaa, 1982). Up until 1962 Yemen was ruled by a severely conservative Imamate maintaining Yemen in considerable isolation and preserving an agricultural system that had probably changed but little in the last millenium. With the partial exception of certain areas in the South trading with the major urban centre of Aden in South Yemen (now the People's Democratic Republic of Yemen), subsistence agriculture based on family labour on relatively small holdings was the predominant economic formation -- with agriculture absorbing over 90% of the labour force.

Partially in response to climactic conditions, returns to agriculture have been historically low. In spite of the fact that Yemen enjoys the highest level of rainfall in the peninsula because of the location of a significant percentage of agricultural land at relatively high altitudes in the

mountain highlands, water is still a very scarce and valuable resource . This has necessitated rather high labour inputs for relatively low levels of production. In the Tihama desert area between the mountain highlands and the Red Sea rainfall is minimal, with agriculture being made possible by an irrigation system based on extensive damming and canalization of spate water runoffs in the wadis. In the mountain highlands water is more abundant (though by no means plentiful), albeit level land is scarce -- leading to the historical development of a vast system of terraces which are not cut into the hillside but added on to the slopes with soil carried from the wadi beds, the soil being stabilized (in terraces in some places less than two meters wide) by stone retaining walls. In both areas agricultural production has only been at the expense of major and continuing labour inputs, not only into production but also into the infrastructure making agriculture possible.

Notwithstanding the impressive success in constructing a land base for cultivation, Yemeni agriculture has rarely been capable of maintaining the whole population. Constraints on water and cultivable land have led to a double dispersion of the population. On the one hand, population density has been low (except in the better favoured Southern Highlands) as population scattered in response to the low availability of effectively cultivable land. On the other, "surplus" population has sought employment and income abroad -- although without severing connections with the homeland.

Historically, the whole system has rested on a complex of delicate balances. Excess population went abroad (although the income gained thereby allowed relatively greater population density at home). The agricultural base, however, required large inputs of labour, which itself had to establish a proper balance between direct production and infrastructure maintenance. Although the lower terraces were often more productive than the marginally productive upper terraces, the latter had to be maintained if the former were not to suffer from the cumulative effects of erosion. Livestock, though highly valued, had to be put under some sort of control to avoid excessive erosion of the upper rangelands with detrimental consequences for terrace-based production. Fuel wood collected on the rangelands had to be supplemented by crop residues if ground cover was to be maintained at equilibrium levels. While there exists no comprehensive written history of this system, it is clear that its maintenance relied on an equilibrium in which high volumes of labour were available, with migration constituting an alternative to system overload for population surplus to a rather static resource base. In this regard, however, it should be noted that an insufficiency of labour could be just as threatening to the system as a surplus. Without sufficient labour terrace maintenance and production would decline, leading to accelerated erosion both in rangeland and the cultivated area proper.

Partly in response to ecological conditions, land tenure was

relatively unconcentrated, with small family holdings (often broken down into numerous tiny plots) being prevalent in isolated small villages clinging to defensible slopes and hill tops. This is not to say that complete equality prevailed. Particularly in the South, where higher levels of rainfall prevailed, and in the Tihama, with its dependence upon wadi-fed spate agriculture, there was considerable concentration of land-holding, leading to much higher incidence of rented land holdings and various forms of "wage" labour. Nonetheless, taking the country as a whole the dominant formation was subsistence agriculture on family holdings serviced by family labour, with the market in land probably being negligible in extent.

Given this prevalence of small-scale agricultural production of dry-land cereals (particularly sorghum and millet), some legumes, and livestock (seasonally combining use of crop residues and rangeland cover), the social division of labour took place primarily within the household itself -- along the lines of gender and age. Again, the social history of Yemeni agriculture is very incomplete, but scattered accounts suggest that agricultural tasks were always performed by both men and women (see Table 1). Men seem to have been engaged in more seasonal activities -- particularly in infrastructural maintenance and water managements, ploughing, some seeding and threshing. Women, on the other hand, were engaged on a more constant basis in agricultural production, particularly in weeding and thinning, and livestock care (including

poultry and egg production) -- as well as in seasonal activities such as harvesting and threshing. Men maintained the interface of the household with political society and the market, while women maintained the household physically in addition to their agricultural tasks, thus being substantially isolated from all but other women engaged in private domestic tasks.

Table 1. Gender Distribution of Agricultural Work.

Ploughing -- men, rarely women (several times a year)
(oxen most common/wooden plough)

Planting -- women, sometimes men
(hand sowing)

Thinning -- women, sometimes men
(hoe and sickle tools)

Weeding -- women
(hoe and sickle tools)

Harvesting -- women, sometimes men
(Starts with pulling off leaves of sorghum, then heads are cut, then stalks, then roots are pulled)

Threshing -- men, sometimes women
(long stick)

Winnowing -- women, sometimes men

Pulling out the roots -- women

Applying manure -- women

Source: Cynthia Mynnti, Women in Rural Yemen. USAID, 1978.

Necessary domestic labour performed by women included child rearing, household cleaning, washing, food preparation, water gathering and fuel collection. The last three

activities could be particularly time consuming. Cooking was frequently done with slow-burning, inefficient woodburning ovens. Water gathering frequently involved the expenditure of several hours daily in carrying water from distant springs and wadi beds. Fuel gathering (i.e., collection of fire wood) involved often long distance expeditions in a situation where consumption was high but the range cover sparse. In spite of these rather substantial objective contributions to domestic production and reproduction, women had little or no control over production and distribution. Men decided on crop plantings, men marketed and controlled any money income, men were the representatives of the household in the larger society. Given this situation, it is clear that women would have little direct information about or access to transformations in production and distribution other than those mediated by men.

The Republican Revolution, launched in 1962 but not fully consolidated and recognized until 1970, put an end to the Imamate, creating conditions for investment in modern private enterprise. Contacts with external economies were increased. The government attempted to develop a centralized administrative structure, and embarked upon a policy of economic modernization in which foreign aid played a major role. Although government control over all areas was neither constant nor absolute, elements of a political basis for economic reorganization were put in place. At the same time, however, it must be admitted that the final political

settlement represented a changed relation between economically modernizing elements and more traditional structures of production and power (in which the former gained substantially more influence) rather than a total revolution. In addition to the continuity of traditional structures in many areas of the countryside, the vital importance of foreign aid in the development effort (in a situation where the government's own fiscal base was rather narrow) guaranteed at least a strong conservative cultural voice, especially given the active role played by Saudi Arabia in financial support of the government, a role shaped by Yemen Arab Republic's strategic location as both more populous neighbour of Saudi Arabia itself and "buffer" between Marxist South Yemen (PDRY) and the rest of the peninsula.

If the Republican Revolution made possible the development of a more ambitious and modern sector of private enterprise and the emergence of state planning, the change which most decisively acted to transform conditions in Yemen Arab Republic after the fall of the Imam was external. The oil price revolution unfolding from the mid-1970's did not affect Yemen directly, as the country at the time did not possess identified and proven oil deposits, but it did decisively affect the level and economic significance of migration -- perhaps more, in relative terms, than any other country in the region (one estimate puts the number of male migrants as rising from 278 thousand to to 742 thousand between 1975 and

1977. See James Socknat and Clive Sinclair, International Migration Project: Migration for Employment Abroad and Its Impact on Development in the Yemen Arab Republic. Durham University, Durham, 1978. P. 46). The large upsurge in oil revenues in Saudi Arabia and the Gulf States supported major increases in domestic expenditures expanding the requirement for foreign labour -- at levels of remuneration unprecedented in the region, which had historically been "labour rich" relative to cash employment opportunities. In relation to Yemen, employment in the oil-producing countries could be regarded not simply as a "traditional" point of absorption of labour "surplus" to the requirements of the Yemeni system of production, but as a new "pull" factor acting independently of the dynamics of the traditional Yemeni economy.

The expansion of domestic expenditure in the oil-producing countries of the peninsula constitutes the real basis for a rapid transformation of economic conditions in Yemen in the last decade. Although the Yemeni statistical agencies do not provide fully comprehensive data, it has been estimated that approximately half of the entire Yemeni male adult working population is absent in Saudi Arabia or elsewhere at any given point in time. The remitted incomes of this large emigrant labour force have vastly expanded the market economy in Yemen Arab Republic, allowing large scale importation of consumer and producer goods, stimulating the commercial, services and transport sectors (see Table 2). The

construction sector has expanded rapidly following substantial investments in housing in particular. Local industry has grown quite rapidly and some cash income has been devoted to investment in agriculture, notably in the development of pump irrigation. Although cities still house a relatively small percentage of the population, the rate of urban growth considerably outstrips the already high rate of general demographic increase.

Table 2. Annual Remittance Income of the Yemen Arab Republic (1975-1982). Millions of Yemeni Rials.

Year:	1975	1976	1977	1978	1979	1980	1981	1982
Income:	2363	4561	6351	5595	6118	4936	4444	5361

Source: World Bank, Yemen Arab Republic, Development of a Traditional Economy. 1979. CPO, Statistical Yearbook, 1983. Sanaa, 1984.

B. Problem Areas in the Economic Development of Yemen Arab Republic

Although the rate of growth of Gross National Product has been extremely rapid (see Table 2), and the overall economy is planned/anticipated (by GOYAR) to continue expanding at a rate of approximately 7 percent per annum, it is clear that the Yemeni economy confronts certain severe structural obstacles to future stable development. These are embedded in the very basis of recent spectacular growth, which lends certain specific features to the national development process. Expansion has been almost exclusively powered by the

foreign earnings remitted by Yemeni migrant labour abroad. Given the rather underdeveloped state of the Yemeni

Table 3. Gross National Product of the Yemen Arab Republic (1975-1982). Billions of Yemeni Rials.

Year:	1975	1976	1977	1978	1979	1980	1981	1982
GNP:	7.2	10.5	13.5	14.4	17.6	17.2	17.0	17.0

Source: USAID, Yemen Arab Republic: Agricultural Sector Assessment. 1982

productive system, the acquisition of advanced consumer and producer goods has been overwhelmingly through importation (for the expansion of imports, see Table 4).

Table 4. Total Imports of the Yemen Arab Republic (1975-1982). Millions of Yemeni Rials.

Year:	1975	1976	1977	1978	1979	1980	1981	1982
Imports:	1707	3035	6195	5075	6807	8454	7340	6940

Source: CPO, Statistical Yearbook, 1983.

At this stage of development, therefore, the continued expansion of modern economic sectors is directly dependent upon three factors: 1. the level of remittances from workers abroad; 2. the level of importation of consumer goods; and 3. the inflow of foreign capital (principally in the form of development aid). In purely abstract terms, there is a fourth factor -- the level of Yemeni exports. In fact, however, there seems little immediate possibility that

material exports will contribute significantly to the capacity to import the means of economic modernization (see Table 5).

Table 5. Exports of the Yemen Arab Republic (1975-1982). Millions of Yemeni Rials.

Year:	1975	1976	1977	1978	1979	1980	1981	1982
Exports:	50	51	33	29	62	103	216	113

Source: CPO, Statistical Yearbook, 1983.

Yemeni industrial production is, in most subsectors, at a very rudimentary stage relative to the requirements of regional markets, whereas Yemeni agricultural products suffer from major problems of transportation (except, perhaps in the Northern Tihama adjacent to the Saudi border) and quality control. Moreover, the price premiums for local products in the Yemeni market (corresponding to local consumer preference) are such as to hinder the development of an export orientation. Yemeni development, then, is highly dependent upon imports of means of production, while the possibility of major exports of material goods is quite limited.

Continued development is contingent upon the ongoing export of large volumes of migrant labour earning the foreign exchange necessary for internal expansion. Maintenance of such high levels, however, is quite problematic. A slowing down in the rate of civil construction in the regional oil-

producing states has led to a visible contraction in the market for migrant labour. Although Yemenis occupy a privileged position in that market, it is clear that no great faith can be placed in vigorously expanding employment opportunities for Yemeni labour abroad. Again, in principle it is possible to conceive of a shift in distribution of foreign exchange from consumer to producer goods, but this presents both a political and an economic challenge. Restriction of consumer good imports on a large scale is not an attractive course given the quite recent problems of political stabilization. Furthermore, it threatens to reduce incentives to migrate. Productive modernization based upon imports necessarily gives rise to the possibility of major obstacles developing in the foreign exchange account.

The remmitance-led character of Yemeni economic expansion and transformation has also given rise to another structural problem: labour supply. In the past, Yemen exported labour which was surplus to the requirements of the traditional system of production. Current exports of labour are far in excess of this equilibrium level, giving rise to problems of labour supply even in the traditional sectors. In this context, the development of the modern sector and its rapidly expanding labour demands places a clearly perceptible strain on the internal supply of labour, jeopardizing the viability of development plans. In the current situation of very heavy reliance upon male labour in the modern sector there appears to be an emerging tension between two elements of the

development process. Export of labour is necessary to maintain the importation of modern producer goods, but precisely that export reduces the availability of labour to staff the Yemeni modern growth poles -- and in this regard it is worth noting that the sort of labour (i.e., educated and skilled) which is most needed in Yemen is also in greatest demand elsewhere.

The problem of internal supply of labour could be addressed by attempting to reduce the outflow of labour, but only at the expense of availability of foreign exchange. Furthermore, such redirection would be by no means easy. It is unlikely that wages in Yemen, tied to real productivity, could effectively compete with wages in the regional oil-producing states which are tied less to real productivity than an inflow of a form of monopoly rent. Finally, it can be argued that sufficient labour can be made available from traditional sectors such as agriculture. However, it is debatable whether there really exists an adequate male labour reserve in the traditional sectors -- in addition to which the indirect effects of such a measure would, as will be demonstrated below, be less than unambiguously positive.

The structural obstacles to stable development in YAR are part of its own specific path of development: its very rapid growth and move towards modern production and commerce without a major source of material exports makes it heavily dependent upon the remittances of migrant labour. Future

remittance income itself is not necessarily stable, but there are clear difficulties in shifting the composition of imports towards producer goods. The expansion of the modern sector increases internal demand for skilled and educated labour, but it is precisely the export of this sort of labour which will be the most secure basis of remittance incomes. In this situation it is unclear that the existing pattern of utilization of national resources will be able to support the sort of ambitious modernization envisaged by the Yemeni government.

C. Domestic Production and the External Balance

As was argued above, the underdeveloped character of production in Yemen makes modernization of production and commercialization heavily dependent upon imports. The traditional system does not produce sophisticated producer goods, and the modern industrial sector is either at a very low level of sophistication or oriented towards the production of consumer goods. In this context, there is very little alternative to the close relation between development and imports. However, although there is no major direct relation between traditional sectors and modern sector development in the sense of the provision of inputs (other than labour) from the former to the latter, there is a very important indirect relation. In Yemen, as elsewhere, development of the economic structure involves not only increased demand for modern goods (means of production and consumption), but also increased market demand for products

traditionally produced locally.

In the traditional social formation in Yemen there was typically (almost by definition) some sort of equilibrium between food production and food consumption. This has been ruptured in the process of economic transformation. From a situation in which nearly all consumers of food were also producers of food, there now exists a substantial part of the population which has no direct relation at all to food production -- while maintaining and even increasing their consumption. In overall terms this signifies that whereas equilibrium in the traditional system was obtained when the average production unit had produced sufficient for its own reproduction, currently the average unit must produce and market a surplus. The large scale importation of food into Yemen indicates that this transformation of the traditional sector has not taken place to the required extent (see Table 6). Close examination of the composition of food imports into Yemen indicates that imports do not reflect a substantial change in consumer preference away from locally produced goods. On the contrary the composition of imports tends to either reproduce the composition of local foodstuff production or represent surrogates when equivalents are not found on the international market. Thus rather high levels of importation of eggs, fruits and poultry do not indicate a fundamental change in the Yemeni diet. These were traditionally consumed in Yemen on the basis of local

production -- albeit rising cash incomes have perhaps significantly increased the consumption of high protein, high value products. In like fashion high imports of wheat would appear to indicate less a shift in preference away from traditional grains (principally sorghum) than their absolute scarcity on the domestic market. Given the similarity between imports and local products (and the price premium upon the latter), importation of foodstuffs appears to represent a failure of the traditional system to expand production rather than a shift in consumption patterns to new products (see Table 7).

Table 6. Food imports of the Yemen Arab Republic (1975-1982). Millions of Yemeni Rials.

Year:	1975	1976	1977	1978	1979	1980	1981	1982
Imports:	831	868	982	1305	1630	2213	2182	2033

Source: Unpublished import tables, CPO, Sanaa

Table 7. Growth in value of food imports of the Yemen Arab Republic by major commodity group (1977/78-1982). Thousands of Yemeni Rials.

	1977/78	1979	1980	1981	1982
Red meat	41935	58197	65070	81193	119651
Poultry	172350	271438	203854	358645	241880
Dairy	143695	238944	425966	245029	206923
Eggs	46331	32721	48005	44360	47312
Grains and flour	347119	293509	354104	522968	541825
Vegetables	43631	41902	53468	57427	80040
Fruits	288513	351969	479532	416707	364465
Oils	44588	25582	62775	37059	53983

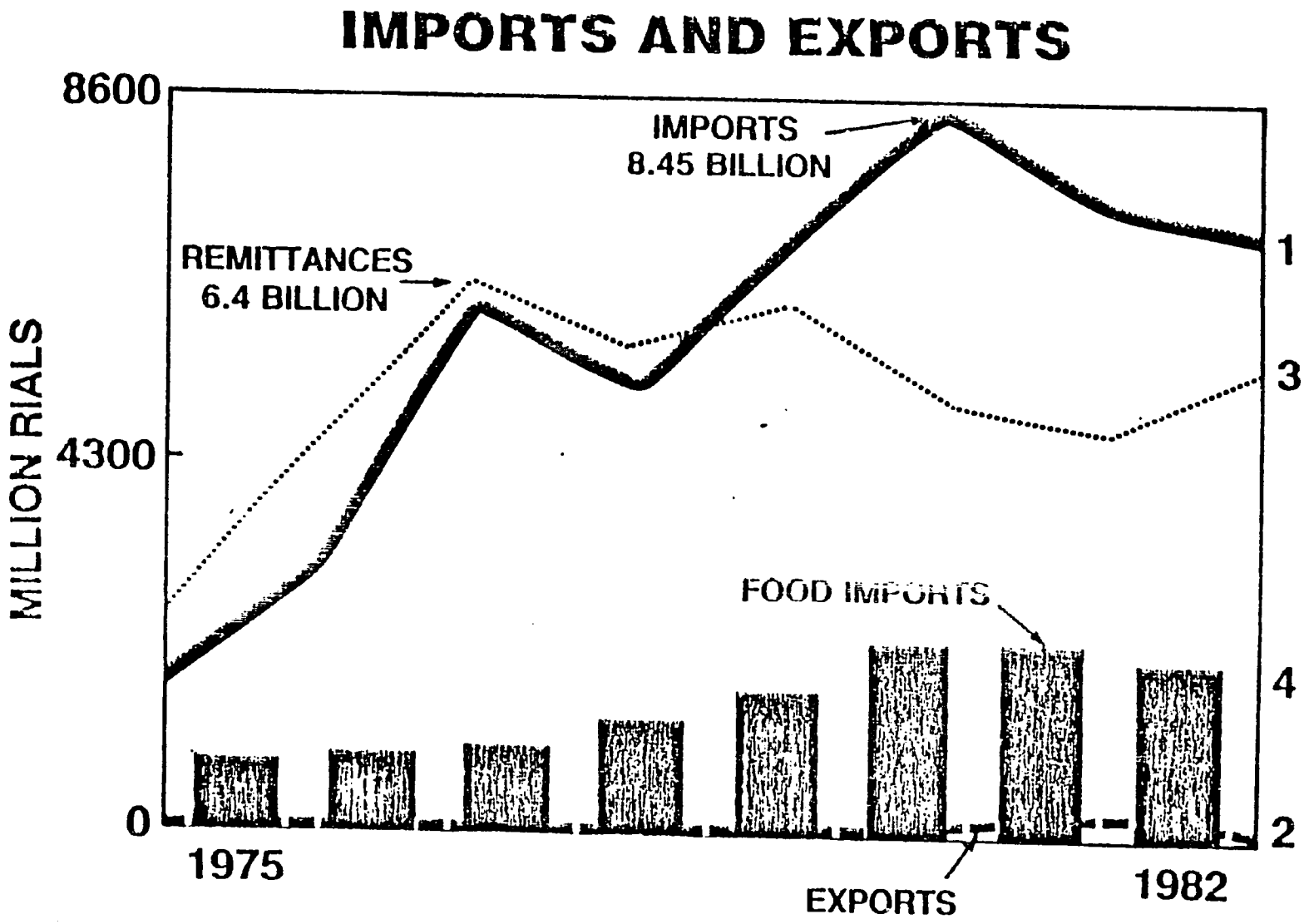
Source: Unpublished import tables. CPO, Sanaa.

