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Upper Volta
Investment in Human Resources
Country Economic Memorandum

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Country Programs I

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Fiscal Year = Calendar Year

Weights and Measures = Metric System

Average Exchange Rates (CFAF = US$1.00)

1970	277.7	1976	239.0
1971	277.0	1977	245.7
1972	252.2	1978	225.6
1973	222.7	1979	212.7
1974	240.5	1980	211.3
1975	214.3	1981	271.7
		1982	328.6

BCEAO	-	Banque Centrale des Etats de l'Afrique de l'Ouest
CCCE	-	Caisse Centrale de Cooperation Economique
CFJA	-	Centre de Formation des Jeunes Agriculteurs
CNDI	-	Caisse Nationale des Depots et des Investissements
CSPPA	-	Caisse de Stabilisation des Prix des Produits Agricoles
CSPS	-	Centre de Sante et de la Promotion Sociale
EPI	-	Expanded Program of Immunization
INSD	-	Institut National de la Statistique et de la Demographie
MCH	-	Maternal and Child Health
MOH	-	Ministry of Health
MOP	-	Ministry of Plan
ORD	-	Organismes Regionaux de Developpement
PES	-	Post-Enumeration Survey
PHC	-	Primary Health Care
SOFITEX	-	Societe Voltaique des Fibres Textiles
TFR	-	Total Fertility Rate
UMOA	-	West African Monetary Union
VHW	-	Village Health Worker

UPPER VOLTA

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INVESTMENT IN HUMAN RESOURCES

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This report is based upon the findings of an economic mission to Upper Volta in February 1982, led by Paul Isenman (Senior Economist). Mission participants included Christine Kessides, Philip Berlin, Jacob Meerman, Economists; Andre Prost, Health Specialist; Adriaan Verspoor and Djamalddine Rouag, Education Economist and Educator, respectively. Mr. Philippe Bossard (consultant, UNDP) assisted the mission in the analysis of investment planning. Ms. Althea Hill provided the demographic analysis. The report also incorporates information received during a joint IBRD/UNESCO education sector mission and IBRD health sector mission in November 1981, from subsequent project preparation missions, and from an IMF mission in March 1983. The report was submitted to Government in draft form in February 1983. The Government prepared written comments which were discussed with a Bank mission in April 1983. The present version of the report reflects the outcome of that discussion.

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I. THE MAIN REPORT

1. Background - Why the Emphasis on Human Resources Development

1.1.01 Poverty in Upper Volta, as in most of the Sahelian countries, has its origins in the natural environment. Rainfall is highly variable both between regions and from year to year. The average rainfall ranges from 500 mm in the far north to 1200 mm in the southwest, with most cultivated land receiving between 600 and 900 mm. Soil quality is also highly disparate, although generally more fertile in the southwest. Most of the available agricultural land consists of shallow soils which are easily eroded and depleted of organic matter by traditional methods of cultivation. There are few river systems with a permanent water flow throughout the year; the potential for irrigation and hydroelectric power is therefore very limited and costly to develop. The known mineral deposits, consisting mainly of manganese, phosphates and massive sulfide, also face high costs of exploitation, exacerbated by the country's landlocked position some 600 km from the sea.

1.1.02 Given this impoverishment in physical resources, it is especially true for Upper Volta that her most important productive asset is her people. The demographic factor has had a complex effect on the country. For reasons of tradition and the prevalence of riverblindness in many of the more fertile areas of the south and southwest, the population is disproportionately concentrated in the central plateau, where density in some areas reaches 80 persons/km^2, versus an average of about 20 for the country as a whole. The pressure of population on the central plateau has led to declining fallow, rapid deforestation, and deteriorating soil fertility and has given rise to a steady movement to the less populated areas of the country, including those areas presently freed of riverblindness. This internal migration has brought much needed productive resources into use, although for a number of reasons resettlement cannot resolve the country's basic resource constraints: the "new" areas also have fragile, easily spent soils; in some regions adequate ground or surface water is lacking; and the ethnic disparity between the long term residents and the newcomers, while not a major source of conflict at present, suggests that traditions may impede massive relocations of population. The growth of urban areas has also provided some outlet for rural demographic pressure, although the 6 percent annual urban increase and 10 percent share of urban population 1/ are among the lowest rates in Africa.