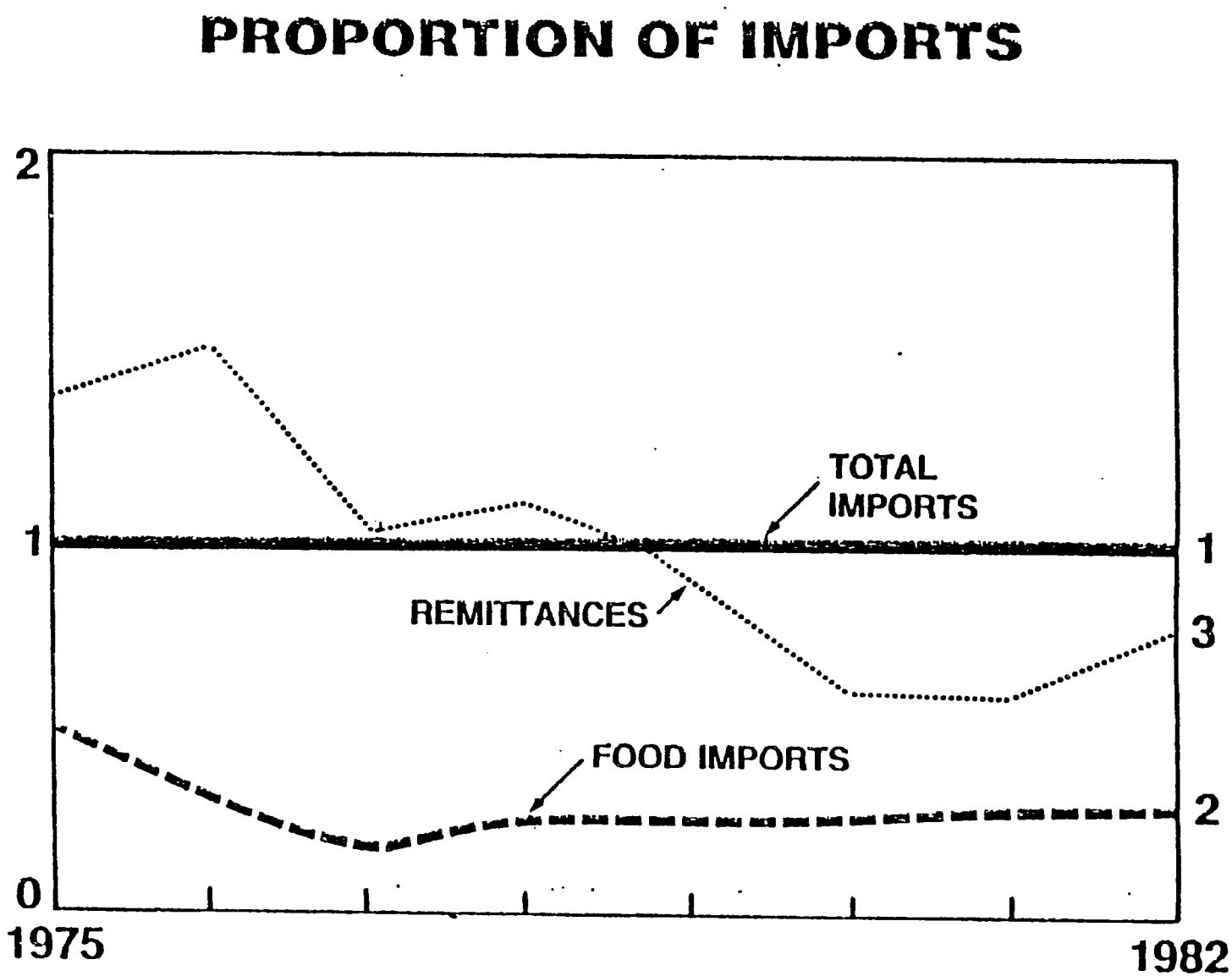
The case of food production represents a clear, albeit indirect linkage between the performance of traditional sectors and modern sector development. Importation of consumer goods limits the availability of foreign exchange for producer goods. In Yemen this is particularly serious. Many necessary products cannot be produced locally, but scarce foreign exchange is being expended on products which have been and can be produced locally -- in a situation where consumers express a marked preference for local products. In contrast to many areas where limited foreign exchange supplies precipitate the protected development of new productive sectors to substitute for imports, in Yemen established sectors are being substituted by imports, reducing self-sufficiency in one of the few sectors of total consumption where local production is immediately viable.

D. The Agricultural Question

In Yemen food imports represent not just an example of linkage between traditional sectors and modern sector development, but are, in fact, a significant contributor to the scarcity of foreign exchange and the development of an external deficit made "acceptable" only by continued infusions of foreign aid. Charting food imports against the most important source of foreign exchange in Yemen, remittances, imported food has rather consistently represented an outflow of foreign exchange amounting to approximately 30-40 per cent of income. Put in another way, food imports are somewhat greater than the deficit on the

Graph 1. Developments in some major items of the external account of the Yemen Arab Republic.





Graph 2. Food imports in the external account of the Yemen Arab Republic.

external account between material imports and exports of material goods plus remittances (see Graphs 1 and 2). This is already a serious situation in a context where there are no foreseeable material exports capable of offsetting increased imports, but the problem of food imports threatens to become even greater in the future.

There are a number of different ways of projecting the level of food imports. For example, total demand can be projected on the basis of per capita consumption and changing population, with imports estimated as the difference between projected domestic production and total consumption. In the case of Yemen, however, there appears to be a rather clearer relation between income and consumption of foodstuffs. Total measured consumption (arrived at approximately through the addition of food imports to domestic agricultural product) by value has been rising faster than population growth, but in a more stable relation to GNP. Measured consumption (largely refering to marketed agricultural product in Yemen) rises with income, with the shift to higher value foodstuffs apparently offsetting the trend observed elsewhere for proportion of income spent on foodstuffs to decline with rising income. Projecting food consumption forward from 1975 on the basis of a modest average annual rate of increase of 4.5 per cent (which is considerably lower than the planned/officially estimated rate of GNP growth), total food demand rises from approximately 2.8 billion rials in 1975 to 8.6 billion rials (in constant 1975 rials) -- consumption

will triple over the period.

In themselves, these figures have no immediate relevance for the external account. A great deal hinges upon the performance of the national agricultural sector in satisfying demand. It is thus necessary to produce some approximate estimate of future agricultural production assuming the maintenance of current conditions of production. The rather limited statistical basis for agricultural production (especially in disaggregated value terms) prohibits precise projections for each major crop. Consequently, it is necessary to identify a common "driver" for production equivalent to the role of income in the aggregate consumption estimates (it being understood that plotting production or consumption against almost any real-world independent variable is preferable to plotting against a disembodied "trend" over time -- not least because policy intervention is predicated upon identification of tangible elements of the economic situation). Agriculture in Yemen has historically been labour-intensive. A certain level of capitalization has been achieved recently due to the introduction of pump-well irrigation in some areas, but there are objective constraints upon major expansion of this form of irrigation due to terrain and limited aquifer resources. The spread of effective use of machinery for ground preparation and harvesting also appears limited due to the small and fragmented state of the mass of agricultural holdings, which is itself expressive of the nature of the terrain in many

areas (see Tables 8 and 9). In the foreseeable future, agricultural production in Yemen will probably remain tied to labour inputs.

Table 8. Distribution of agricultural holdings by size in the Yemen Arab Republic.

Hectares	%
Less than .25	18.7
.25 - .49	18.3
.50 - .74	10.7
.75 - 1	10.0
1 - 2	14.0
2 - 3	8.7
3 - 4	4.9
4 - 5	3.3
5 - 10	7.4
10 - 20	3.2
More than 20	0.1

Average size of holdings: 2.3 hectares

Source: MAF, Agricultural Census in Six Provinces, 1981.

Table 9. Fragmentation of agricultural holdings in the Yemen Arab Republic.

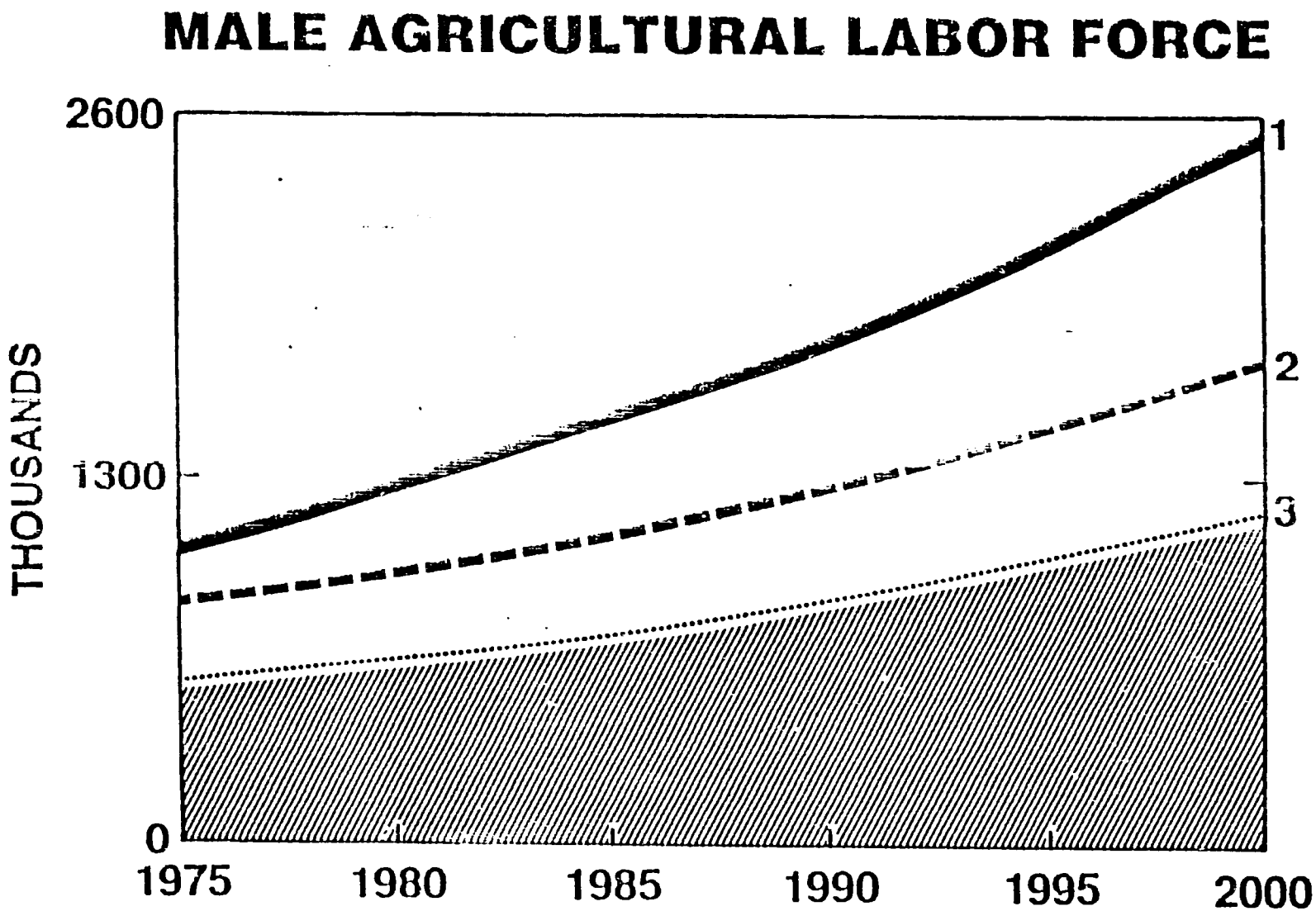
Number of parcels per holding	%
1	16.3
2 - 3	37.2
4 - 5	21.2
5 - 9	17.1
10 - 19	6.9
More than 20	0.4

Average number of parcels per holding: 4.6

Source: MAF, Agricultural Census in Six Provinces, 1981.

Estimation of domestic production in Yemen therefore involves substitution of the direct variable (production) by a proxy (the prime factor of production) held to vary directly with it. In Yemen the estimation of the future agricultural labour force involves a series of steps. Because of rather different circumstances surrounding their availability for agricultural labour, male and female labour statistics must be treated separately prior to their final aggregation to produce the overall projected supply curve for agricultural labour.

The male agricultural labour force can be initially projected in terms of the estimated growth of the rural working age male population (figures available for Yemen on the basis of a prior computer-based demographic projection model). The total number of available rural males between the ages of 15 and 59 will rise from 1 million in 1975 to around 2.5 million in the year 2000. However, from this must be deducted migrants from the countryside to both the urban areas and regional oil-producing states, which accounts for nearly half the net annual increase of males between the ages of 15 and 34. In addition, the corrected figure for male agricultural labour must be corrected again for the propensity for male rural labour to engage in agriculture. According to government supplied statistics, it appears that only 69 per cent of the rural working age male population actually engages in "full time" agricultural production. Consequently, the absolute level of available male agricultural labour is



Graph 3. Projected increases in the male agricultural labour force in the Yemen Arab Republic.

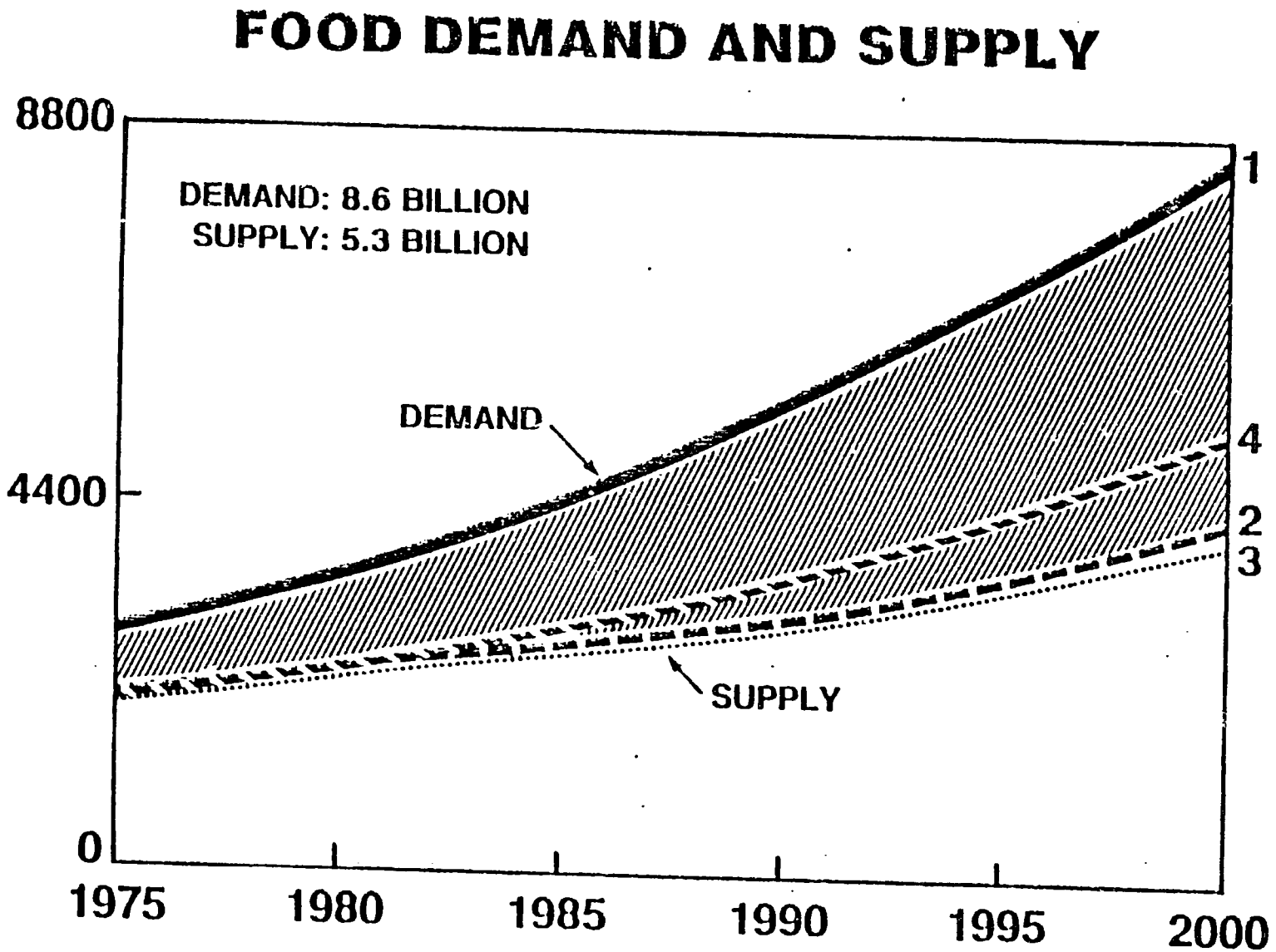
considerably lower than the amount of male labour "produced" in the rural areas. The corrected supply curve of labour grows from 570 thousand in 1975 to 1.2 million in the year 2000 (see Graph 3). This average annual increase of between 2 and 3 per cent does not compare favourably with the 4.5 per cent rate of annual increase projected for food demand.

While it is impossible to state categorically that food must account for a rising percentage of total imports, that it will become an ever greater burden on the external account seems inescapable under current conditions. Given that the major source of external income is unlikely to expand greatly, imports of foodstuffs threaten to come into increased competition with producer goods -- especially as the continuation of a high rate of GNP growth will necessarily be predicated upon a more rapid expansion of domestic production in the modern sector (thereby demanding even higher rates of importation of producer goods). In 1975 Yemeni agriculture supplied 3 billion rials of produce to satisfy approximately 70 per cent of an aggregate national demand for foodstuffs amounting to 3.8 billion rials. At projected rates of increase in labour supply, domestic food production can be expected to rise to a value of 4.2 billion rials (at constant 1975 prices). Demand, however, will rise to 8.6 billion rials. Between 1975 and the year 2000 the national food deficit/imports will grow from 0.8 billion rials to 4.4 billion rials. Even if the productivity of male labour is held to rise at a modest, albeit not unrealistic

rate of 2.5 per cent per annum (equivalent to a 2.5 per cent annual addition to the effective male labour force), there gap between production and consumption will only fall to 3.3 billion rials, which is still four times greater than the deficit in 1975. still be a significant gap between the rates of increase of production and consumption.

This initial projection is based only upon male labour availability. The absolute availability of labour is also dependent upon the supply of female labour, which can be projected on the basis of government figures as determined by the increase in the female population corrected by the figure for female participation in agricultural production (taken as approximately 45 per cent). Unlike the case of male labour, migration is not a direct drain upon the female labour pool. However, while the addition of female labour to the situation certainly adds very substantially to the absolute amount of labour available, our projections are based upon comparative rates of increase between consumption and the labour force in agriculture, and the addition of female labour does not significantly affect the rate of increase of labour availability, rising according to a rate of demographic increase which is equal to that of males (see Graph 4).

These necessarily approximate estimates of food consumption and production (through the proxy variable of labour supply) indicate that the agricultural sector will place an ever increasing strain on Yemen's capacity to import producer



Graph 4. Projection of food demand and supply for the Yemen Arab Republic. Millions of Yemeni Rials.

Legend: Line 1 is demand; line 2 is supply at male rate of increase; line 3 is supply at aggregate male and female rate of increase; line 4 is supply including productivity rises.

goods. The linkage between a traditional sector and modern sector possibilities is quite clear. However, given that this traditional sector is already producing the qualitative equivalent of what is materially imported in the form of foodstuffs, there is reason to believe that an increase in production reducing aggregate imports might well be less costly in terms of foreign exchange than the development of modern import-substituting sectors. The latter, almost by definition, can only be developed in the short and medium term on the basis of massive importation of substantial elements of the relevant productive complex. As has been demonstrated in the case of the import-substitution policies of a number of Latin American countries, the development of new industries to replace imports itself involves the incursion of major foreign payment obligations. In relation to Yemeni agriculture, however, whatever suggestions that might be made in relation to importation of developed means of production cannot ignore the fact that many of the means of production of a more productive sector are already in place. In this sense, a drive towards greater food self-sufficiency might be less costly in foreign exchange than the development of a totally new import substituting sector.

II. WOMEN AND AGRICULTURE

A. Labour Supply Constraints on Agricultural Production

The "driver" for projected domestic foodstuff production was identified as labour supply and labour productivity as affected by extension services and guided inputs. Treating the supply of male and female labour separately, there are severe constraints upon increasing the supply of male labour. There are two major drains upon the agricultural male labour force: migration, and the employment in of rural residents in non-agricultural work. There is little reason for attempting to keep rural male labour from emigrating, especially to the regional oil-producing states. Increases in production by non-migrant labour might reduce the overall level of food imports, but the opportunity cost is great. It is likely that foreign exchange so "saved" would be less than the remitted earnings of workers if they were free to migrate in search of wage labour. Equally, an attempt to keep available rural male labour in agricultural production contradicts the need to develop more modern transport and commercial structures in the rural areas. The constraints on engaging more male labour in agricultural production appear, therefore, to be essentially economic in character, involving opportunity costs greater than potential benefits.

In the context of the massive migration of Yemeni adult males women represent considerably more than half of the resident rural population and perhaps already contribute at least half

of the full-time adult labour supplied to the agricultural sector. However, the profile of female activities and opportunities varies considerably from that of males. On the one hand, the rate of female migration is negligible. On the other, the rate of female full-time participation in agriculture is no less than 24 per cent less than that for males. Unlike males, however, females who are not engaged in agriculture are also not engaged in other income generating activities (see Table 10). Over half the female adult rural population engages in no income generating activity at all on a full time basis.

Table 10. Sectoral distribution of rural female labour in the Yemen Arab Republic.

Sector	Female Workers
Agriculture and livestock care	2282
Mines and quarries	1
Manufacturing industry	22
Electricity, gas and water	0
Construction	0
Wholesale trade and restaurants	3
Transport and communications	0
Financial institutions and commerce	0
General services	6
Not defined	0
Total	2314

Source: Preliminary, unpublished results of the Female Rural Labour Survey. CPO, Sanaa.

At first glance this suggests substantial under- or un-employment of female rural labour in a situation where agricultural labour is "scarce", indicating that the problem

of agricultural production cannot be approached from the perspective of either economic opportunity cost or absolute constraints on the availability of labour. Before that conclusion is reached, however, it is worthwhile investigating the true character of female "unemployment" to ascertain whether "unemployment" is an index of actual activity, an expression of disinclination to work in agriculture, or a disguised result of the particular situation of women in social production and the material organization of their activities.

It is sometimes suggested that this relatively low nominal rate of female agricultural labour force participation is determined either by the effects of the remittance system or by cultural factors. Without discarding these explanations entirely, their power is probably limited. While remittances have led to a substantial increase in disposable cash incomes within Yemen, the per capita level of income including remittances is reported to be in the range of only $500-600 per capital per annum. Furthermore, this income is probably not distributed equally. Many migrants from the least advantaged groups in Yemeni society do not obtain particularly remunerative employment abroad, and cannot send large amounts of money to their families (there is probably a direct relation between income earned abroad and income of family of origin). In this context, the argument that remittance income has allowed the withdrawal of female labour from agriculture, while perhaps true in some individual

cases, is probably misleading for the overall situation. Equally, reference to cultural factors is not particularly convincing when official statistics show as many as 45 per cent of women engaged full time in agriculture.

A more fruitful approach to the issue of female labour supply to agriculture parallels that adopted for men, i.e., analysis in terms of alternative demands upon and opportunities for the allocation of labour time -- which involves placing female agricultural activities in the total structure of productive and reproductive systems in the rural areas. As was noted above, Yemeni women (like women elsewhere) are inserted simultaneously in at least two systems of production: the system of agricultural production and the system of domestic reproduction -- it being possible that the organization of necessary activities in the latter acts as a major material constraint upon the development of activities in the former.

B. The Organization of the Female Domestic Labour Process

At this point there are no fully elaborated studies of the organization and position of female labour within the agricultural and domestic systems. The only circulated reports available are very area specific and of varying vintage, and consequently cannot be taken together as an absolutely precise survey of rather diverse conditions at a single point in time. Notwithstanding these necessary reservations about the level of data accuracy and

representativeness, there is substantial consensus among reports on the fact that production within the domestic system of reproduction is extremely labour intensive. As was noted above, the most time consuming necessary activities performed by women in the domestic system are: food preparation; fuel collection; and water collection.

Food preparation involves both the pre-processing of agricultural raw materials (e.g., grinding grains) and cooking. The time involved in the former seems to have fallen somewhat in recent years due to the widespread dissemination of mechanical mills. Cooking, however, is still time-consuming. Myntti (op. cit.) refers to women spending "several hours a day" in smoky kitchens. More precisely, it was estimated that at least three female labour hours were devoted to cooking -- not counting that expended on the evening meal. While other studies do not attempt quantification, these approximations are not inconsistent with their reports. It should be noted that the length of time devoted to these activities is in no small measure an expression of the use of low thermal energy fuels such as branches, crop residues, and, to a lesser extent, animal dung -- which require both greater time to cook and greater attention to maintaining the fire. Although Myntti's observations date from the mid-1970's, there is little reason to believe that the situation has changed dramatically. A joint World Bank and UNDP report on the energy sector in Yemen published in 1984 (World Bank/UNDP, Yemen Arab

Republic: Issues and Options in the Energy Sector. 1984) reported that about 3,000,000 tons of wood is cut and used as fuel each year, "essentially all of it by households." Even expressing consumption in t.o.e. values, the predominance of wood as household fuel is impressive. Compared to household consumption of 1,350,000 t.o.e. of wood, annual t.o.e. consumption of kerosene and LPG amounts to only 95,000. That is, the latest report indicates that wood is fourteen times more important as a domestic fuel source than kerosene and LPG. Refering to household cooking and baking needs alone, the report found that in 1982 93 per cent of requirements were serviced by fuelwood and residues.

The labour-intensity of the use of wood and residues in the food cooking process is paralleled by the labour intensity of the process of its collection. Although some commercial production and distribution of fuel-wood is reported from the Southern Highlands, where the remarkably high prices obtained express both the centrality of the fuel in the domestic process and its increasing scarcity, it appears that the norm in the rural areas is domestic collection of fuel. In a situation where increasing population and overcutting of standing wood has reduced the availability of fuel in the immediate area of population settlements, it is probable that collection time is great and has increased. On the basis of a recent USAID report (USAID, Agricultural Sector Assessment, Sanaa, 1982), 5 female labour hours are expended on each wood-gathering expedition. However, such forays are not

daily. Working on approximate figures supplied in the report, it seems that average family fuelwood consumption per day is in the region of 10 kilogrammes. The average collection rate per hour is approximately 3 kilogrammes. Consequently the average daily amount of female labour time expended in fuelwood production is approximately 3.5 hours. In the area surveyed about 25 per cent on average of consumed fuelwood is purchased (costing as much as 25 per cent of family income), leaving a daily average fuelwood collection rate of about 7.5 kilogrammes. In this average situation, time devoted to fuelwood collection is still 3 hours daily.

Among the domestic tasks performed by women, the single most time consuming appears to be water collection, which, in unimproved conditions is from cisterns, springs, wells, and wadis. Not surprisingly there is no national survey of labour time expended in this activity, but quite detailed information has been gathered for Bayt Sufi, Bayt Shahadi and Bayt Showtir (Richard Tutwiler, Christine Ansell, et al., Social Aspects of Water Distribution and Consumption in a Sub-District of Mahweit Province. ASTC, Yemen, 1980). The average consumption of water in these areas is 152.5 litres per day per household. The carrying capacity of adult women is one full 20 liter container per trip, the average duration of which is 0.75 hours. On the basis of these parameters, furnishing each household with water for human and animal consumption requires an average of about 7.5 trips per day, absorbing approximately 5.6 hours of female adult equivalent

labour. The time required is halved when donkeys can be used for transporting water (donkey carrying capacity is two 20 litre containers), but this form of transport is available to only 23 per cent of households. Of course, these figures are not necessarily representative of the country as a whole, but they are consistent with earlier impressionistic estimates of the expenditure of between 5 and 7 hours of female labour. Moreover, the situation has not improved dramatically in recent years: the World Bank reports that in the early 1980's only 14 per cent of the rural population had access to improved water supplies (see Table 11). Direct labour time expended on water collection is evidently rather great, in addition to which there is a hidden induced expenditure of labour time in sickness and care for the sick derived from the carrying of heavy loads over rugged terrain and consumption of water from unimproved sources.

Table 11. Rural population served with improved water supplies in the Yemen Arab Republic.

Year:	1975	1980	1982
Percentage of population served:	4.7	11.1	14.0

Source: World Bank, Yemen Arab Republic Water Supply and Sanitation. 1983.

C. Costs and Benefits of the Current System of Labour Allocation

Analysis of the problem of the supply of labour to the agricultural sector uncovers an entirely different set of constraints and allocation alternatives between male and female labour in the rural areas. In relation to male labour, the major constraints are alternative income generating activities yielding high rewards relative to average income derived from agricultural production. The opportunity cost of inducing male labour reallocation to agricultural production is high. For female labour, the situation is rather different. The availability of female labour for agricultural production is constrained by the necessary allocation of large amounts of household female labour time to non-income generating activities which appear to absorb inordinate quantities of labour time because of the absence of relevant private and social capital. Potential agricultural production is being foregone (with the necessary impact on levels of food imports) because of the devotion of female labour to cooking, collecting fuel and collecting water. This is not necessarily the most rational allocation of what has become a scarce factor of production from the point of view of development policy. From the point of view of the household such activities and the time allocated to them are rational: the activities are necessary to household reproduction, and the time allocated to them is justified by the necessity. In many cases it is fruitless to discuss the factor of "choice" in relation to this labour allocation because of the absence

of viable alternatives.

Given the clear impact of agricultural production upon overall development, there is a strong case to be made for analyzing the potential benefits to be gained from generating alternative possibilities for female labour allocation. As we have seen, female labour appears to be the area of lowest opportunity cost in terms of income in which labour reallocation to agriculture could take place -- and here the major task seems to be the creation of the possibilities for a shift from non-income generating to income generating activities. In this context, programmes supportive of the agricultural sector must be geared to the specific requirements of liberating female labour -- which in this case must address the organization of the labour process in the sphere of domestic reproduction. Just how important the organization of this sphere of production weighs upon the potential supply of labour into the agricultural sector can be appreciated just on the basis of evaluating the labour time devoted to just the three major domestic tasks analysed above in relation to the total stock of household female labour. According to available information in the average household cooking accounts for approximately 3.0 female labour hours per day; fuel collection accounts for approximately 3.0 hours; and water collection accounts for approximately 5.5 hours. Total female labour time expended by each household in these tasks thus amounts to approximately 11.5 hours daily (see Table 12). This figure has to be

compared with total labour time available for activities in all productive and reproductive systems to judge its possible effect on the agricultural labour supply.

Table 12. Approximate daily labour time required for major domestic tasks, per average rural household.

Task	Time (hours)
Cooking	3.0
Fuel collection	3.0
Water collection	5.5
Total	11.5

D. Women in the Rural Household

The basic unit of agricultural production in Yemen is typically the household, and it is in relation to household requirements that the time required for domestic reproduction has been calculated. As anywhere else, the statistical construction of an "average" rural household necessarily strays somewhat from highly differentiated conditions. As an illustrative exercise, however, it is not without its uses. For the sake of simplicity, the "average" Yemeni rural household might be represented as containing eight members. These are: one senior adult male; one senior adult female; one "junior" adult male; one "junior" adult female; one adolescent male (between ages of 10 and 14); one adolescent female (in the same age group); one male child; and one female child. According to the estimation that approximately half the adult, working-age male population is absent at any given time, the "junior" adult male must be taken as

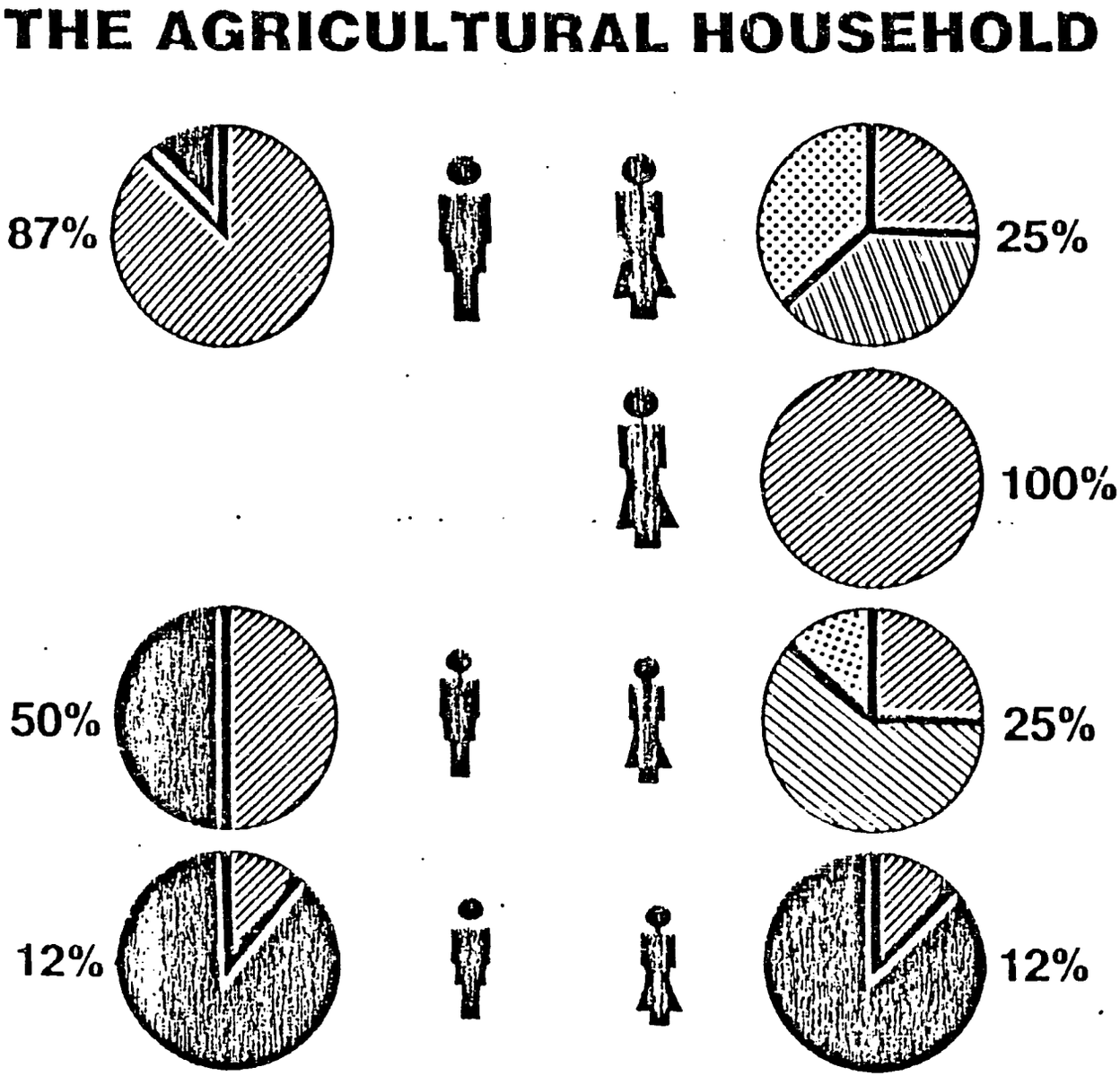
effectively absent from the local household labour force. On an ongoing basis, then, the household has approximately seven resident members. On the female side, there are two full adults and one adolescent of indeterminate "adult equivalency".

Among these three females (two adults and one adolescent) the entire daily burden of the 11.5 necessary labour hours devoted to cooking, fuel collection and water gathering must fall -- in addition to other domestic tasks not stipulated here. Without entering into a discussion of the actual length of the female work day (which in most of rural Yemen must gain its absolute limits from the number of hours of daylight), it is clear that domestic tasks must absorb more than one adult equivalent working day per day, i.e., must absorb at least half of available female adult labour -- in addition to a portion of the work day of the adolescent female. This estimate is somewhat lower than that offered by Carapico and Hart, who argue that at least two women are needed for domestic chores -- and part of the labour of a third (Sheila Carapico and Sharon Hart, The Sexual Division of Labor and Prospects for Integrated Development ..., USAID, Sanaa. 1977). In the best case, only one full adult labour day and portions of the day of the other adult and the adolescent females, with these portions amounting to no more than 25 per cent of the available time of each, will be available for agricultural production. No more than 50 per cent of female labour time can be devoted to income

generating activities (for a hypothetical breakdown of distribution of household labour time by family member, see Graph 5). The absence of the "junior" adult male reduces available adult household labour by 25 per cent; just three major tasks in the sphere of domestic reproduction reduce the remaining stock potentially available to agriculture by almost 30 per cent. In fact, the result of this calculation comes very close to the figures reported in the 11 province agricultural census. Our calculation allows for a maximum possible full-time involvement of adult female labour of approximately 50 per cent. The census shows approximately 45 per cent of women engaged full time in agriculture. The implication is that problems in the supply of female labour to the agricultural sector do not derive from remittance-based "affluence" or cultural factors, for involvement is already very close to the possible ceiling allowed by the present organization of domestic reproduction.

According to our analysis, the lowest opportunity cost supply of labour to augment the agricultural labour force is female labour engaged in domestic reproduction. On the other hand, the products of labour in the domestic system must continue to be available to households. It is possible to offer an approximate figure for labour time that could be liberated in the domestic system if an alternative system of production of inputs required for domestic reproduction was developed -- it being understood that provision of these inputs must be maintained. Myntti (op. cit.) suggests that if an adequate

Graph 5. The composition of the agricultural household and the allocation of labour time among its members.



Legend: Circle represents working day. Heavy diagonal stripe area is agricultural work. Diagonal double-striped area is fuelwood collection. Dotted area is domestic work. Lighter striped area is water collection. Shaded area is "other".

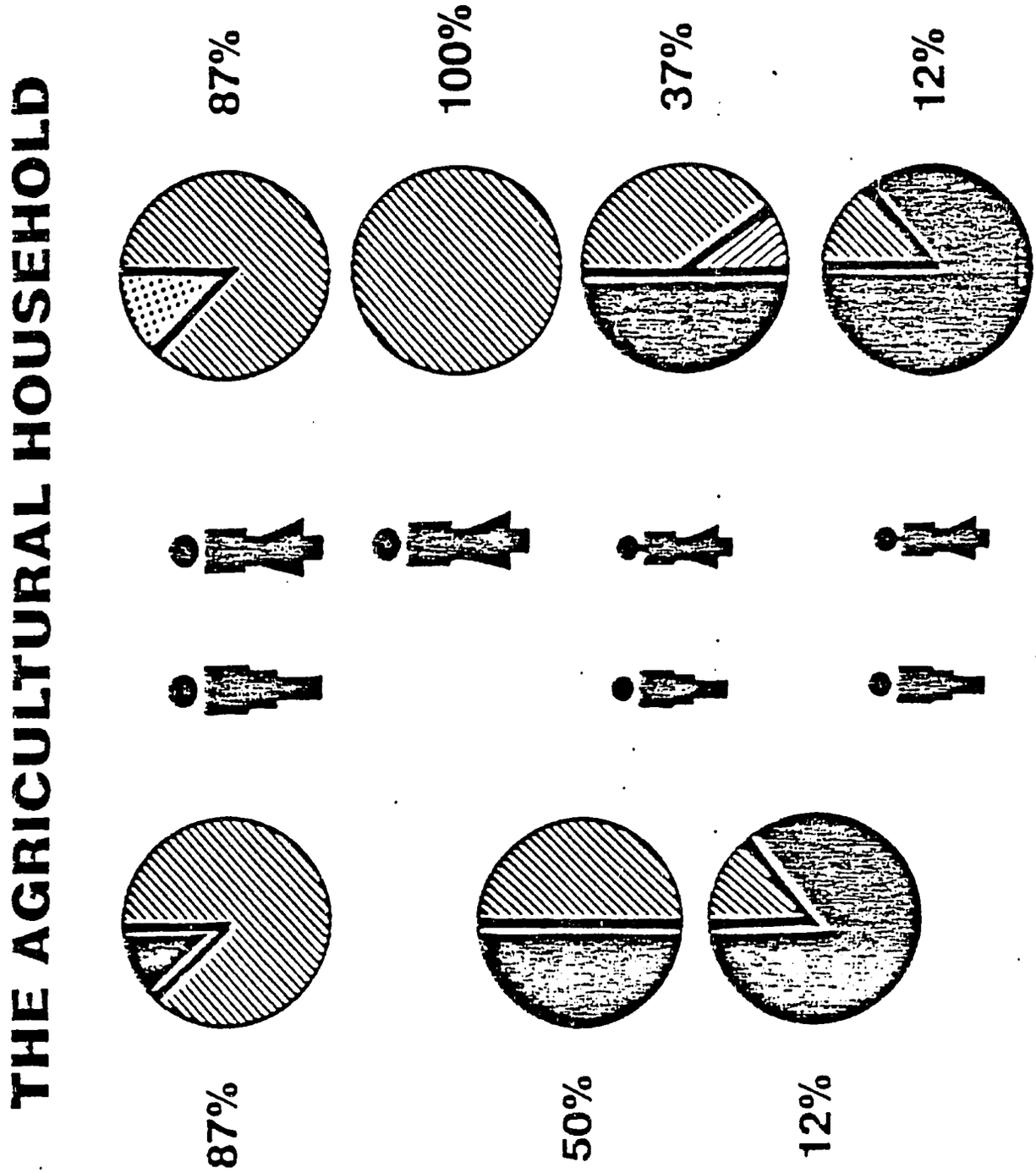
supply of domestic butagas were provided, cooking time could be reduced from 3 hours to 0.5 hours. Studies on domestic water use indicate that with the provision of improved water supplies (not including water piped to the household), labour required for water collection could be reduced from 5.625 hours to 1.2 hours, a saving of 4.425 hours per day. Availability of butagas or kerosene could theoretically reduce time spent in fuel collection from 3.0 hours to nothing. Taken together, a programme providing access to improved water supplies and creating a distribution network for alternative fuels could eventually save nearly 10 female labour hours per day in the system of domestic production -- without sacrificing the input of necessary products to the household (see Table 13).

Table 13. Approximate daily labour time required for major domestic tasks, per average rural household -- current and improved conditions.

Task	Current Time(hours)	Improved Time(hours)
Cooking	3.0	0.5
Fuel collection	3.0	0.0
Water collection	5.5	1.2
Total	11.5	1.7

Were this labour devoted entirely to agricultural production (including such household centred agricultural activities as poultry raising), the supply of female labour to agriculture could be increased by 100 per cent. In this context, it would

Graph 6. The composition of the agricultural household and the allocation of labour time among its members -- improved conditions.



Legend: as in Graph 5.

not be unrealistic to expect an actual increase in the female agricultural labour input of 50 per cent, which would still allow greater free time to the adolescent female for the purpose of education -- and would still raise the total supply of labour to the agricultural sector by nearly 30 per cent (for a hypothetical distribution of female labour time saved from necessary domestic tasks, see Graph 6).

Gradually raising the female labour supply by 50 per cent up to the year 2000 has a significant impact on the overall supply and demand situation for foodstuffs. Production rises from 5.3 billion rials to 6.3 billion rials, reducing the deficit approximately 30 per cent to 2.3 billion rials. However, it is possible to project an even greater increase in production. The initial supply curve for male labour was raised by 2.5 per cent per annum to account for the effects of education and extension services. This increase was not applied to female labour because of the low level of female access to these services -- a situation determined, in part, by the heavy time requirements of female domestic and productive activities. If, on the basis of liberation of time for access to education, extension services, etc. (a possibility allowed by the hypothetical time reallocation for improved conditions), female productivity was to rise at the same rate as male productivity, the combination of increased female time and more productive female time would almost entirely eliminate the projected deficit. Food supply would increase from 5.3 billion rials to 8.3 billion rials, with a

In situations like Yemen, where women constitute both an important current element of the agricultural labour force and the most cost effective pool of additional labour, it is equally clear that existing sectoral support should be scrutinized for its gender-specific effects. In Yemen there does exist a rudimentary agricultural extension system, and our projections of production assumed its further development. However, reports indicate that its activities are essentially restricted to male agricultural producers. From a strictly economic point of view, there can be no a priori rationale for this restriction. If an increase in agricultural productivity is important for the attainment of overall development goals (not least for limiting food imports), then it would appear illogical to exclude female labour (which supplies at least half of all agricultural labour) from productivity enhancing activities benefits (including general education). Maintaining -- on principle -- a large part of a crucial factor of production at a lower than necessary rate of productivity contradicts the need for optimal usage of scarce factors of production. In the case of Yemen, it was estimated that in unmodified conditions foodstuff consumption would consistently outstrip domestic production, generating an increasing absolute burden upon the external balance. There remains a gap even in the case of the liberation of female labour from part of the burden of domestic reproduction. However, if the male-oriented extension service were also made available to female producers, and an equivalent rate of productivity increase

were assumed, the gap would disappear. That is, what appears at present to be an inevitable widening of the gap between production and consumption curves could be entirely eliminated on the basis of even limited female responses to investment in social infrastructure in the countryside and a mere equalization of the provision of extension services. While it is not at this point possible to provide an analysis of the historic costs of such a programme, the potential benefits are clear -- i.e., the elimination of the "drag" of a traditional sector upon the development of modern sectors -- at minimal cost in terms of the opportunity cost of labour.

F. Female Labour and the Natural Resource Base in Agriculture

The price of neglecting a cost effective and mobilizeable pool of labour in the agricultural sector is not to be measured only in terms of loss of potential current production. As was noted above, the Yemeni agricultural system has been based historically upon a delicate equilibrium between production and preservation, which was made possible by a relative surplus of labour. The withdrawal of a large contingent of male labour has negatively affected this equilibrium, with potentially serious long term consequences.