1.1.03 The most striking population movement in Upper Volta for many years, and the most significant economically, has been the emigration of young workers to the coastal countries, primarily the Ivory Coast. About 0.6 percent of the population (or one-fourth of the natural increase) emigrates permanently each year; roughly half of the emigrants are working age males. In recent years the trend has been towards increasing emigration of families and employment of emigrants in urban areas rather than on the coastal plantations. Emigration has provided a safety valve for population pressure and has

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1/ Updated to 1981, based on a 9.0 percent share of urban and semi-urban population given in 1975 census.

resulted in an annual inflow of remittances amounting to about 8 percent of GDP, which represents an even more important addition to the income of the rural households receiving most of these savings.

1.1.04 The qualitative aspects of Upper Volta's population profile - the level of development of human capital, as measured by education and health status - have changed little relative to most other countries. Upper Volta achieved independence with an extremely small stock of education and health facilities, and a consequently abysmally low level of literacy and life expectancy. Two decades later, enrollment ratios and life expectancy remain virtually the lowest in the world, as apparent from the following table.

Table 1: COMPARISON OF BASIC NEEDS INDICATORS

	Upper Volta (1979/80)	Low Income Countries in Sub-Saharan Africa 1/ (1978)	All Low Income Countries 2/ (1978)
Number enrolled in primary school as percent of age group:			
Both sexes	19	56	74
Females	14	50	63
Number enrolled in secondary school as percent of age group	3	10	20
Number enrolled in higher education as percent of population aged 20-24	0.2	1	2
Life Expectancy at Birth	43	46	50
Child Death Rate (Ages 1-4) (per 1000 per year)	31	27	18

Source: 1/ IBRD, Accelerated Development in Sub Saharan Africa; 1981, Table 38.

2/ IBRD World Development Report, 1981, Table 23. Excludes China and India.

1.1.05 Although the economy has grown approximately 3 percent annually for the last two decades (about 1.5 percent per capita), it will be difficult to increase - or perhaps even to maintain - this rate given the weak and deteriorating physical resource base and the severe imbalance between the quality of human capital and the economy's requirements for it. To achieve self-sustaining growth of income, even at a fairly low level, the country will have to improve the productivity of its own resources - which must include reversing the decline in productivity of agricultural resources in the most heavily populated areas--and develop human capital whether for domestic employment or for work abroad. In the agricultural sector, further increases in production will require the refinement and adoption of farming systems which combine improved inputs with soil and water conservation and the integration of livestock with crop cultivation. This approach will place a premium on educated manpower to disseminate the new farming techniques, and on a minimally educated farm population to apply them. Further increases in industrial output will also depend on the availability of a schooled labor force as well as on the growth of demand and raw materials to process.

1.1.06 If Upper Volta is required to achieve a much higher level of GDP before the majority of persons can receive a basic education and minimal health care, they will have a bitterly long wait. Yet the experience of many other countries suggests that there is little reason to expect that economic development must precede improvements in human capital. Much has been learned in recent years about the impact which investment in human capital has on economic growth. 1/ The spread of formal education, in particular primary education, has been found to be a highly significant factor in the development of attitudes favorable to change and of the capacity to acquire knowledge - both prerequisite to the adoption of improved technologies which could raise productivity in all sectors of the economy. Cross country comparisons have shown that developing nations with higher literacy rates have grown faster, even allowing for other factors contributing to economic growth and for the converse effect of income growth on education. Consistently, in studies covering a wide range of countries at all income levels, the economic rates of return to investment in education have been comparable to those in other sectors, and for primary schooling usually over 20 percent.

1.1.07 Improved levels of education, health and nutrition are mutually supportive in their effects on the growth of incomes and on the alleviation of non-economic aspects of poverty. Primary education, especially of women, has proven to be the single most important determinant of declines in infant mortality, by inducing change in nutritional and health practices. Along with education, better nutrition and health enhance worker productivity. They also contribute to declines in fertility - and with a lower ratio of dependents to adult wage earners, the family and the nation can afford a larger investment per person in physical capital and human skills, thus enjoying larger future incomes.

1/ A large part of this research is discussed in IBRD, World Development Report, 1980.