The productivity of land in the traditional system was based upon the maintenance of land and water retention structures on each particular plot, and upon the same activity on many

other plots -- in as much as the productive value of any particular plot was to some extent dependent upon the condition of the plot above it in the vertical system in a situation where the "natural" tendency is towards erosion of land in the terrace system and a resulting increased velocity of water run off down the mountain slopes. Not only did the lower terraces to some extent depend upon the maintenance of the upper terraces, but the lower, spate-fed systems also depended upon the terrace system as a whole. Any tendency towards deterioration of the terrace system would increase the velocity of the water run-off in the spate system, as well as raise the wadi bed level by deposit of eroded soil from slopes, the net result of which is an increased propensity towards severe and destructive periodic flooding and water loss. Furthermore, the entire system relied to some extent upon the preservation of non-cultivated rangeland at the top of the system. Overcropping of ground cover increased the velocity of water run-off onto the terrace system, and threatened the replenishment of aquifers feeding spring-irrigated agriculture.

For a number of reasons the withdrawal of male labour threatens to put this system in peril. The abundance of male labour which was the basis of the construction and maintenance of stone water and soil retention barriers, and of the ongoing "topping up" of the terraces to compensate for soil claimed by water, wind and gravity, no longer exists -- with a consequent very visible deterioration of the physical

infrastructure of terraces in many areas. Maintenance of the terrace system is based, however, not only upon inputs of relatively specialized labour into physical structures, but also upon its continued productive use. Agricultural production on terraces both stabilizes soil and increases water retention -- to the benefit of productivity and system maintenance. Although there is available no information on the maintenance of physical infrastructure, there is evidence that the area of land under cultivation is shrinking. According to the Six Province Agricultural Census published by the Ministry of Agriculture and Fisheries in 1981, an average of 16.6 per cent of land in agricultural holdings in Dhamar, Hajja, Hodeidah, Ibb, Mahweit and Taiz was classified as abandoned (see Table 14). By abandoned land, we take to mean land that had been under cultivation but which is now considered permanently out of use (as opposed to temporarily fallow). Given that land in the traditional system was extremely valuable, and that even the most marginal lands were put under production as a result of the "labour rich" character of the system, "abandoned" land must be counted a new phenomenon. If we take the census results as refering to 1980 (the Census was conducted at different dates in the different provinces) and the serious onset of abandonment as 1974, the annual rate of land abandonment was approximately 2 per cent per annum.

Table 14. Area of agricultural holdings by land use -- aggregate totals for Dhammar, Hajja, Hodeidah, Ibb, Mahweit, Taiz.

Land use	%
Field crops	68.8
Permanent crops	6.7
Temporary fallow	6.7
Abandoned land	16.6
Other uses	1.2
Total	100.0

Source: MAF, Six Province Agricultural Census.

It is not to be expected that the rate of land abandonment is equal throughout the system. Rather, it is to be expected that abandonment proceeds most rapidly in those parts of the system yielding the lowest net returns to the producer -- particularly drier up-lands. This is indirectly confirmed by cultivated area and production statistics for individual crops. According to the Central Planning Organization (CPO, Statistical Yearbook, 1983. Sanaa, 1984), land under sorghum and millet cultivation fell from 1,060,000 hectares in 1975 to 697,100 in 1981 (a fall of 34 per cent), while production fell from 785,000 metric tons to 635,000 metric tons (a fall of 19 per cent). Loss of land under cultivation was most marked in the low value crops (i.e., sorghum and millet), and in the most marginal of their production areas (as indicated by the rise in per hectare productivity with shrinkage in total area under cultivation).

While some of the loss in sorghum and millet under cultivation (which is a major contributor to the rise of wheat imports -- between 1976 and 1981 sorghum and millet production fell by 150,000 metric tons. According to the United States Department of Agriculture 377,000 metric tons of wheat were imported into Yemen in 1981) is attributable to a switch in land use to more profitable crops, much must be attributed to discontinuation of land use (hence abandonment). With emigration restricting the availability of household labour, it is evident that both terrace maintenance and land use must suffer. The restricted supply of labour induces allocation of labour to areas of greatest return -- to the exclusion of marginal, upper terraces. This is true even where the absence of male labour is relative rather than absolute. Where supplementary male labour is available (on a wage labour basis), the high cost of this labour makes its application to marginal areas most unlikely. Much the same is true of infrastructure maintenance. The shortage of labour will determine its allocation to immediately productive activities, which, combined with the shortage of the specialized labour needed for dry-wall construction and maintenance, must necessarily give rise to neglect of infrastructure whose implicit product is rendered only in the long term.

It is highly probable, then, that the restricted supply of male labour and the necessary devotion of a large percentage of rural female labour to domestic, non-agricultural tasks is

leading to deterioration of marginal upper terraces. It is also probable that it is having a serious impact upon range land ground cover. The range provides at least two inputs to the agricultural and domestic systems. It is a source of fuelwood and a source of fodder for animals. The decline of sorghum and millet production on marginal lands affects both of these uses. As production of sorghum and millet declines, the availability of crop residues for use as fuel also declines -- leading to greater pressure upon rangeland for fuel supplies. The leaves of the growing sorghum and millet plants are also, when stripped from the plant and chopped by women for hand-feeding, an important food source for livestock. Again, declining availability of this either leads to a reduction in animal holdings (which is to be avoided, given the high value of animals) or increases recourse to rangeland for animal feed (which very severely restricts the regenerative capacity of the range with regard to fuel wood). Although population pressure is also no doubt playing its part, the result of this is major strain upon range land vegetation. According to the World Bank/UNDP energy sector study cited above, only about 25 per cent of the annual cut of wood grows back each year.

The combination of deforestation and inadequate terrace maintenance in part determined by the current shortage of agricultural labour has major potential effects upon the long term land base and its productivity -- effects which may have been masked in recent years by abnormally low levels of

-- thereby diminishing aquifer replenishment and raising the rate of runoff onto the terrace system. It lowers the efficiency of the upper terraces in controlling erosion and intermittent flooding in the system as a whole -- involving both a loss in land base and in average land productivity. In terms of social capital stock this is potentially an extremely serious situation. The effective land base has been constructed on the basis of inputs of human labour over many centuries -- thus representing a large, long accumulated capital stock. This, in the absence of sufficient maintenance, is threatened by gravity: it is in peril of gradual collapse, and of being washed to the sea -- it being understood that reconstruction of the system ex nihilo would absorb a vastly disproportionate amount of labour relative to ongoing maintenance. Given the tremendous costs that would be incurred by feeding the population on the basis of imports in a situation where expansion of exports is not an immediately viable proposition, this possibility should be of concern to all long-range policy making.

At present the effects of erosion of the land base are being masked by the introduction of new means of production into portions of the agricultural system. The very rapid expansion of pump well irrigation has allowed a rapid increase in the productivity of directly affected lands -- offering the possibility of levels of production per hectare two and even three times above traditional levels. The number of pumps in

operation is not reported in the agricultural census, but the number of holdings with pump well irrigation is 23356 for the whole country (approximately 12.5 per cent of all holdings). These irrigate 118,904 hectares (as opposed to only 37,000 in 1976). However, in spite of the fact that 11.6 per cent of cultivated land is now under high productivity pump irrigation, and in spite of an observed shift towards high value crops, agricultural GDP (at constant prices) rose by only 11.5 per cent between 1975 and 1981 -- i.e, at an annual rate of between 1.5 and 2 per cent (see Table 15). This suggests that the expenditure of foreign exchange on drilling, pump equipment and fuel barely served to compensate for a decline in production arising from labour shortages in the agricultural sector (and attendant land abandonment and under-utilization). The "modern route" to expansion of an import-substituting sector also involves a long-term commitment to importation of means of production. In the absence of an attempt to better utilize existing labour reserves this will mean an ever increasing expenditure of foreign exchange.

Table 15. Agricultural GDP at constant 1976 prices. Millions of Yemeni Rials.

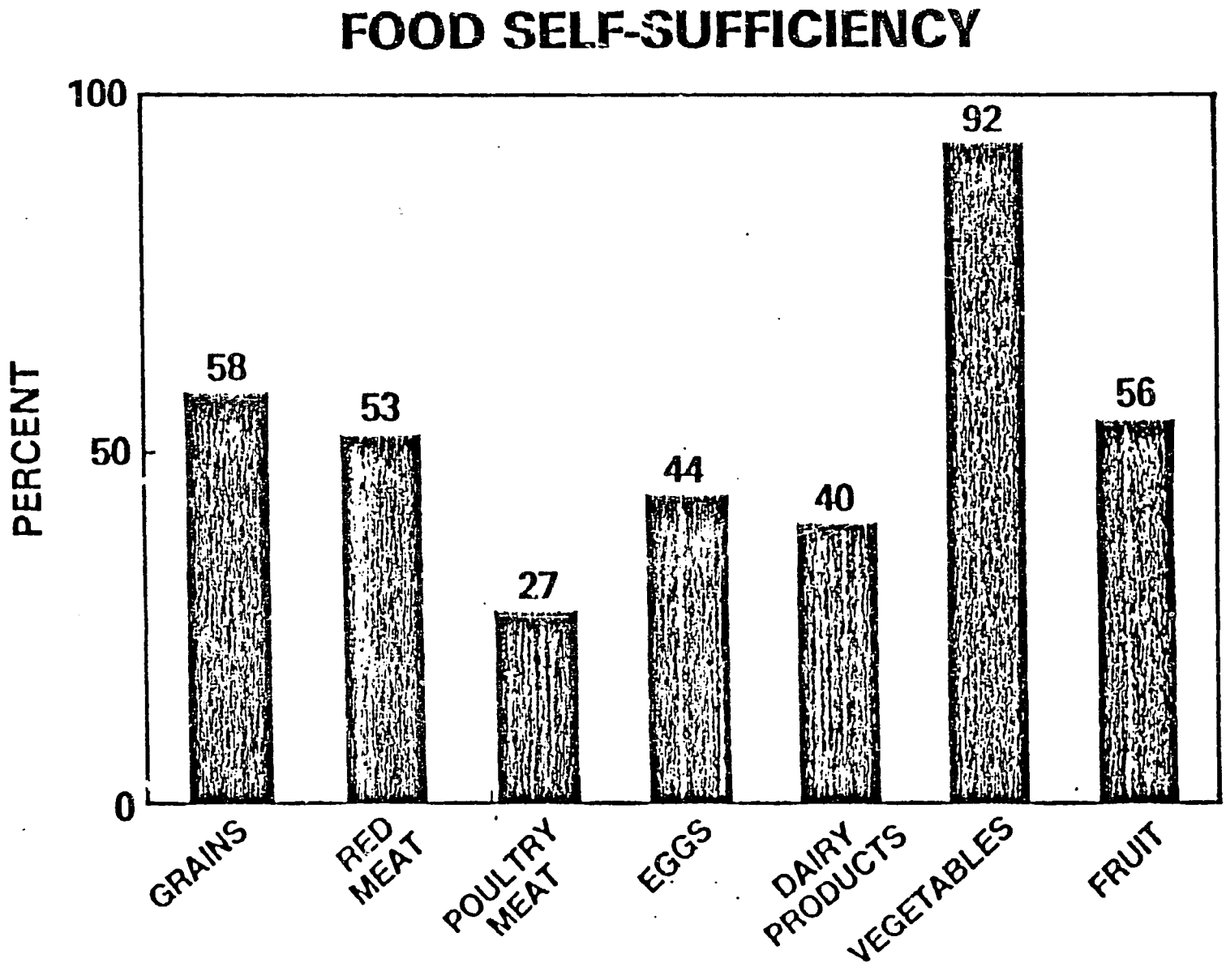
Year:	1975	1976	1977	1978	1979	1980	1981
GDP:	1953	2011	1850	1653	1926	2008	2177

Source: World Bank, World Tables.

A very approximate estimation of cost indicates just how serious this might become for the external balance. Taking the area of land under pump-well irrigation as approximately 120,00 hectares, and taking the average area efficiently irrigated by the type of pumps in use in Yemen as 2.5 hectares, the number of irrigation pumps in Yemen must be approximately 48,000. Given the high rate of depreciation of equipment in Yemen and the high cost of fuel (all of which is imported), a fairly modest estimation of the annual foreign exchange cost (operating and capital cost) of operating a pump-well in Yemen is $2,500. The total annual foreign exchange cost of pump-well irrigation must, therefore, be in the region of $120 million, or 720 million Yemeni Rials at the current rate of exchange -- or over 10 per cent of the entire annual remittance income.

In a certain sense, the relative stability of agricultural GDP in face of rising investments in irrigation equipment is equivalent to a substitution of scarce labour in marginal producing areas by capital equipment in different areas closer to the major underground aquifers. The foreign exchange earned by migrant labour allows and calls forth investment in imported equipment objectively substituting for that labour. The very rapid rise in projected demand for foodstuffs, however, indicates that under existing conditions satisfying demand on the basis of even the present factor mix would increase the percentage of remittance income devoted to agricultural equipment. Moreover, should present conditions

Graph 8. Indices of self-sufficiency by major agricultural commodity.



also be a reflection of the deterioration of rangeland groundcover and its effects upon underground reserve replenishment.

Continuation of the current system of agricultural production in Yemen threatens the long term ability of the system to respond to the increasing demands placed upon it. The social and individual economics of pump-well irrigation dictate an increasing future concentration in high value food items, which will require heavy foreign exchange expenditures for means of production. This may or may not be a rational allocation of foreign exchange, for the prices to which internal producers respond are kept artificially high by import restrictions -- in general, the type of production that import restrictions have called forth in Yemen are themselves relatively intensive in imports (e.g., the case of industrial fresh chicken production). On the other hand, the sectors of basic, traditional crops appear to be entering secular decline, with labour shortages giving rise to lower levels of utilization of rainfed lands. Combined with the marked overcutting of rangeland ground cover, the situation in areas of traditional production is serious. The underlying trend towards erosion threatens the gradual collapse of the constructed eco-system and a fall in productivity of the lands that are kept under traditional forms of cultivation. This loss is measurable not only in terms of current production, but also in terms of the basis for future production.

The economics of pump-well irrigation, limitations of markets for high value agricultural products, and the price premium upon all local products suggest that in the medium and long term greater private agricultural investment will be directed towards more traditional crops. However, current neglect of the maintenance of the productive base threatens to lower the capacity of the productive base itself by deterioration of the system of structures which have endowed it (through human labour) with its historical productivity. If current trends are allowed to continue, greater investment in traditional production areas will take the form not of modified techniques upon terraces, but mechanization in low productivity dry slope agriculture -- with very limited potential for meeting the demands of increased national demand for basic subsistence commodities.

In this context, measures to release more female labour for agricultural production have a double significance. On the one hand, it would allow an increase in production on the basis of a factor of production with low foreign exchange opportunity cost and with a minimal import quotient in its own maintenance. On the other, both this expanded production and the measures employed to allow it would have a stabilizing influence upon the historic agricultural resource base. Greater production on marginal lands, currently curtailed by shortages of labour available for agricultural production, would contribute to at least a diminution of the rate of terrace deterioration. And the provision of

alternative fuels as a means of liberating female labour would have the effect of vastly reducing the rate of rangeland deterioration. The maintenance of the Yemeni agricultural eco-system depends upon a relatively high level of usage of the terraces and a relatively low level of usage of rangelands. Currently, the proper ratios are reversed: use of rangeland is high; use of terraces is falling. Adequate policy intervention at this point could reverse these tendencies with positive effects upon the present and future reliance of the country upon food imports in a situation where the availability of foreign exchange is the sine qua non of modern sector expansion.

G. The Macro-Economics of Women in Agriculture

The above is not to argue that women should be shackled to low productivity sectors of agriculture to maintain the integrity of the eco-system and overall agricultural productivity. On the contrary, future economic development will probably give rise to alternative, higher income labour opportunities for female labour necessitating effective retreat from low return areas of agriculture. However, at present, a very substantial amount of female labour is devoted to the production of goods and services which are necessary, but which yield no income.

What is necessary here is not the time devoted to the production of domestic inputs, but the inputs themselves. Given the possibility of alternative means of providing the

same or equivalent domestic inputs, the current level of input of female labour into domestic tasks cannot be deemed absolutely socially necessary. There is an implicit choice between different allocations of female labour -- between income and non-income generating activities, between production servicing the national market and production servicing only the household.

While choices regarding the allocation of labour are ultimately in the hands of producers themselves, the opportunity to choose cannot always be realized by individuals. In the case of improved water supply, for example, the opportunity to choose use of improved water access, and the further choice to devote time saved to agriculture, cannot be provided by individuals themselves because of the prohibitive costs of development of such domestic inputs on an individual basis. Individual supplies of such inputs can be provided efficiently only on a social or collective basis. Thus the role of the state -- in providing the framework for collective investment at an infinitely lower per beneficiary unit cost than private investment. While it is not viable to expect private investment to satisfy these social requirements, in Yemen it makes eminent sense for the state to undertake a more active role. The returns from greater expenditure of female time in agriculture would not, in a situation where the household has to privately develop alternative sources of domestic inputs, justify such an investment. This situation is changed

radically with the introduction of collective investments lowering unit costs of domestic inputs -- marginal returns to agriculture can be quite low (albeit higher than the zero cash return to domestic activities), yet more labour will be put into the agricultural sector.

In this section a great deal of emphasis has been put upon the projected increasing burden of food imports upon Yemen's external balance in a situation where imports of means of production will continue to furnish much of the material base of Yemen's economic modernization. On the assumption that problems of labour supply give rise to many of the agricultural sector's current and anticipated problems, the opportunity cost of providing additional male and female labour to the sector were assessed -- with the conclusion that the cost of additional male labour might well be losses in foreign exchange (remittances), whereas the losses involved in additional female labour would be the performance of necessary tasks in household reproduction. In the current situation, both of these costs are prohibitive. On the male side, the outlook for balancing these costs are not great. There is little possibility that foreign exchange lost would be adequately compensated for by either a reduction in imports or the development of agricultural exports -- thus the option of substantially increasing the supply of male labour over currently projected levels has to be dismissed as economically counterproductive. On the female side, the cost equation can be totally transformed: with investment of

social capital in the provision of improved water supplies and an alternative fuel distribution network a situation can be developed in which the supply of female labour can be increased by at least 50 per cent without foregoing any foreign exchange income, and with historically limited expenditures of foreign exchange. Put in another way, with adequate social expenditure the labour supply to the sector can be massively increased without any detrimental effect on the provision of necessary domestic inputs and with relatively low (when amortized over the long term) imports. Looking at the benefits only from the perspective of the external account, this would almost entirely eliminate the substantial gap between production and consumption that is expected to develop by the end of the century. In this context, a programme oriented to the specific obstacles encountered by female labour in developing its productive activities in agriculture, recognizing the close linkage between ostensibly "social" programmes and national economic objectives, would appear eminently justified -- if not absolutely necessary to the attainment of national goals of economic modernization.

For the purposes of clarity of analysis, the question of labour supplies to agriculture has been put under the rubric of support for a traditional sector. This dichotomization of "traditional" and "modern" is to some extent false. As our production projections indicate, if the agricultural sector is to reduce the drag of food imports upon the development of

the modern (industrial and commercial) sectors, it must itself be modernized -- as expressed in the increased productivity factor in our projections -- albeit this does not necessarily have to take the form of substitution of national labour by imported capital. In approaching the next section, which deals with current and projected labour supply conditions in the modern sector, it must be kept in mind that what is at issue is labour supply to new areas of production and also to the process of transformation of agriculture.

III. DEVELOPMENT AND QUALIFIED LABOUR

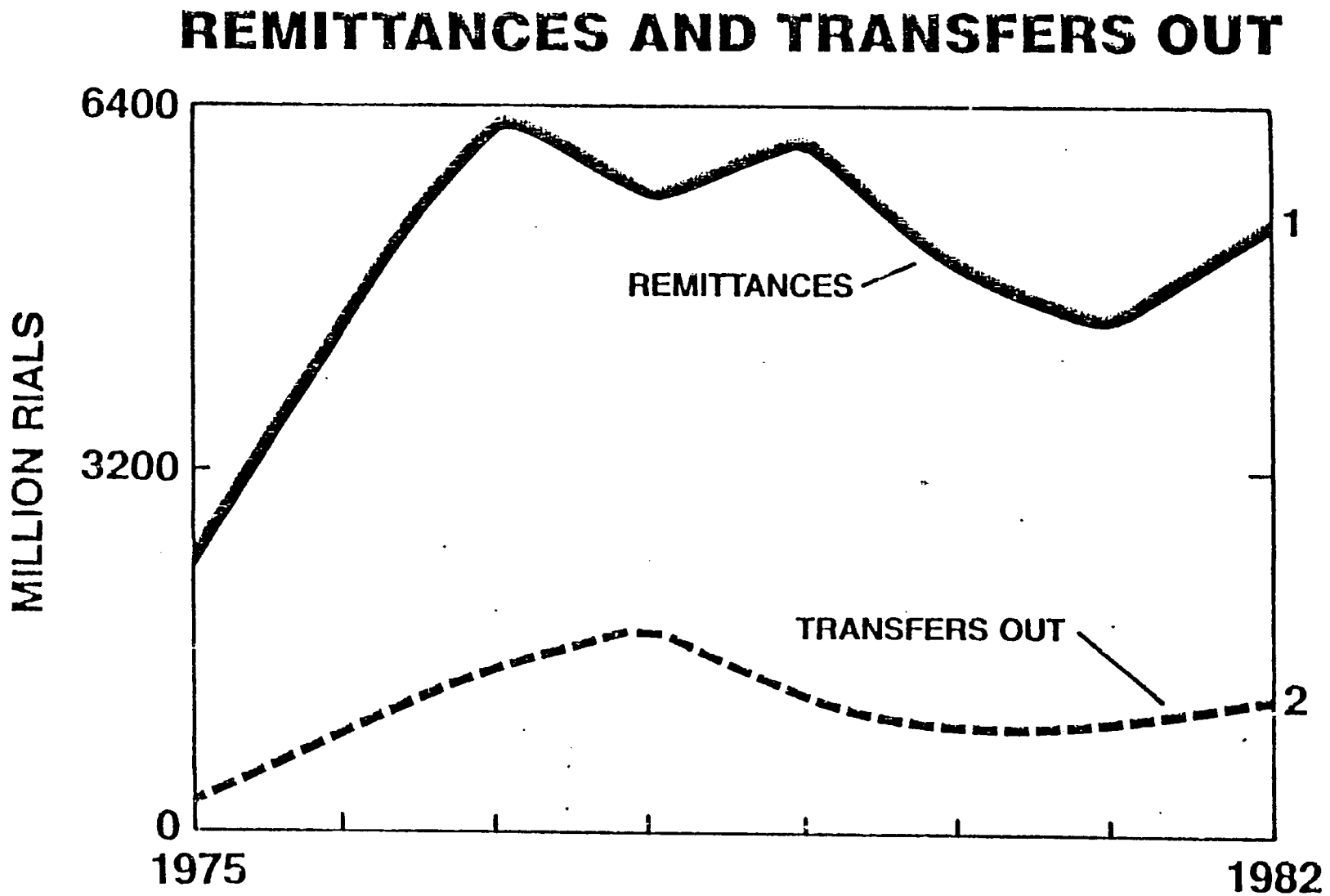
A. Productive Modernization and Changes in Demand for Qualified Labour.

The analysis so far has concentrated upon the relation between modern and traditional sectors with regard to the manner in which the performance of the traditional sector affects modern sector development through its impact upon the composition of imports and the availability of foreign exchange. In this regard, it was suggested that measures aimed at reducing the necessary amount of time spent by females in domestic production/reproduction could contribute significantly to the reduction of the anticipated major obstacle to the importation of means of production represented by a rising food import bill.

It is clear, however, that the requirements of the modern sector are not restricted to advanced means of production available largely through importation. Advanced production requires a supply of labour specifically trained to its particular requirements, which are, on the whole, quite distinct from the range of skills developed in the traditional system corresponding to its own labour needs. In any developing area the supply of qualified labour to the modern sector is problematic because of the necessary lack of complementarity between labour qualification requirements of the modern and traditional sectors -- giving rise to the need to develop modern educational systems capable of producing

labour inputs adequate to the demands of the modern sector. From this point of view, the educational sector is a sector of production of processed and semi-processed labour inputs necessary for the development of new productive sectors.

In the Yemen Arab Republic the issue of supply of appropriately qualified labour is doubly problematic. On the one hand, the very recent and rapid development of modern productive, commercial and service sectors has maximized the lack of fit between the demand and supply of qualified labour. Except in very few areas of the country there has been no extended transitional period in which a domestic supply of qualified labour could be developed to service the burgeoning demand of the last decade. On the other hand, there is a major drain upon stocks of qualified labour that are produced. When discussing the agricultural sector, it was noted that international migration of Yemeni males has generated severe labour shortages. To some extent this must also be true of the modern sector. The issue here, however, is not the supply of "labour-in-general", but the supply of particular types of labour differentiated by qualification. In this regard it is worth noting that the tremendously rapid transformation in the economies of the oil-producing states of the region has taken place on the basis of a disproportion between the growth of investible (and invested) income and population growth and between the qualification requirements of the new system of production and the available national supply of qualified labour. This is, of course the basis of



Graph 9. Entry and exit of remittances.

the large scale migratory movements in the region. But given that economic growth in these areas is particularly capital-intensive, the demand for qualified labour is particularly intense -- with the result that the attraction of migration for qualified Yemenis must be even greater than for other categories of labour.

On the one hand, then, a problem of national production of qualified labour. On the other, attrition of the national stock by migration. In the Yemen Arab Republic, the answer to this situation has been two-fold: a. importation of qualified labour to service modern sectors; and b. development of the national educational system. At issue here is the manner in which current strategies in this regard adequately address the requirements of the national development objectives.

B. The Role of Expatriate Labour

While the importation of qualified labour certainly represents one alternative for satisfying the internal demand for labour, it also contradicts the need to maximize resources available for importation of the means of production. As in the case of food imports, importation of labour reduces the rate of accumulation of the national stock of fixed, productive capital. Unfortunately, there are no available data on the overall distribution and cost of foreign labour in Yemen, but using remittances sent abroad from Yemen (see Table 16), as an approximate indicator, the foreign exchange drain of imported labour upon the Yemeni

balance of payments is equivalent to approximately 20 per cent of the remittances received from Yemeni workers abroad, which is almost the exclusive source of earned foreign exchange (see Graph 9).

Table 16. Remittance outflows from the Yemen Arab Republic. Millions of Yemeni Rials.

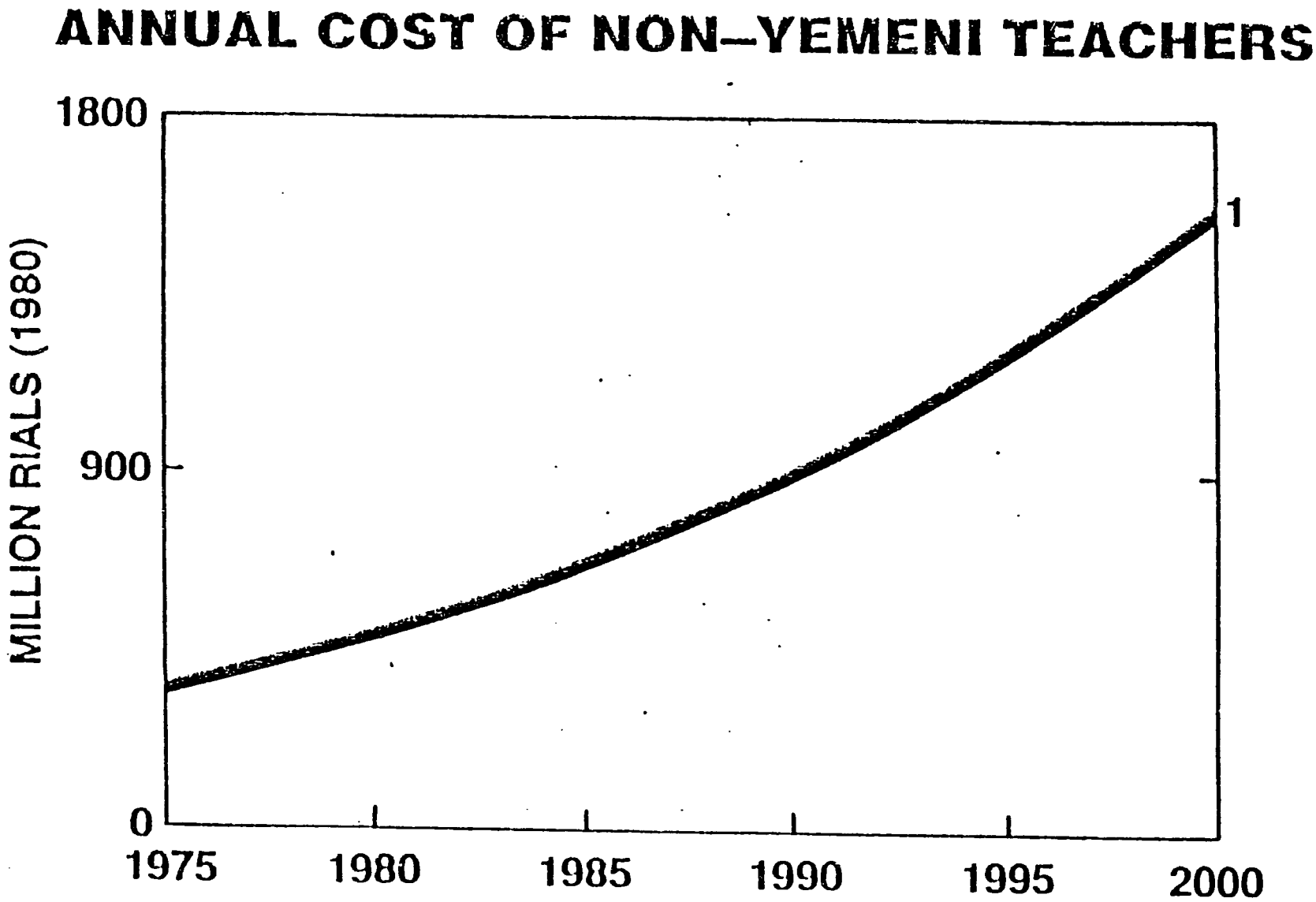
Year:	1975/76	1976/77	1977/78	1978/79	1979/80	1980/81	1981
Flow:	306	770	1446	1845	1175	888	897

Source: World Bank, Yemen Arab Republic: Development of a Traditional Economy. CPO, Statistical Yearbook, 1983.

On the basis of existing data it is not possible to give an accurate picture of the role of foreign labour in the Yemeni economy. However, relatively "hard" data for the health and education sectors are available. In 1983 41 percent of all workers in the Ministry of Health were expatriates, these being concentrated in the higher skill occupations of the sector (50 per cent of doctors and nearly 2/3 of nurses were expatriates). In the same year 87 per cent of teachers were expatriates (CPO, Statistical Yearbook, 1983).

In fact, the existing implicit foreign exchange cost of foreign qualified labour is masked by aid relations. At present the bill for the foreign teachers (predominantly Egyptian) is paid directly by Saudi Arabia, and thus does not enter into the external account directly. Assuming a constant ratio between national and expatriate teachers, a constant

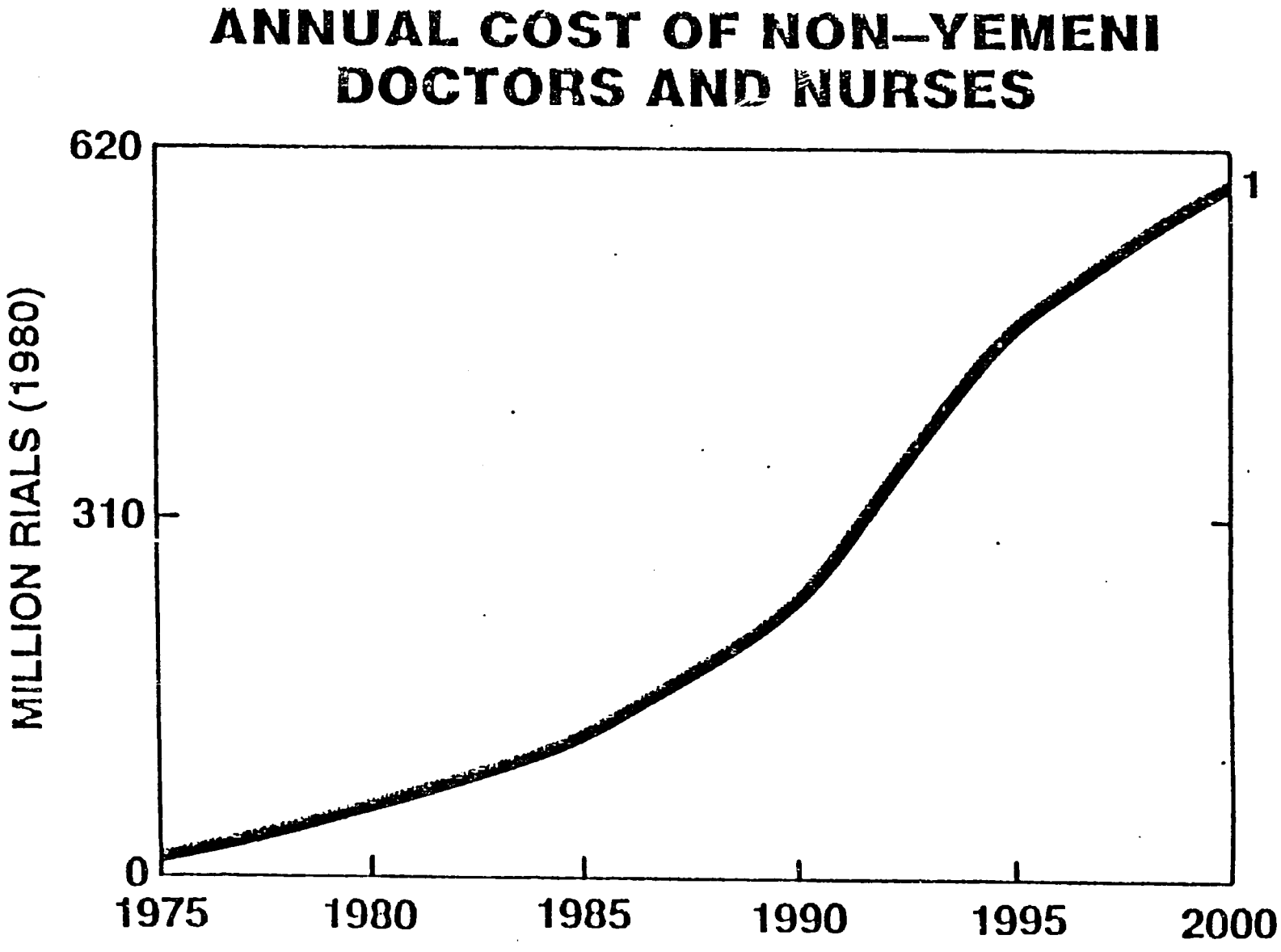
Graph 10. Projected foreign exchange costs of expatriate teachers.



ratio between teachers and students, and a rise in all male enrollment rates by 1 per cent per annum between 1975 and 2000, the number of expatriate teachers will rise to 36,000 by the year 2000. At the current per capita rate this will involve a rise in implicit foreign exchange outlay on this particular category of labour alone from 400 million rials in 1975 to 1.7 billion rials (at constant prices) in the year 2000 (see Graph 10). To put this in perspective, the figure for the year 2000 is equivalent to the entire food import bill for 1979. At present, this burden is not carried directly by the Yemeni economy, but in the case that responsibility did pass to the government of Yemen Arab Republic the existing organization of educational production would threaten the very process it exists to serve.

Similar projections can be made for the health sector. Current estimations are that approximately 12 percent of the Yemeni population has access to health care. The goal is to extend coverage to 100 percent of the population. Assuming that a lower figure of 50 percent coverage is attained by the year 2000, the number of doctors and nurses will have to rise from about 2,200 in 1983 to approximately 22,000. If the existing ratio of foreign to local is maintained, 13,000 of these doctors and nurses will be expatriates, involving costs rising from 80 million to 620 million rials (see Graph 11).

It is not possible to develop similar projections for other sectors of the Yemeni economy, but the likely path of



Graph 11. Projected foreign exchange costs of expatriate workers in the health care sector.

development of foreign exchange expenditures in the education and health sectors suggest very strongly that continued dependence upon imported skilled labour will generate an insupportable burden on the current account. In this context the development of a national education system is clearly a priority concern. However, there are indications that the pursuit of existing educational strategies will not be able to fully close the gap between demand and supply, necessarily creating a major local obstacle to the attainment of development goals.

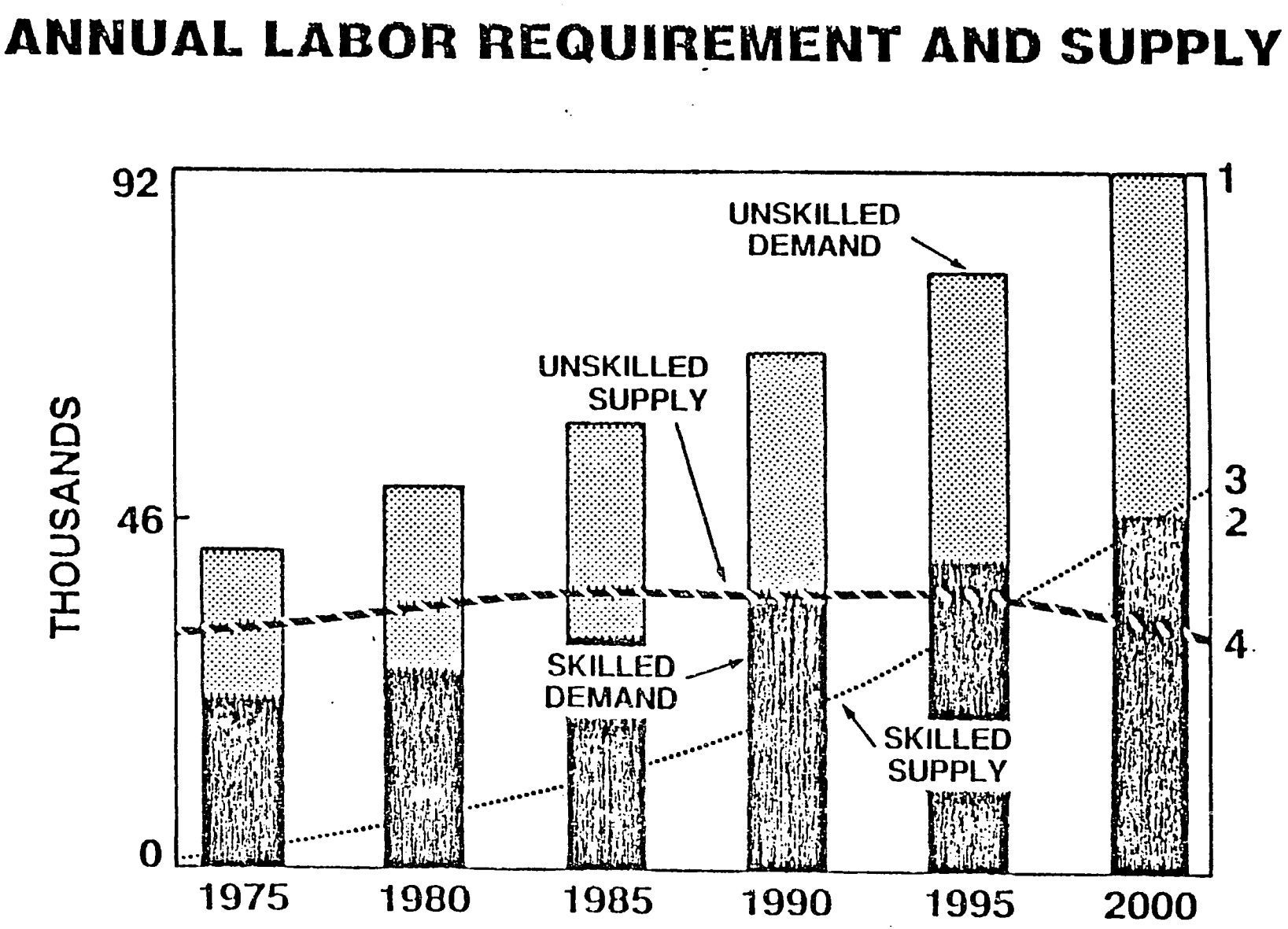
C. Education and the Supply of Qualified Labour

On the basis of currently projected labour requirements corresponding to anticipated rates of economic growth, the annual increase in demand for labour by the year 2000 will be approximately 135,000 -- representing 90,000 unskilled workers and 45,000 skilled workers. Given the goal of modernization of the process of production we assume that the minimum qualification for unskilled workers inserted into modern labour activities is primary education, and secondary education for skilled workers. Even assuming that all males of primary school age do in fact receive primary education by the year 1995, which involves an annual rate of growth of male enrollment significantly higher than the 1 percent per annum used as the basis for calculation of imported labour requirements in the education sector (the male primary school enrollment rate in 1975 was 48 per cent), the total annual increment of primary educated labourers available to satisfy

the incremental national demand in the year 2000 will be barely more than the demand for unskilled labour alone. The demand will be for approximately 90,000 unskilled labourers, the supply will be approximately 92,000 new primary educated workers. In fact, the national production of primary educated males will be considerably greater than this (perhaps twice as great), but it must be remembered that migration is currently accounting for approximately 50 per cent of males between the ages of 15 and 34, which effectively almost halves the locally available male labour supply.

On the face of it, expansion of male primary education to its logical limit by the year 2000 would at least enable satisfaction of incremental demand for unskilled labour. In fact, however, this is not the case -- for allowance must be made for secondary education, which draws from the pool of potentially available primary educated labour. Assuming the growth of male secondary enrollment by 1 per cent per annum over the period 1975 to 2000 (the rate of male secondary school enrollment in 1975 was 3.7 percent) the locally available annual supply of secondary educated males would be approximately 15,000 at the end of the period, reducing the incremental supply of unskilled labour to approximately 77,000 -- i.e., 85 percent of demand. On the other hand, these same 15,000 secondary educated entrants to the local market for skilled labour would represent only 35 percent of demand (see Graph 12).

Graph 12. Labour demand and supply projections.



According to these projections (which are, again, for workers locally available for employment), in the year 2000 incremental demand for neither skilled nor unskilled labour can be satisfied under the condition of continuation of the current general educational strategy. Either labour will simply not be available, or it will have to be imported at great cost. Under these conditions it might be most rational to expand production of secondary graduates, given that educated imported labour is more expensive than uneducated imported labour. The necessary expansion of secondary male enrollment to meet skilled labour requirements out of the domestic pool would be truly spectacular -- from 3.7 per cent in 1975 to 70 per cent in the year 2000. Moreover its impact on the supply of unskilled male labour would be grave -- being reduced to approximately 46,000, or 50 per cent of demand.

In the best possible case -- that of satisfaction of skilled labour requirements -- half of the demand for unskilled labour would go unsatisfied, and then only after an enormous (and probably impossible) effort in secondary education. It is unlikely that such an effort could be made, just as it is unlikely that the economy could afford half of its annual increment of unskilled labour being supplied from abroad. On the one hand, Yemen needs to export labour to gain foreign exchange. On the other hand, Yemen will have to import labour to satisfy the requirements of an expanding and changing economy. The situation is clearly contradictory. It is

necessary to seek an alternative source of qualified labour which neither reduces migration and remittances nor increases the foreign exchange drain represented by the importation of foreign labour.

IV. WOMEN AND QUALIFIED LABOUR

A. Women in the Modern Sector Labour Force

Much of the anticipated increase in demand for labour (according to government projections) will take place in the modern sector. Unlike in the traditional agricultural sector, labour in this sector has been performed almost exclusively by males. Detailed data on the gender division of labour in the modern sector are not available, but some indications are offered by the results of the CPO Manpower Survey in 1975. In the sector of government services only 3.7 per cent of employees were female, a figure that fell to 1.8 per cent when health and education workers were excluded. Reviewing the situation in major cities, only 4.4 per cent of the labour force was female, these being heavily concentrated in the "professional, technical and related workers" group, where they represented nearly 17 per cent of the workforce. In the category of production workers, only 2.4 per cent of the labour force was female. In 1975, at least, outside the government sector (particularly health care and education) the participation of women in the modern sector labour force was negligible. Of the universe of 85,001 members of the urban labour force surveyed in 1975 only 3,703 were women.

The situation in the countryside is even more pronounced. The preliminary results of the rural female labour survey indicate that only 1.1 per cent of women are engaged in non-agricultural activities. By contrast some 11 per cent of men employ their labour full time outside of agriculture.

Table 17. Male and female education and literacy rates by age.

Female	1	2	3	4	5	6	7
Age							
10-14	0	0	0	1	54	518	90.40
15-19	0	0	0	4	19	358	93.96
20-24	0	0	0	0	15	375	96.15
25-29	0	0	0	0	18	431	95.99
30-34	0	0	0	0	4	386	98.97
35-39	0	0	0	0	1	347	99.71
40-44	0	0	0	0	6	263	97.76
45-49	0	0	0	0	1	225	99.55
50-54	0	0	0	0	0	189	100.00
55-59	0	0	0	0	0	91	100.00
60-64	0	0	0	0	0	142	100.00
65+	0	0	0	0	2	217	99.08
Total	0	0	0	5	171	5532	96.91
Male							
Age							
10-14	0	0	2	73	427	131	20.69
15-19	0	4	14	52	163	130	35.81
20-24	0	6	8	19	93	103	44.01
25-29	0	2	1	10	106	143	54.58
30-34	0	2	0	5	102	128	54.00
35-39	2	0	1	1	89	143	60.59
40-44	0	0	0	7	80	161	64.91
45-49	0	0	0	0	45	131	74.43
50-54	0	1	0	0	50	204	80.00
55-59	0	0	0	0	25	68	73.11
60-64	0	0	0	0	53	116	68.63
65+	0	0	0	2	66	199	74.53
Total	2	25	41	238	2092	2547	51.50

Legend: 1= Post secondary; 2= Secondary; 3= Preparatory; 4= Primary; 5= Read and write; 6= Illiterate; 7= Rate of illiteracy.

Source: Unpublished, preliminary results of Female Rural Labour Survey. CPO, Sanaa

B. Women, Education, Productive Integration

While it is well appreciated that there are said to be cultural obstacles to the participation of women in the modern sector labour force, which in most cases would necessarily bring to an end extreme domestic isolation, the fact is that the vast majority of women could not effectively participate in the modern sector, even if "allowed" to do so. In the preceding discussion of the specific labour requirements of the modern sector it was observed that even "unskilled" jobs tend to require a primary education. The vast majority of women could not satisfy even this basic requirement: the female population, which represents more than half of the potentially mobilizeable locally available labour force, is almost completely illiterate. In the female rural labour force survey, of 5,708 women surveyed only 5 had primary education, with a further 171 claiming ability to read and write. The rate of literacy among women over 10 years of age was just 3 per cent. This situation does not reflect the general conditions of education and literacy in rural areas. The same survey found a rate of literacy among rural men of 48.5 per cent. Males were sixteen times more likely to be literate than women (see Table 17).

Unfortunately there are no data of equivalent precision for the urban areas in which the minority of Yemenis live. But statistics on the national level for school enrollment clearly indicate the rather special educational position enjoyed by Yemeni women. In 1974/75 48 per cent of males of

the relevant age group were enrolled in primary school. The corresponding figure for females was 5 per cent. At the preparatory level the figures were 7.6 per cent and 0.6 per cent. At the secondary level, 3.7 per cent and 0.2 per cent. By 1981/82 the situation had changed somewhat: 11.5 per cent of relevant age group females were enrolled in primary school; 1.7 per cent were enrolled in preparatory school; and 0.7 per cent were enrolled in secondary school.

Over seven years the female enrollment rate at the primary level had risen 6.5 per cent; at the preparatory level 1.1 per cent; at the secondary level 0.5 per cent. Some progress had been achieved in the period, but much less than for males. The male primary enrollment figure increased by 31 per cent to 79 per cent; preparatory enrollment increased by 3.4 per cent to 11 per cent; and secondary education increased by 2 per cent to 5.7 per cent. Thus, while some advances were

Table 18. Male and female enrollment rates, 1974/75 and 1981/82. Percentage of eligible age group.

	1974/75		1981/82		Increase	
	Male	Female	Male	Female	Male	Female
Primary	48.0	5.0	79.0	11.5	31.0	6.5
Preparatory	7.6	0.6	11.0	1.7	3.4	1.1
Secondary	3.7	0.2	5.7	0.7	2.0	0.5

Source: World Bank, Yemen Arab Republic: Development of a Traditional Economy. Ministry of Education.

made in female education -- notably at the primary level -- not only absolute rates of enrollment but also increases in rates of enrollment remained significantly lower for females than for males (see Table 18).

There are strong indications that this strategy of devoting the larger part of resources to the development of male educational standards will be inadequate to satisfy demand for primary and secondary educated labour in the Yemen Arab Republic by the year 2000 -- even if the annual rate of increase of secondary enrollment is projected at a level (1 per cent) significantly higher than that achieved in 1974/5-1981/82 (approximately 0.5 per cent). As was previously noted, this raises the spectre of "blocked" development -- either by virtue of the need to import labour or by the simple unavailability of labour supplies to economic growth areas. It is important to note, however, that this blockage has two bases: a. the massive export of increasingly educated male labour in such a fashion that two male school graduates must be produced to generate an increment of one graduate to local labour supply; and b. relative neglect of trainable potential elements of the labour force with a much lower propensity to migrate. With regard to the former, a change in the situation is probably neither politically nor economically viable, implying a major opportunity cost at the individual and national levels. With regard to the latter, the economics of the situation are quite different, insofar as this principally refers to the potentially mobilizeable

female labour pool. The opportunity cost of training women and introducing them into modern sector employment within Yemen are a range of activities which generate either low incomes or no income at all.

While from some perspectives the opportunity cost of training and mobilizing female labour in the modern sector can be said to be low, it is not correct to state that there are no current obstacles to resort to women to make up the shortfall in the domestically available pool of male labour. Again, the issue of the organization of female domestic activities must appear as a major factor in analysis. In relation to the rural sector, this factor was noted to have a double impact: it reduces the time available for production; and it reduces the time available for training for production. In the schematic representation of the distribution of labour time in the rural household it was suggested that while among children there was time available for education, after the age of ten females become fully engaged in productive activities -- among which domestic tasks absorb a great proportion of time. In this situation there is little time available for education or income generating activities for females.

In the projection of labour time reallocation contingent upon the provision of social inputs significantly reducing the burden of domestic reproduction activities not all the time liberated was assigned to agricultural production. At the

level of the adolescent female agricultural labour time was expanded, but fully half of the average labour day was reserved for activities which are not immediately productive in either agriculture or the domestic system. The rationale for this was that the maximum impact upon foodstuff production would be attained by a combination of increasing the amount of female labour time available for agricultural production and improving the productivity of that labour time by raising the level of effective female access to extension services, etc.. Although this was not completely specified, the understanding was that the effect of extension services is dependent to a large degree upon the development of a certain level of general education (not least literacy) in the recipient population -- thus the necessity of creating a block of non-productive time to ensure that productive time itself was most efficiently utilized.

There are, then, certain obstacles to increasing the level of female education and labour force integration which are purely material. In the rural areas the possibilities for overcoming these have been outlined. In the urban areas problems are equally material, but have a slightly different emphasis. The assumption was that any increase in available female labour time in the rural area could be easily and directly integrated into a relatively flexible labour process. This assumption cannot be made so easily in the urban areas because of the rather different characteristics of the emerging system of production. In the countryside the

labour process is less capitalized and is frequently under the direct control of the producer. In the urban areas, however, workers typically enter capitalized production processes which are not under their direct control -- they enter the workforce as employees. Given the need for capitalized equipment to be used on a constant and regular basis to guarantee returns covering costs, the typical form of urban employment is full-time and constant. It is a system which allows a minimum of worker flexibility in the personal allocation of labour time.

In this sense, the problem of female workers in the urban areas is different from those encountered in the rural areas. While the social infrastructure of water and energy supply is much better developed in the urban areas, the integration of such domestic tasks as child care with productive tasks is much less possible than in the rural areas because of the differential organization of the labour process. From this perspective, the problem of integration of urban female labour into the modern sector is much less physically material than social -- and its solution involves less a technical reconstruction of tasks than their social reorganization. To some extent this has been recognized in other areas of the Arab world, such as Egypt, where labour law requires that establishments over a certain size must provide nursery facilities for the children of female workers -- thus in principle overcoming the problem for female modern labour force integration represented by the individualization

of child care and the geographical separation of the home from the place of work.

The essential point raised above is that female workers encounter difficulties in integration into the modern sector quite apart from the question of education and training per se -- difficulties which are inseparable from the organization of their performance of domestic tasks. This organization is not, however, immutable, but can be modified by the development of social inputs into the system of domestic reproduction. In the case of the rural areas the critical problem appears to involve fuel and water supplies. In the urban areas a more critical question might be the organization of child care and the manner in which the maintenance of an exclusively household basis of activities in this regard comes into conflict with the specific requirements of the modern sector labour process.

In a certain sense, the issues involved in raising female integration into modern sector activities are more radical in terms of "traditional" female social roles than those involved in raising female production in the traditional agricultural sector -- for what they involve are both female education and the exclusively private/individualized organization of child care, etc.. Naturally, it is possible to argue that female illiteracy and domestic isolation are elements of traditional culture and are, therefore, "extra-economic social facts". They may or may not be cultural

facts, but they are also definitely significant economic facts which will have a major impact upon Yemen's development achievements. The traditional condition of women related to the basic dimensions of the traditional economy and political system. Given the rather rudimentary techniques of production and limited trade, literacy might well have been seen as irrelevant to female activities -- being perhaps a limited necessity for political and religious affairs which were, anyway, dominated by men. Equally, the rather privatized basis of domestic reproduction corresponded to the effective identity of the independent agricultural production unit and the home. Women's traditional roles were thus made possible by the nature of the underlying economic system -- they were, at least, not incompatible with the maintenance of the productive system.

The transformation of the productive system in the Yemen Arab Republic, the development of its economy, is progressively undermining the "fit" between traditional female roles and the economy. Literacy is no longer a phenomenon principally relevant to political and religious affairs -- it is increasingly a characteristic required of every entrant into the labour force as a basic productive skill. The purely domestic and isolated organization of reproduction is increasingly inconsistent with developing production processes which are both social and isolated from the home. Maintenance of traditional female roles thus creates a situation in which a major social resource (female labour)

must remain un- and under-utilized from the point of view of attainment of the development objectives which Yemenis themselves are establishing. In the Yemen Arab Republic, as in many other areas, the conditions are being created for the first time in which female labour is not a major contributor to the overall process of production in the dominant economic sectors.

C. Women and the Long-Term Supply of Labour

In some areas it is conceivable that massive inflows of relatively unearned revenue can allow the marginalization of female producers without sacrificing desired high rates of economic growth. That luxury does not seem to be available to the Yemen Arab Republic. We have seen that without a major effort to change the material conditions of domestic production and reproduction in the rural areas Yemen will face an increasing burden of food imports braking the process of social accumulation and growth -- i.e., without programmes specifically developed with regard to the material requisites for increasing production by female rural labour the entire development process will be placed in jeopardy. This appears to be equally true of modern sector development. The projections discussed above indicate a major shortfall in the annual increment of skilled and unskilled labour relative to the demands of the economic system by the year 2000. In this context Yemen can afford neither to completely withdraw female labour from the modern sector nor to waste its female labour reserves in the sort of "informal" urban sector labour

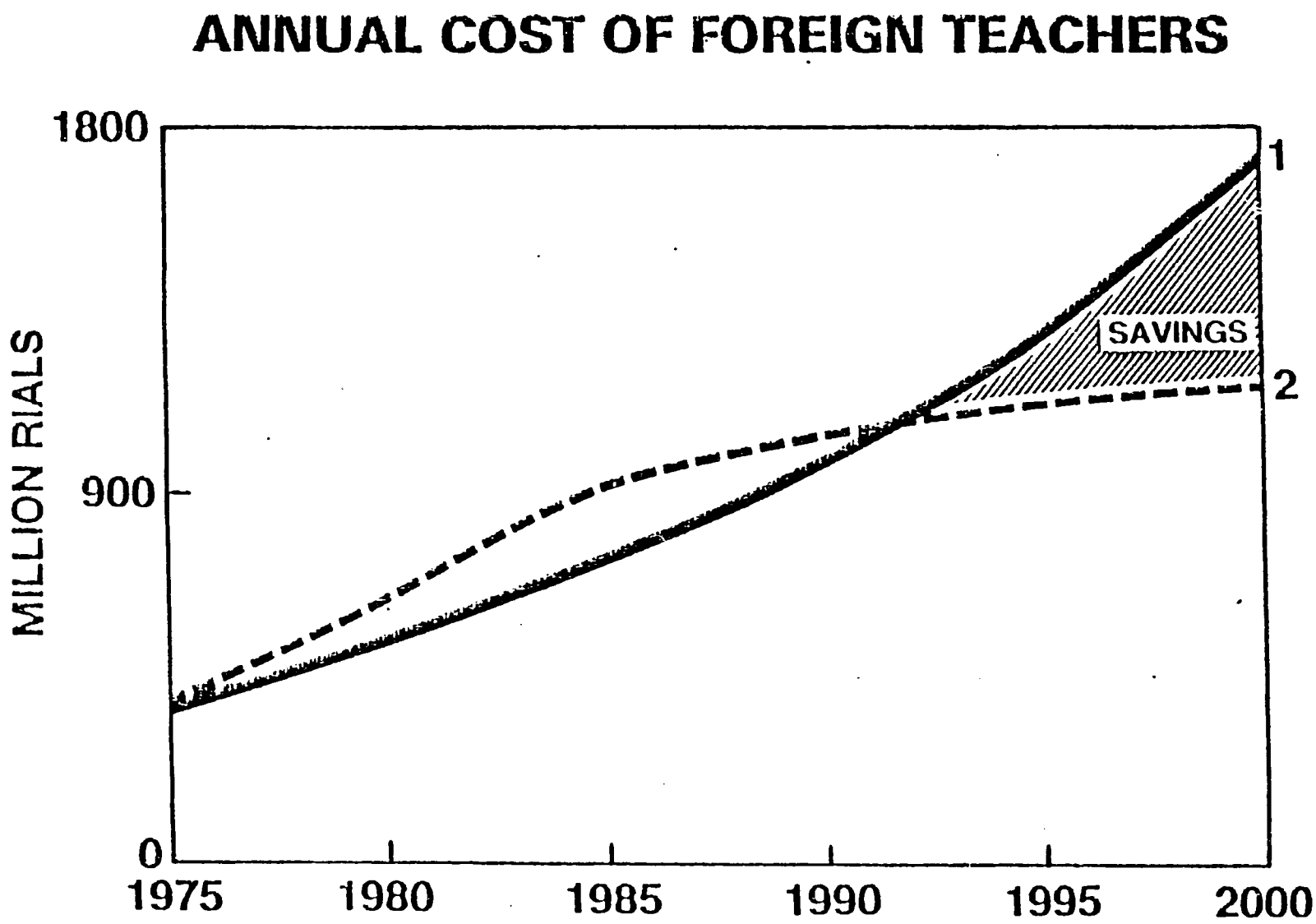
activities which are typically their fate in situations where the specific conditions for insertion of women into modern sector labour processes are disregarded. In Yemen, relative neglect of female education (as indicated by the tremendous disparities between male and female educational enrollment rates) and the conditions for the economic integration of such trained female labour as is produced threaten to allow the development and consolidation of fundamental obstacles to the development of key economic sectors.

To give some impression of the potential benefits of increasing female educational enrollment (and creating the social conditions for the effective use of trained female labour), projections have been developed for alternative supply and demand scenarios in the education and health care sectors discussed above, and for the total national supply and demand relative to skilled and unskilled labour up to the year 2000. In order to demonstrate the magnitude of the effects of increased attention to female education and modern sector labour integration, a rather conservative hypothesis was used in relation to increased female enrollment -- i.e., it was hypothesized that female enrollment at all levels would increase by 1 per cent per annum (it should be remembered that male primary enrollment rose at approximately 4 per cent per annum between 1974/75 and 1981/82). This assumes equality in the growth of enrollment rates between males and females, but not the equalization of the rates of

enrollment themselves, which are assumed to be consistently higher for males than for females. In relation to secondary education, the growth of the enrollment rate by 1 per cent per annum is historically high, but even on the basis of this assumption for males alone our earlier estimates demonstrate a major gap between supply and demand for skilled labour.

In the educational sector, an increase in female enrollments by 1 per cent per annum would increase the required number of teachers from 40,000 to nearly 60,000 in the year 2000. At first glance this would seem to merely add to the problem of the importation of foreign labour to service the sector. However, these females who require greater inputs of skilled labour for their education also, at graduation, become part of the supply of skilled labour. Restricting ourselves to rather conservative assumptions about the sectoral allocation of female trained labour, if 10 per cent of the increased number of secondary school graduating females themselves became primary school teachers (commencing with the class of 1990) the entire primary school teaching corps would rapidly become Yemeni -- with eventual spill-over to the preparatory and secondary levels. In this scenario, while the number of expatriate teachers would at first expand beyond the figures in our previous estimate (to service an increased student population) , it soon falls -- with a reduction in the number of required expatriate teachers from 36,000 to 24,000 by the year 2000. This reduction in demand for expatriate teachers has a corresponding impact upon the implicit foreign exchange

Graph 13. Revised projections of foreign exchange cost of expatriate teachers.

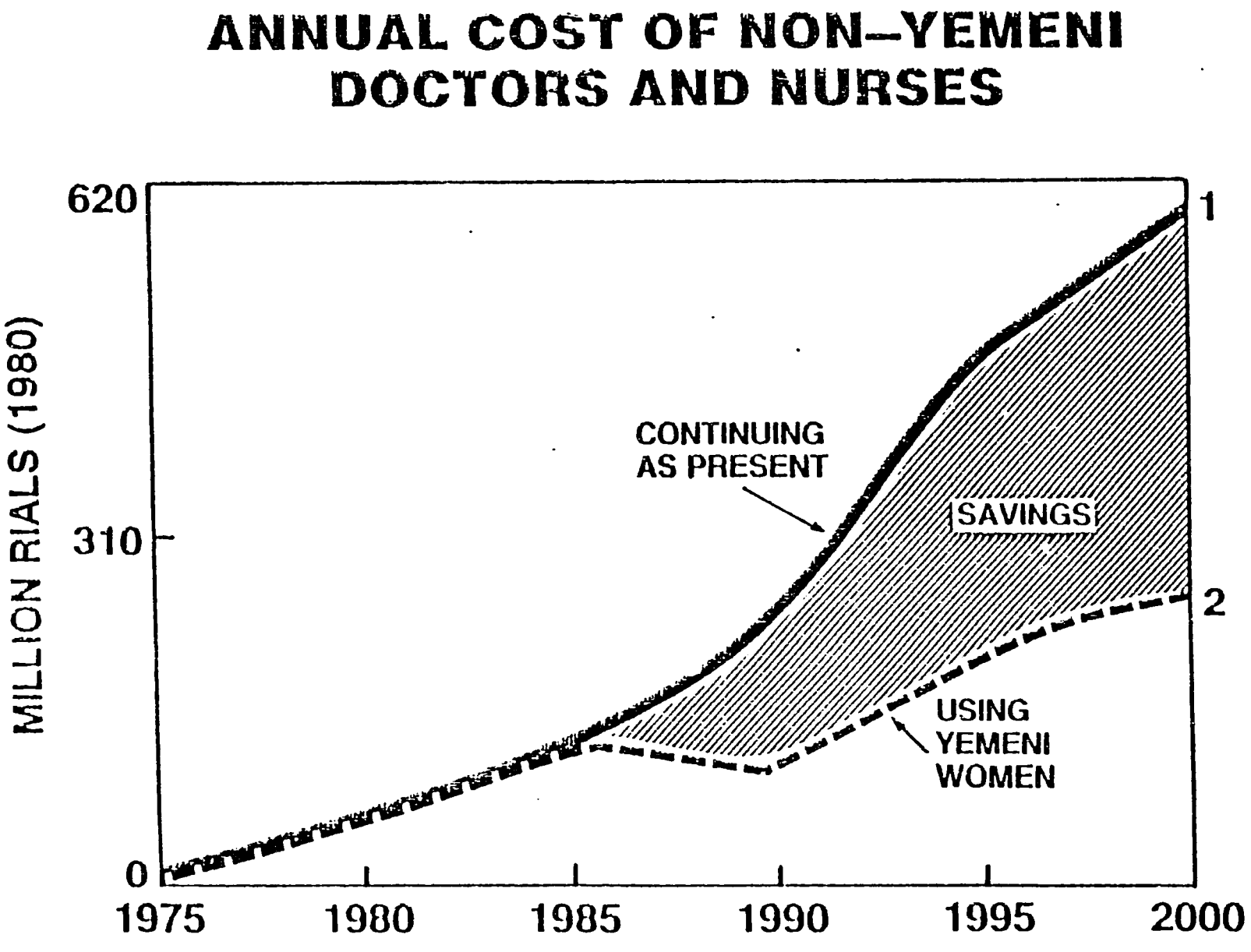


Legend: Line 1 is cost under current conditions. Line 2 is cost with increased female education.

cost of the educational sector. The cost is initially higher; between 1990 and 1995 it is more or less equal to the original projection (unmodified for higher female enrollments); after 1995 it is significantly lower and continues to fall. By the year 2000 the scenario of increased female enrollment and an increase of female integration into the teaching corps saves a cumulative implicit foreign exchange outflow of nearly 1.2 billion rials, with the annual rate of saving being 500 million rials at the end of the period. In this case it is clear that expenditure on female education is not a current consumption item, but a productive investment (see Graph 13).

A somewhat similar projection can be developed for the health care sector. Our initial projection was for a labour requirement (doctors and nurses) of 22,000 workers by the year 2000, of which 13,000 would be expatriates (assuming a constant ratio between nationals and expatriates) -- at an annual foreign exchange cost of 620 million rials at the end of the period. Again assuming that 10 per cent of the increased output of secondary school graduating females entered the labour force as nurses, the increase in the number of expatriate workers required to expand health care is very considerably diminished. Assuming only that Yemeni females enter the sector as nurses (rather than doctors), the number of required expatriate health care workers could be reduced by 6,000 beneath our original projection -- effectively halving the foreign exchange outflow from 620

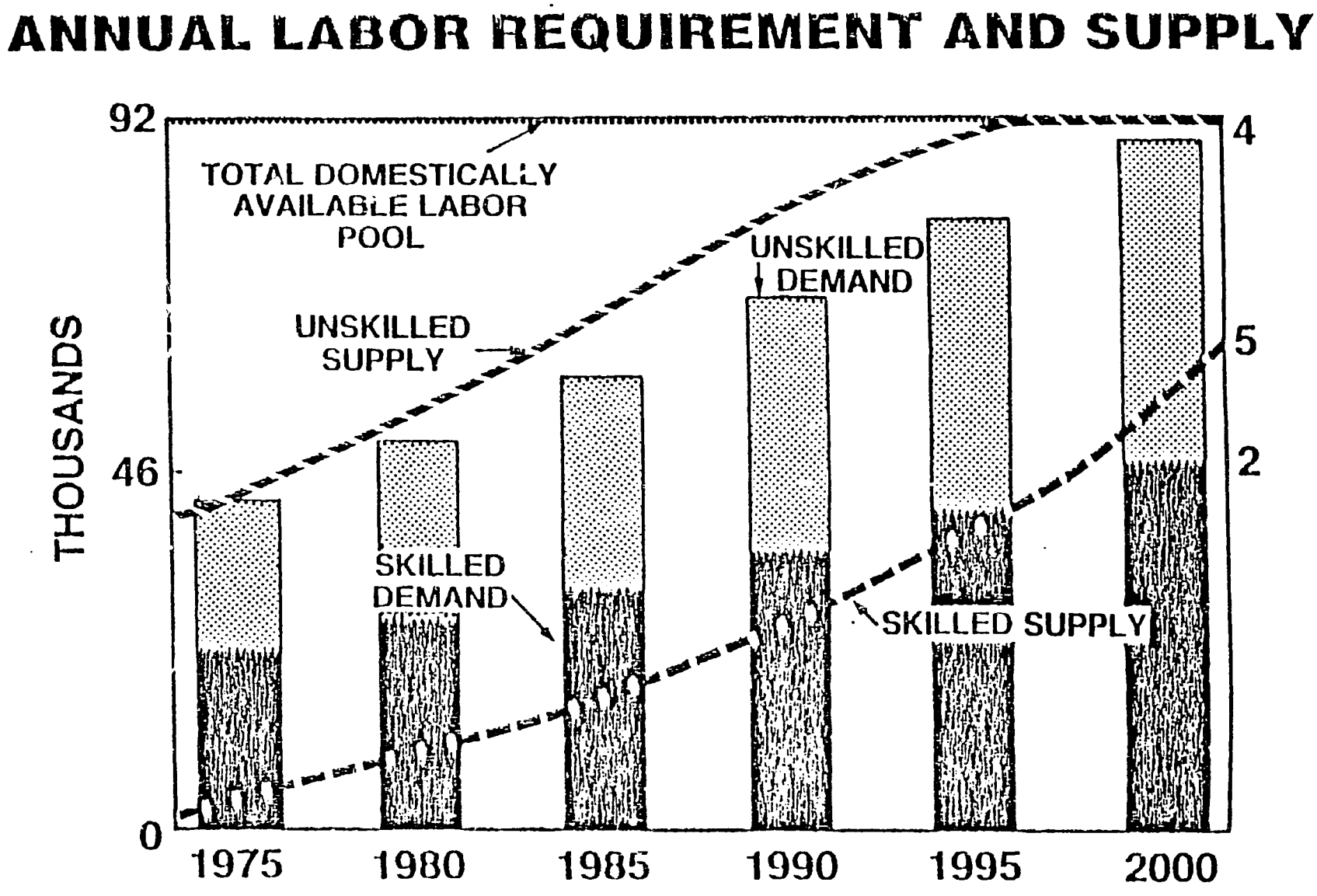
Graph 14. Revised projection of foreign exchange cost of expatriate workers in the health care sector.



million rials to about 300 million rials (see Graph 14).

The cases of the education and health care sectors are persuasive with regard to viewing increased (even modestly increased) female education and integration into the modern sector labour force as an investment in the effective national resource base. However, the problems that Yemen will confront in the year 2000 if current conditions are maintained transcend the question of the possible contribution of educated female labour in particular areas of production to savings in foreign exchange. Our projections indicate a very large scale shortage in labour supply to the modern sector arising from the size of the available male labour pool as corrected for migration. As was indicated, even if male secondary enrollment were projected at the totally unrealistic level of 70 per cent by the year 2000, there would still be massive shortages of unskilled (primary educated) labour. Under current circumstances it is inconceivable that imported labour could compensate for the shortfall in domestic supply, signifying that what is at stake is the overall viability of the Yemeni development effort.

The addition of females to the pool of available labour entirely changes labour supply curves in the Yemen Arab Republic. Inclusion of women without regard to qualification doubles the total labour pool, but triples the domestically available stock of labour because of the low female



Graph 15. Revised labour supply and demand projections.

propensity to migrate abroad. This is, of course, a paper gain of little relevance to modern sector labour supply. If, however, it is hypothesized that female enrollment at all levels rises at 1 per cent annually and that graduating females become effective members of the labour force, then the relation between domestic labour supply and demand changes dramatically. In a scenario in which male secondary enrollment rises by 1 per cent per annum it has been shown that Yemen will become a major skilled labour deficit area by the year 2000. If female enrollment is projected to increase at the same rate, by the year 2000 aggregate male and female skilled labour supply will be greater than demand by approximately 10% -- with supply being about 50,000 and demand 46,000. In our original projections Yemen could acquire skilled labour self-sufficiency (in terms of the relation between annual increments to supply and demand) only at the expense of an impossible effort at the level of male secondary education and of massive problems in the supply of unskilled (primary graduate) labour. Educating females at even modest levels relative to males, however, also increases the supply of unskilled labour to a point considerably above demand. On the basis of education of females and their integration into the labour force Yemen passes, by the year 2000 from a labour deficit economy to a labour surplus economy with regard to the demand for qualified labour of the modern sector (see Graph 15). "Surplus" in this context, however, does not necessarily signify the unemployment of labour resources. Rather, it signifies a lessening of the

competition between national and international employment opportunities, allowing more men to exploit external opportunities and lowering the internal price of skilled labour to levels more compatible with local levels of productivity.

The potential gains from increasing the level of female educational enrollment appear very substantial indeed -- not least by dissolving the contradiction between the need to export labour to earn foreign exchange and the need to retain labour to service the expanding internal economy made possible by remittances. It must be emphasized, however, that the exploitation of this potential is not simply contingent upon raising the level of availability of formal educational inputs to females. In the case of the traditional agricultural sector it was argued that gains in production could not be expected without addressing the specific obstacles confronted by women in exploiting productive possibilities. Precisely the same is true of the contribution of women to the modern sector. Provision of educational opportunity alone will not solve the labour supply problem unless the conditions are created for effective female access to educational opportunities, and unless the conditions are created in which females can satisfy the particular requirements of modern sector production (particularly with regard to inflexible labour time allocation) without sacrificing provision of necessary inputs to the domestic

system of reproduction. Any attempt to mobilize the potential of female labour must confront the specific problems of women arising from their often contradictory insertion into two systems of production (domestic reproduction and the production of commodities), problems which vary in their substantive content according to the technical and social composition of processes of production. The point in this regard, however, is not to assume some sort of immutable tension, but to recognize that what is important in regard to the domestic inputs provided by women is that the inputs be provided, not that they be produced in a particular way -- and that promotion of change in the manner in which inputs for the domestic sphere are produced is directly connected to the overall production of commodities relevant to the attainment of national development objectives.

V. CONCLUSION

Development in the Yemen Arab Republic has been propelled in recent years by remittances from Yemeni workers abroad. While allowing for a very rapid rate of initial growth, this basis for development holds within it major future obstacles. There is no clear relation between the supply and demand for the foreign exchange necessary for the modernization of the productive base. At present the productive sectors consuming foreign exchange have not established any major reciprocal flow of exports, nor are there other productive sectors whose foreign exchange earnings are likely to develop in a complementary fashion to modern sector requirements. In short, there is no dynamic linkage creating the likelihood that funds for importation of means of production will be generated from the process of development itself. In fact the systemic linkages tend to point in quite a different direction: to the extent that the development of new internal productive sectors creates additional internal demand for qualified labour there is a risk that development will act to actually reduce the availability of foreign exchange by drawing upon the pool of potential migrants whose earnings have fired the development process thus far. This tension is already evident in the Yemeni economy. There is every reason to expect that the situation will become more grave in the future.

The solution to this structural obstacle to long-term development must reside in the formation of economic sectors which themselves consume little foreign exchange but which have a positive impact on the external account, and in the generation of labour resources which supplement labour available for insertion into the modern sector without entering themselves into the migratory current. Under the current definition of economically relevant national resources there is little possibility that these goals can be satisfactorily achieved.

With little present possibility of opening up new external markets for domestic commodities, savings of foreign exchange must be based less on exports than upon reduction or containment of imports. Given the impossibility of local production of modern producer goods, the burden of reduction to assure continued availability of foreign exchange for development of the productive base must fall heavily upon consumer goods. Again, however, a broad range of more sophisticated items cannot currently be produced within the Yemen Arab Republic, reducing the effective range of import substitution to raw and semi-processed materials -- most notably agricultural products in general and foodstuffs in particular.

Increases in foodstuff production appear particularly attractive in principle because of the pre-existing basis of production and the fact that imports are largely not new

products, but the equivalent of or substitute for domestically produced commodities. However, there is little possibility that such an expansion will take place. Shortages of labour have reduced production in some basic crops, while the introduction of relatively capital intensive techniques (which are themselves relatively costly in foreign exchange terms) have failed to lift the general level of production adequately to meet rising levels of internal demand. Rather than constituting a dynamic sector freeing resources for the importation of producer goods, the performance of the agricultural sector as a whole has been such as to progressively increase dependence upon food imports with a major negative effect upon the external balance. If current conditions continue the foodstuff sector will itself present an obstacle to continued development of the modern sector.

In the sector of production of workers qualified for insertion into the modern sector (the education sector), performance has been substantially more encouraging, it being possible to project almost universal male primary education by the end of the century. Nonetheless, like the increase in production in the agricultural sector as a whole, it is not sufficient to meet requirements. If the nemesis of the agricultural sector is consumption geared to a rapidly rising gross national product, that of the education sector is loss of a large part of its product to the migratory stream -- which might add to the foreign exchange available for expanding the physical structure of the modern sector, but

detracts from the ability to put this structure to work efficiently.

The overall result of these developments is that on the basis of the existing utilization of what are considered economically relevant economic resources, a utilization that is by no means inefficient except, perhaps, with regard to protection of certain agricultural sub-sectors whose high import quotients signify a rather dubious contribution to the external account and the internal price level, actual levels of Yemeni economic performance will be held back by shortages of foreign exchange and qualified labour. The question to be raised in this context is whether current definitions of "economically relevant economic resources" actually take stock of the means of development available for the pursuit of development goals.

The answer to this in the case of the Yemen Arab Republic must be in the negative, albeit in a qualified fashion. Although there is piecemeal recognition of the economic activities that females engage in, there is, perhaps, inadequate recognition that these activities do have a bearing upon overall national economic performance. More importantly, there is an inadequate perception of the potential role of female labour in overcoming the severe development obstacles that the country will confront in the future.

between the inflexibility of modern sector labour time allocation demands and the more flexible allocations demanded by domestic tasks.

In both cases the exploitation of the potential of female labour from the point of view of attainment of national development goals is conditional upon: a. recognition of the specific manner in which female labour must combine domestic production with the production of commodities; and b. formulation of programmes which attempt to overcome the manner in which the current physical and social organization of female domestic tasks severely reduces the ability of female labour to respond to income-generating opportunities. Female labour can be a significant element of the solution to Yemen's development problems -- but only if this particular economic resource is viewed not abstractly as an "economic resource", but as a resource with specific conditions for use -- a resource whose economic utility is vastly increased by directed investments in social overhead capital reducing the private burden of domestic responsibilities. From a purely economic perspective, there is nothing unique in this situation. All resources require the expenditure of time and labour to be effectively tapped. The point about female labour is appreciating just how valuable a resource it could be in relation to the specific development problems confronted by the Yemen Arab Republic, and identifying the unique, but practical conditions which have to be satisfied if the potential is to be realized. Our projections have

indicated how very substantial the female contribution could be in Yemen. Our analysis of obstacles has identified some areas in which timely investment could substantially facilitate the materialization of that contribution. But, as we have indicated, obstacles faced by women are probably somewhat different in the urban and rural areas. The point is not that this or that specific programme or project will raise female production in every area, but that attention to the particular obstacles confronted by women should be part of the planning and evaluation process itself, so that every development activity should be organized with regard to the satisfaction of the conditions for attaining an objective which is particularly pressing in the Yemen Arab Republic -- the mobilization of the entire available labour pool rather than only one element within it.

PART THREE. THE CASE OF YEMEN AND THE ECONOMIC ANALYSIS OF WOMEN IN DEVELOPMENT

A. Variations and their Implications

The model of female production (current conditions, possibilities and constraints) developed for the Yemen Arab Republic is based upon a series of assumptions which are both general and specific to the Yemeni case. Especially in relation to the agricultural sector, heavy emphasis was placed upon the amount of labour time consumed in domestic tasks and the limits this establishes upon possible allocation of female labour time to commodity production. This corresponds to an analysis of the general conditions of development in Yemen in which the problem of locally available labour appears as a major obstacle to the attainment of long-term development objectives.

The possibility of concentrating so exclusively on labour time was offered by certain specific conditions in Yemen which are not necessarily present elsewhere. The implicit connection between labour time and production was the assumption that "liberated" time could in fact be directly applied to the productive process. This assumption is expressive of the organization of production in the agricultural sector in Yemen, being predicated upon women's direct access to means of production. That is, access to means of production was not made an issue in the analysis, and did not appear as a specifically problematic element of

female production. The rationale for this was twofold: a. many female producers in Yemen are engaged in production on land owned or otherwise controlled by their family; and b. many land holdings are being worked below capacity because of the existing labour shortage. In addition to the assumption about the relation between labour and means of production is another assumption -- that in agriculture, at least, women are positioned in a sector in which there is effective demand for their products. That is, not only do women have direct access to means of production, but they also confront a ready market for their products.

These assumptions relating to the applicability of free time to the labour process, and the unproblematic value of the product have a certain validity in Yemen, and as such they formed some of the essential parameters of the analysis of major possibilities of, and constraints upon, female production. It should be noted, however, that time was not the only element relevant to production, for both the maximum impact in agriculture and any impact at all upon the labour supply problem in the modern sector were conditional upon the qualification of female labour (formal education and extension activities). In this sense, the situation in Yemen both is and is not unique. It is unique to the extent that the distribution of means of production and market development makes the time issue so salient. It is not unique to the extent that the problem of time is a recurring issue whenever the topic of women in production is addressed -- and

that, even in Yemen, the qualification of labour is crucial to income generation at the individual and national levels.

Reflection upon the case of Yemen suggests that it is necessary to recognize that whereas there are certain general uniformities in the situation of female producers, their insertion into different macro-economic contexts makes for substantial variation in specific possibilities and constraints. Thus, the issue of the impact of domestic responsibilities upon the mode of insertion of women into production is probably of rather wide significance -- but the practical problem emerges in very different forms. In rural Yemen the amount of time spent in domestic activities seems to be a crucial constraint upon production, and consequently it was possible to dwell upon the importance of very material inputs into the system of domestic reproduction. This issue is not, however, easily transposable into other contexts as an identification of a crucial obstacle. In many other areas social capital (e.g., in improved water supplies) is considerably better developed, corresponding, in part, to much higher rates of urbanization. In more "developed" contexts the problem of time remains -- but less in regard to high absolute levels of time required for domestic reproduction activities than to the problems presented by the very special and inflexible labour time allocation requirements of modern systems of production. As was suggested in relation to the issue of integration of educated Yemeni women, here the question seems to be less one of

providing physical inputs than of providing the framework for a certain social reorganization of domestic tasks.

In developing a set of guidelines for the possible replication of the type of analysis performed for the Yemen Arab Republic, a prime consideration should be that the specific form of constraints upon female production (and thus production-increasing interventions) vary according to the character of the dominant system of production. For example, in Yemen such is the shortage of agricultural products and qualified labour that it is not necessary to consider at too great a length the problem of the sub-sectoral allocation of female labour. This is certainly not the case in some other areas, where the over-expansion of certain activities requires that substantial attention be paid to sectoral and sub-sectoral reallocation of female activities. In Egypt it is apparent that very large numbers of women engage in production in a relatively limited range of "informal" economic activities, not least because extremely limited access to means of production (hence the inapplicability of one of the guiding assumptions of the Yemen analysis) encourages their concentration in low-capital, low-skill areas. In this case, one of the problems confronted by women is not a range of obstacles to production per se (such as is the case in the Yemen Arab Republic), but their over-development of production in certain areas (hence the inapplicability of the assumption made in Yemen that there was a clear link between physical product and social value),

leading to very low levels of income in response to, inter alia, inter-female competitive pressures. Again, this points to yet a further difference, in Yemen many women have direct access to means of production such as land (albeit rarely to the means by which the productivity of land and labour can be raised). In Egypt, as in most more structurally developed areas, women have no access to means of production at all which, in the context of a rather fundamental marginalization from modern spheres of production, signifies that the question of access to credit is of the most basic significance -- having relevance not only to improving production, but also to whether any meaningful production takes place at all.

The basic point at issue here is the need to recognize that economically oriented analyses of the condition and potential of female producers cannot be generated from a single, universal model, but must be developed in response to both different development objectives and blockages and the quite highly differentiated conditions of female labour. It is probably true that many of the problems specific to female producers are ultimately derived from the common source of the organization of reproduction, but this does not allow for a unified "model" of women in production because of variance in the organization of reproduction itself and the different significance of this organization in different systems of production. This is almost self-evidently the case when considering the issue of women in production from a global

perspective. It is also the case when considering such regional "blocs" as the Middle East.

There is apparently a constant temptation -- on the part of "Orientalists" and "contra-Orientalists" alike -- to conceive of the Middle East as a sort of unity, thus the emergence of such issues as the position of women "in the Arab world". From this perspective it is possible to conceive of a single "model" of women in economic development for the whole region -- the Yemeni case would thus appear as containing all the elements (perhaps sometimes in an exaggerated fashion) of a regional analysis. Fortunately or unfortunately, this is not the case. On one level, the economic problems (and therefore the orientation of analyses demonstrating the "relevance" of female producers) facing development planners are quite distinct. For example, while Jordan might be similar to the Yemen Arab Republic in having between 25 and 30 per cent of its adult male labour abroad, and thus faces the issue of a shortfall in male labour supplies, Egypt is said to suffer the burden of a labour "surplus". On another level, the circumstances of female producers are different. In Yemen, the large majority are situated in rural areas and have access to some means of production. In Egypt a much higher proportion of women are situated in urban areas and have no significant independent access to means of production. The list of anecdotal similarities and dissimilarities could be almost endless. The point, however, is that in operational terms there is substantial diversity in women's conditions,

requiring quite different inputs to realize their potential contribution to household and national income generation.

The differential organization of female production in different areas raises different issues and needs in each context. Under these circumstances the parameters of the model developed for women in production in Yemen appear contextually specific, and cannot be transposed directly to other areas without the risk of being un- or even counter-productive. Pursuing the theme of diversity even at the regional level the cases of Egypt and Tunisia will be briefly examined to uncover (albeit not exhaustively) factors of little relevance in Yemen (but of great significance elsewhere) -- and to demonstrate the need for quite differentiated approaches to the problem of female production in developing models of its relevance to discrete development situations. Given the rather complex character of the Egyptian and Tunisian economies no attempt will be made to characterize their major "bottlenecks", rather emphasis will be placed upon the position of women in their respective productive systems.

B. Egypt. Marginalization and Low-Value Production.

Statistics on the productive activities of Egyptian women tend, as in many areas, to understate actual economic significance, not least, as we will see, because much of their production is developed outside the formal economic sector to which statistical agencies are more highly attuned.

On the surface of things, Egyptian female labour force participation is both low and falling. In 1937 the rate of female participation was 7.9 per cent. By 1976 it had fallen to 4.9 per cent (see Table 19).

Table 19. Egypt: labour force* participation rates (per cent)

Year	Females	Males	Total
1937	7.9	65.1	37.0
1947	7.8	62.8	37.0
1960	4.8	55.2	30.0
1966	4.2	50.8	28.0
1970	3.5	49.5	26.0
1972	4.0	50.7	27.0
1976	4.9	52.9	31.5

* defined as people aged 6 and over

Source: Population Census, 1937, '47, '60, '66, and '76; and Labour Force Sample Surveys, CAPMAS

However misleading these data might be in relation to actual economic activities, they do indicate a very low level of penetration into the formal sector when compared to males. This differential is carried over into the distribution of female labour within the enumerated labour force -- particularly with regard to substantial concentration within the service sector. Thus in 1976 no less than 61.4 per cent of enumerated female members of the labour force were engaged in the service sector -- compared to 27.6 per cent for men, with the underlying trend being a very substantial swing from agriculture to services (see Table 20).

Table 20. Egypt: labour force estimate in agriculture, industry and services, by sex

	Male			Female		
	Agri.	Ind.	Serv.	Agri.	Ind.	Serv.
1950	61.40	12.60	26.00	44.05	10.20	45.75
1960	59.25	12.80	27.95	46.90	4.55	48.55
1970	56.34	19.20	24.46	29.15	13.32	57.53
1976	50.25	19.80	27.62	23.16	15.38	61.40

Source: ILO, Labour Force Estimates, 1950-1970. Geneva, 1977, and National Census, 1976.

Figures for 1979 confirm this move into services, with 68.1 per cent of non-agricultural participating females being grouped there (78.6 per cent if trade and services are combined). Particularly interesting in relation to the more detailed figures is the virtual absence of female labour from the construction sector (female constituted only 1.3 per cent of the sectoral labour force in 1979 -- down from 5.3 per cent in) in spite of the fact that construction was the most dynamically expansive sector throughout the 1970's, and also suffered from labour shortages in part precipitated by migration of Egyptian males to construction projects abroad (see Table 21).

Although these figures show that a significant percentage of the small number of women in the labour force are engaged in the manufacturing sector, their roles tend to be restricted to more "traditional" industrial activities, particularly in textile and garment production. Cotton, ginning, textiles and leather alone count for more than half of the females

employed in manufacturing and mining (see Table 22). Moreover, female wages in manufacturing are consistently lower than male wages, the differential being 33 per cent in 1975 (see Table 23).

Table 21. Egypt: Female employment by sectors, 1979 (excluding agriculture, unspecified)

Manufacturing, mining	
% Female labour force	16.2
% total sector	5.7
Construction	
% Female labour force	1.1
% total sector	1.3
Trade	
% Female labour force	10.5
% total sector	6.2
Transport, electricity	
% Female labour force	4.2
% total sector	4.1
Services, finance (combined)	
% Female labour force	68.1
% total sector	19.0

Source: Labour Force Sample Surveys

Table 22. Egypt: major female-employment economic activities and their share of female labour force, 1976 (ISIC at two-digit level)

Farming, hunting and poultry	22%
Social and related services	25%
Cotton, ginning, textile and leather	8%
General administration and security	14%
Personal and domestic services	9%
Retail trade	6%
Total	84%

Source: National Census, 1976

Table 23. Egypt: trend of weekly wages in manufacturing (all industries), by sex

Year	Male	Female	Total (Piastres per week)
1969	430	298	403
1972	468	320	458
1975	556	375	543

Source: ILO, Yearbook of Labour Statistics.

These statistics indicate rather clearly the marginalization of females from the formal industrial sector and their concentration in low income service occupations -- in the context of a generally very low rate of formal sector labour force participation. Part of the low rate of participation must be explained by the low level of expansion of formal sector employment in Egypt, but this does not explain the male/female differential. One contributing element is the educational differential between males and females in a context in which educational qualifications are seen as increasingly relevant to modern sector employment. Thus female students accounted for only 37 per cent of secondary students and only 31 per cent of enrollment in higher education in 1978/79 (see Table 24) -- with the disproportion being considerably more pronounced in specialized education for technical roles in manufacturing.

The educational differential might be significant in the context of over-supply of labour to many modern sectors, but another supplementary explanation is offered by information on the marital status of female production workers. In spite

of the rather low age of marriage for females in Egypt, over 50 per cent of females in the industrial areas in which females are concentrated (spinning and weaving, sewing and tailoring, and food and drink production) were unmarried in 1976 (see Table 25). This suggests a strong obstacle to the entry or permanence of married females (presumably with minor dependents) in the formal industrial labour force -- which is consistent with our previous observations about the conflict between industrial labour time allocation discipline and the performance of female domestic roles, a conflict which might acquire greater significance the greater the pressure of labour supply upon demand. An apparent exception to this is provided by female supervisors in administration and production, of whom only 28.8 per cent were unmarried. However, it is clear that this is expresses the combination of the seniority required by the occupation and low age at marriage -- signifying that any woman who had acquired the seniority would be at an age at which marriage is extremely likely. It is expressive of the disadvantages of being married and the generally low status of female workers that only 1.4 per cent of the entire sample were married supervisors.

In Egypt it is probable that a combination of educational discrimination and difficulties in organizing labour time according to the ideal requirements of employers explains much of the low level of female formal labour force participation -- in a situation of labour "oversupply" that

Table 24. Proportional distribution of Egyptian students according to educational stages in 1978/79 (percentages)

	Females	Males
Primary	40	60
Preparatory	37	63
Secondary	37	63
Higher	31	69

Source: Statistical Yearbook. CAPMAS, 1979.

Table 25. Egypt: Marital status of female production workers, 1976

	Marital status				
Economic Activity	Never Married %	Married %	Divorced %	Widowed %	Total N
Administ. & production supervisors	28.8	61.8	3.1	6.2	1267
Spinning & weaving workers	53.8	36.1	3.1	7.0	13858
Sewing, tailoring workers	52.1	35.1	3.6	9.2	32979
Labour in food & drink production	51.4	29.8	4.2	14.6	3404
All other production workers combined*	39.1	38.1	6.1	16.6	13742
Totals	48.8	36.4	4.1	10.7	56250

* excluding unspecified workers

Source: Population Census, 1976, CAPMAS

allows employers to make such factors decisive in their hiring policies. But barriers to female entry into the formal sector labour force do not signify the absence of women in productive activities. In this sense, statistics on women "not in the labour force" completely fail to do justice to women's economic roles. According to the Census of 1976 "housewives" accounted for 10,005,912 women not in the labour force (see Table 26). This figure probably expresses rather well one element of the activities of women outside of the formal labour force, but it neglects the entire range of informal sector activities that are so important in the overall structure of employment in Egypt.

Table 26. Egypt: women not in labour force, 1976

Full time students (ages 6+)	2588191
Full time students (ages 10+)	1675165
Housewives	10005912
Retired/pensioners	4208

Source: Census, 1976

Parallel to the formal structure of public and private production in Egypt is a vast system of informal production providing a significant (albeit typically unenumerated) proportion of employment and income. A recent report (Checchi and Company, Artisan Sector Studies Project, Enterprise Survey Analysis: A Profile of Artisanal Establishments in Greater Cairo, Alexandria, Assiut and Damietta. USAID, Washington, 1984), surveying only establishments with up to 50 workers in Greater Cairo, Alexandria, Assiut and Damietta,

estimates that there are approximately 77,000 small-scale manufacturing and repair establishments (up to 50 workers) employing 207,000 workers. The sector is dominated by small establishments employing no more than 4 workers -- there

Table 27. Distribution of establishments and workforce by major economic activity

Major Economic Activity	Establishments	Workers
	No.	No.
Food, Beverages, Tobacco	4080	23290
incl.: Bakery Products	2340	18100
Textiles, Apparel, Leather	22010	53560
incl.: Textile Processing	520	4030
Textile Goods	750	1820
Carpets and Rugs	950	2760
Ready-made Garments	670	2870
Tailoring (Cut & Sew)	13080	21740
Leather Processing	880	5730
Leather Goods	730	1760
Footwear	4020	9700
Wood Products	18540	39400
incl.: Wood Parts and Material	1870	4530
Misc. Wood products	1650	3430
Furniture	11820	25650
Upholstery	2720	5040
Paper and Printing	1450	5560
incl.: Printing and Publishing	1080	418
Chemical Products	710	4040
Non-metallic Mineral Products	3170	13730
incl.: Clay products	1670	5030
Basic Metals	800	2340
Fabricated Metals	10130	30390
incl.: Fab. metal products	8660	25180
Non-electric Machinery	620	2190
Other Manufacturing	1670	4410
incl.: Jewelry	1300	3520
Repair Services	14230	29420
incl.: Equipment Repair	1480	2340
Auto Repair	8040	20160
Photo Services	1280	2250
Total	76790	206640

Source: Checchi and Company, op. cit.

being 74,690 establishments with less than 10 workers, employing 173,370 . Overall, it was estimated that artisan sector firms (10 employees or less) employ two-thirds of the private sector industrial work force, with an annual gross product of 1.32 billion Egyptian pounds (equivalent in value to approximately 25 per cent of the entire production of the formal industrial sector in 1980).

Contrary to prevailing images of the industrial sector, women constitute a large percentage of the labour force: dairy production is almost monopolized by women, and in textiles women supply nearly 50 per cent of the labour force. In the Checchi study, the single largest category of establishments, tailoring (see Table 27), is dominated by female labour. In fact the overwhelming number of household enterprises are run by women. In the non-household enterprises women supply 14.1 per cent of semi- and un-skilled labour, a percentage two to three times greater than in the formal manufacturing sector.

A survey outside of the major industrial areas finds female activity in informal industrial activities to be just as great, if not greater than in the industrial centres. A study of small manufacturing enterprises in Fayoum and Kalyubiya in 1981 indicated that a high percentage of small productive enterprises were owned by women, and that women constituted nearly 2/3 of their labour force (Mahmoud Badr et alii, Small Scale Enterprises in Egypt: Fayoum and Kalyubaya Governorates -- Phase 1 Survey Results. Mimeo., Michigan State University,

East Lansing, 1982). Although women are very active in production in the informal sector (and the surveys cited refer only to the informal industrial/manufacturing sector), they occupy a special niche in the informal sector -- i.e., they are the lowest capitalized and lowest remunerated producers.

According to the study by Badr et alii, all the micro-enterprise groups except dressmakers earn more than the current agricultural wage (i.e, returns to labour in the micro-enterprise group do not fall beneath the level of male wages outside the sector) which suggests that micro-enterprises are formed up to the point at which the returns to the marginal enterprise are equal to the returns to labour in alternative labour allocations. On the other hand, dressmaking and many domestic enterprises "enjoy" returns lower than the prevailing agricultural wage. This does not disprove the relation between marginal formation of informal sector enterprises and alternative employment wage rates. Quite the contrary, those units receiving returns lower than the agricultural wage (for male labour) involve predominantly female labour which has little access to employment as agricultural wage labour (and, then, only beneath the male labour wage rate).

Again according to Badr et alii, "many people are involved in household activities because they must combine this work with other responsibilities, or because their skills are limited,

their ability to change occupations is minimal." The subsectors dominated by female labour are particularly prone to extremely low returns because of low skills, low female access to capital, and limited alternatives because of domestic responsibilities. Thus, "because these activities require little capital and minimal skills, there is an ease of entry into the industries and much competition among producers -- sometimes monitored and manipulated by merchants handling raw materials supplies -- which keeps returns to producers very low." In such a context, domestic production will tend to be full time rather than part-time, involving very long hours with extremely low returns. A large number of very small-scale enterprises are based on a minimum of capital and very low income, deriving their existence only from the absence of alternative viable deployments of labour. This is particularly the case among female producers, suggesting that women suffer from a double disadvantage: i. low levels of access to formal sector employment; ii. low levels of access to resources necessary to prevent location at the margins of even informal sector production.

For the informal sector as a whole Mahmud Abdel Fadil (ILO Employment Strategy Mission to Egypt, 1975) notes that it owes its existence to "a competitive edge in artisanal type of operations mainly because of the absence of scale economies, product differentiation or low-priced market niches, availability of relatively cheap labour, minimal overhead costs, and a substantial personal contribution in

the form of long work hours." For female production, concentrated in a few sub-sectors where there are few skill or capital barriers to entry, this competitive edge is gained only through the longest and lowest rewarded application of human labour -- made possible by the location of production within the home and the geographical superimposition of productive and reproductive activities. What is more, although this production is constantly threatened by the encroachments of large scale modern industry, it is also subject to the severest internal rigours arising from intense competition among female producers whose position allows them but a limited range of productive outlets.

The context of female production in Egypt is thus very different from that prevailing in the Yemen Arab Republic, as is its relation to development goals. Unlike in Yemen, the major obstacle to participation in the modern sector is not lack of general education. It is clearly the case that women are less well educated than men in Egypt, but the difference is not so great as to explain the tremendous differential in modern labour force participation. The domestic labour burden in the urban areas seems to lie heavily upon female modern sector participation in a fashion that is probably inseparable from the relative surplus of labour, a condition that hardly prevails in Yemen. It might be the case the the lack of specialized industrial education for females is an obstacle in Egypt. In Yemen, however, the lack of labour is already precipitating the development of activities by

employers to provide this -- to women.

On one formal level, the situation of women might appear somewhat similar in the two countries -- in both the real extent of female economic activities is hidden by their location in the "informal" economy. However, the dissimilarities are also pronounced. In Yemen women are active in a sector in which there is a proven market and prices are relatively high. This is not the case in Egypt, where female production competes with other female production and, to some extent, with the products of modern industry in markets which are very far from buoyant. Paradoxically, the problem of female labour is too much production (in particular areas) rather than too little. To this extent, support for the development of the value of female production must involve less a simple strengthening of existing activities than a major effort of diversification into new products and markets requiring substantial support in design, production and marketing. Again, the major issue in Egypt is not liberation of labour time to allow for the expansion of commodity production. The problem is that the time devoted to commodity production is already probably excessive (relative to rewards) -- that the time devoted to commodity production itself produces very little. Finally, whereas the problem confronting many women in Yemen as they stand on the verge of the modern sector might be the social reorganization of reproductive activities, in Egypt, where there seems little foreseeable chance that the mass of women (like the mass of

men) will enter into modern sector production, the question may be less on of reorganization of reproduction than the reorganization of informal production itself in a situation where the conditions for improving the lot of informal sector producers are not limited to capital requirements (which are, in fact, pressing), but involve various forms of cooperation among producers at the level of production and commercialization. It seems very unlikely in Egypt that basic material inputs such as improved water supplies and fuels could have the direct positive impact upon female production that appears to be the case in Yemen.

No economy, least of all that of Egypt, can really afford to have large masses of labour trapped in areas of low productivity. Although it is arguable that attempts to introduce masses of female labour more readily into modern sector production are, to state the least, quixotic in a context where the expansion of employment opportunities is limited (albeit it should be note that some areas -- such as construction -- have suffered from inadequate supplies of trained male labour), the vitality of the informal sector should still be of fundamental concern. Quite apart from the fact that the informal sector plays an important role in sustaining a large proportion of the population, and that, therefore, productivity in the sector is closely linked to the general popular standard of living, the informal and artisanal sector can play a significant ancillary role in industrial development when strategically linked in a

complimentary fashion to the input requirements of modern industry -- and can, in some circumstances provide the basis of development of new industrial sectors. In this case, the conditions of female producers are of particular concern, for lack of rudimentary credit, technical assistance, and training support are definitely depressing the level of productivity of a large percentage of the informal sector labour force. This being said, it is also clear that the issue of female production in Egypt requires a considerably more differentiated approach than in Yemen. The issue is not of general education, but of education to support development of female activities in particular sectors. The question is not simply of support for what is already being done, but of support for a change in activities to alleviate female "overproduction" in some areas.

C. Tunisia. Integration into the Formal Sector

In many respects Egypt represents a more "typical" case of women's production in developing contexts than the Yemen Arab Republic -- especially with regard to the importance of non-agricultural informal sector activities, sectoral over-concentration, and major difficulties (even greater than those experienced by males -- which are considerable) in access to means of production and training in a situation where the history of social development has been one of gradual separation of producers from significant personal holdings of means of production (land, capital, etc.). In Egypt, unlike Yemen, the effect of domestic reproduction

facilities is not to keep women out of the real labour force, but to force them into it at its most unrewarding points. However, it should also be noted that the substitution of the Egyptian case for the Yemen case as "typical" is also erroneous -- even in the context of the "Middle East".

The Tunisian case provides an apparent contrast to the Egyptian in regard to both female labour force participation and the sectoral distribution of female labour. According to the Tunisian 1975 Population Census female labour force participation rates are above 10 per cent for all age groups beneath 65 years, reaching as high as 29.3 per cent for the 15-19 age group (see Table 28).

Table 28. Tunisia: labour force participation rates by sex and age, 1975

	Total		Male		Female	
Age	Census	ILO	Census	ILO	Census	ILO
15 and over	44.5	41.1	70.3	78.5	18.0	6.4
15 to 19	46.8	28.5	63.5	46.9	29.3	9.7
20 to 24	55.6	48.2	84.7	87.7	27.3	10.2
25 to 44	55.4	47.1	97.4	96.2	16.7	5.2
45 to 54	56.7	47.4	97.4	92.4	14.0	4.9
55 to 64	48.3	41.7	78.7	80.5	10.4	3.7
65 and over	25.4	21.8	41.7	45.4	5.4	1.8

Source: Census data from 1975 Census of population, ILO data from Labour Force Estimates and Projections, 1950-2000. Geneva, 1977.

These figures rather clearly show that the problems of female production cannot be ascribed simply to labour force

marginalization for while female participation is still much lower than male participation it is not at the almost "token" level found in Egyptian statistics. The juxtaposition of the ILO and Census statistics in Table 28 also indicates, however, the enormous difficulties in gaining an accurate picture of female employment at the national level. The ILO estimates put female labour force participation at almost 1/3 of the Census figures -- depressing them almost to Egyptian levels. It is not clear here why this large discrepancy exists -- whether, for example, the ILO data reflect "formal" employment and the Census data all employment, or whether one reflects full-time employment, and the other part-time. Similar questions could be posed in relation to the "meaning" of the Egyptian data, the essential point being that although a number of countries might possess more female-specific economic data than the Yemen Arab Republic, the necessity to reconstruct data on the basis of clear criteria is nonetheless present.

Although the meaning of the absolute level of female employment reported in the 1975 Census in Tunisia is open to question, it is clear that there has been a very significant increase in female labour force participation, which more than tripled between 1966 and 1975. Particularly significant here is the large growth in labour force participation rates for females between the ages of 25 and 39, a period in which women are especially vulnerable to the effects of domestic responsibilities. Between 1966 and 1975 the participation

rate for the 25-29 group rose from 5.3 per cent to 21.2 per cent, for the 30-34 group from 4.2 per cent to 16.2 per cent, and for the 35-39 group from 4.2 per cent to 16.2 per cent (see Table 29).

Table 29. Tunisia: female labour force participation by age, 1966 and 1975

Age	1966	1975
15 to 19	8.9	29.7
20 to 24	8.7	26.8
25 to 29	5.3	21.2
30 to 34	4.2	16.2
35 to 39	4.2	16.2
40 to 44	4.8	14.4
45 to 49	4.6	14.1
50 to 54	4.4	13.0
55 to 59	3.8	11.3
60 to 64	3.4	8.6
65 and over	2.0	4.8

Source: Annuaire Statistique de la Tunisie, Institut National de la Statistique, Tunis, 1978.

This growth in female labour force participation rates expresses the relatively rapid growth of the Tunisian economy in the period (as well, perhaps, as the role of male international migration in that expansion). The significant expansion of the industrial sector also set the scene for a strong concentration of females in directly productive roles, which stands in very marked contrast to Egypt. Thus, by 1975 67.5 of female employed, non-agricultural workers fell into the "transport, operatives, labourers" category, a rate that was actually higher than among men (60.8 per cent). By contrast only 13.8 per cent of women were employed in the

category of "service workers" (see Table 30). The equivalent (1975) figure for females in the service sector in Egypt was 66.7 per cent.

Table 30. Tunisia: occupations of employed non-agricultural workers, 1966 and 1975

Occupation	1966 Men	1966 Women	1975 Men	1975 Women
All occupations	100.0	100.0	100.0	100.0
Professional-technical & kindred	6.6	1.4	8.2	8.3
Administrators and kindred	1.3	0.5	0.6	0.1
Clerical & kindred workers	4.4	9.7	10.0	1.3
Sales workers	10.6	1.9	10.5	1.3
Service workers	9.5	21.8	9.8	13.8
Transport, operatives, labourers	67.5	52.4	60.8	67.5

Source: Republique Tunisienne, Tunis, 1966 and 1975

As in the case of the comparison between Egypt and Yemen, the comparison between Egypt and Tunisia suggests that the particular problems faced by women in reaching their productive potential vary according to the type and level of development of the productive system into which they are inserted. The erosion of traditional systems of independent production in the context of limited growth of modern sector employment generates high concentrations of women in severely under-capitalized and fragmented informal activities. Here (e.g., in Egypt) the major issues seem to involve introduction of capital, productive reorganization and training of women to engage in higher value-added production. Where the erosion of the traditional system is accompanied by more rapid expansion of the modern sector, the particular

problems of female informal sector activities are less pressing, but the issue of satisfying the needs of modern sector production -- especially the qualification of labour and ability to satisfy the labour time allocation demands of modern enterprises -- emerge as more generally important. In Yemen the issue involved greater "free" time to use available means of production. In Egypt the issue was of greater access to means of production. In Tunisia, the issue appears to involve more appropriate qualifications for productive employment using the means of production owned by others.

D. Replication of form; replication of content

These differences, which are far from exhausting the variations among national economies in the Middle East, suggest that although there might be perfectly adequate grounds for addressing the issue of women in development from the point of view of actual and potential economic contributions, the parameters of the analysis of this contribution and factors affecting it must vary radically from one area to another. The substantive analysis of Yemen indicates what questions should be asked, and demonstrates that the relevance of women to development can be shown. It does not provide a model to be applied in each and any area. Although the issues raised in relation to Yemen may be present to a greater or lesser extent in a wide variety of contexts, the fact that they are present does not necessitate that they have the same critical significance that they have in Yemen. Production is always conditional upon the amount of

labour time available, the qualification of labour, and labour's access to means of production. It may also be the case that women's production is always affected by these factors as themselves conditioned by the position of women in the (differentially organized) process of reproduction. These are perhaps universal elements of productive structures. But these elements appear in different forms and different combinations in each social formation, and because of this there can be no single model -- precisely because a model is nothing more than a simplified representation of a particular empirical reality.

To return to the cases considered, some of the general concerns raised in Part One receive considerable vindication. The social and technical organization of the process of domestic reproduction is clearly a salient factor in determining the level of women's production in Yemen. It also seems to negatively affect the entrance of Egyptian females into the formal sector labour force. Just as important is a proper appreciation of the current and future potential of activities where women are already broadly situated. In Yemen women already play an important role in agricultural production, and expanded production could contribute significantly to stabilization of the national external account. While women can and will play a positive role in the modern sector in Yemen, there is absolutely no reason to posit their productive potential entirely in terms of what they are not currently doing, to deny support to current

activities. The same is fundamentally true of Egypt. Development is frequently characterized in terms of modern sector expansion, and a common syllogism would have it that increasing women's role in development is therefore a question of increasing the level of their preparation for modern sector roles. However, in spite of the fact that there would appear to be room for a considerable increase in the female percentage of the modern sector labour force, the size and future growth of modern sector employment is itself limited. In this context, it would appear valid to argue that support for current activities is just as important as preparation for employment opportunities that show little sign of developing -- it being understood that what is involved here is support for small scale production which is not necessarily located in the sub-sectors traditionally dominated by women (e.g., garments and textiles), and which can, given proper training and capital inputs, play a much more direct role in servicing the modern sector of production.

Implicitly, asserting the viability of one single model of women in production is also to assert the reality of a single path of development -- in which case analysis can take the form of unrealistic means to impractical ends. Women can play a more productive role in the development process. To demonstrate this, however, it is necessary to concretely show the relation between women in particular situations and particular economic problems. When promoting the issue of

women in development at the policy level, the point is not to pass from universal socio-ethical considerations to an a priori and general insistence upon economic benefits, but to illustrate how women as specifically situated resources can relate to specific and particular problems of national accumulation and development, which, as the brief review of Tunisia and Egypt indicates, can vary considerably. The particular form of this relation can be derived abstractly neither from "women" or "development", but only concretely from the macro-economic contradictions of each national economy, which themselves dictate which resource is or can be relevant to which problem. In this context the value of the Yemen model is not that it can be applied directly elsewhere, but that it demonstrates the feasibility of estimating (even where relevant data are scarce) the current and potential economic contributions of women, identifies the effects of particular female-specific constraints upon production, and indicates returns to quite concrete development programme interventions. Its apparent success in gaining the attention of yemeni policy makers is precisely a result of quantification and direct orientation to national conditions, problems and goals. From the point of view of replication, therefore, its most valuable use lies in the method rather than the results -- not only with regard to quantification, but also with regard to quantification of aspects of the economic situation which express fundamental local contradictions of production at the level of the national and "female" economies.