1.1.08 Accelerating the development of human capital will ultimately enhance Upper Volta's growth prospects, as it will add to the resource base and provide a permanent asset to the individuals who receive the education and health services. The central problem at the present time is that, given the existing cost structure, the country cannot afford the financial price of improving its economic resources in this way. About 8 percent of the budget is already devoted to maintaining a primary enrollment rate of 19 percent - and to enroll the entire 7-12 year age group by the year 2000, at present costs, would absorb one-third of the budget for primary education alone. The costs of primary education mainly reflect the relatively high teachers' salaries, which amount to 17 times GDP per capita. Teachers and other educated personnel can command such salaries because of several factors. One is the action of trade unions which have been particularly strong in the case of teachers, and whose power is reinforced by the small numbers of salaried workers. A second element is the ability of trained manpower to find employment in higher-income neighboring countries, particularly the Ivory Coast, whose salary structure thereby exerts an upward influence on wages in Upper Volta. Finally, the state itself (together with the parastatal sector) hires more people that it can economically justify, putting further pressure on wages. Thus, factors both of supply and demand maintain the entire salary structure for educated manpower at excessively high levels for the Voltaic environment. The approximately 20 percent of the current budget spent for education at all levels purchases far fewer educational services than in most developing countries, and enrollment and literacy rates continue to grow but slowly--thereby completing a vicious circle. A successful approach to accelerating the development of human resources will have to address the central issue of the high cost structure of education.

2. The Development Challenge

1.2.01 The creditable rate of growth which the Voltaic economy has maintained over the last decade - particularly in comparison to the performance of many other countries in the Sub-Saharan region which face the same or even less restrictive resource constraints - suggests that the Government has achieved a favorable record of economic management in many respects and that the large inflow of foreign capital has been put to reasonably good use. The Government has generally taken a very reserved and noninterventionist stance towards economic policy throughout this period. To the extent that Government has let private initiatives operate without overtaxing production, and has avoided a dominant role for public enterprises in the productive sectors, this position has been beneficial to the economy. At the same time, however, the Government has tended not to exercise much coordination and oversight in such crucial areas of the economy as public financial management and planning of public investment. This trend has persisted despite the alternation of civilian and military regimes. A critical issue at the present time is that for the goals of development to continue to be served, the Government will have to acquire a stronger capability of planning, analysis, and execution of the key areas of developmental policy.

1.2.02 This requirement has arisen for several reasons. In the first place, it is becoming increasingly apparent that while good investment opportunities (such as to further extend cotton production) do exist, they are generally on a small-scale. Most of the future increases in production will only be achievable over the longer term and will require considerably more inputs of management and research which will have to be coordinated by Government. It is also evident that the pace and style of expanding human services have been woefully inadequate; what is needed is a strong and foresighted planning by Government and marshalling of both domestic and external resources for this purpose.

1.2.03 Secondly, prompt and decisive action is required to address existing problems which have been allowed to grow to worrisome proportions. The most notable examples include the recent trends of budget deficits and public enterprise losses which demand corrective measures so that specific areas of instability in the economy do not spill over and distort activities in other sectors.

1.2.04 Thirdly, although Upper Volta may continue to receive favored status from the aid donors as one of the least developed and most needy recipient countries, the generally worsening climate of foreign aid suggests that determining priorities for the use of external financial resources will become an increasingly significant task - and one which the Government to date has not adequately undertaken.

1.2.05 Successive governments in Upper Volta have espoused the same basic objectives--that is, to pursue self-sustaining development (and in particular, to achieve food self-sufficiency), to accelerate the provision of social services, and to actively undertake development with the country's own resources. Difficult and often unpopular measures may be required to achieve these objectives. The present economic memorandum takes the view that economic management in Upper Volta is at a crucial stage. The Government has not inherited a burden of irreversible policy errors and still has considerable options available to it to pursue a more focused and ultimately more effective development strategy which makes greater use of the country's own financial resources - but if steps are not taken soon to adopt such a strategy, Government's actions could rapidly become more constrained, with a consequent worsening of development prospects. The analysis of the report focuses on two broad points:

(a) recent economic performance and the role of Government policy. For the most part (and until recently in some areas) Government actions are seen to be relatively well-directed although frequently ineffective. Improved performance is expected to stem less from correcting past mistakes than from strengthening the role of public policy and planning of public investment.

(b) the concrete prospects for alleviating one of the fundamental constraints to economic growth and poverty reduction, the lack of developed human capital. The report addresses the improvements in human resources development (specifically through the expansion of primary education and health care) which would be feasible through a

tighter management of domestic fiscal resources and greater fostering of one of Upper Volta's greatest assets - the population's traditional commitment to self-help and communal activity.

3. Summary of Macroeconomic Performance

1.3.01 National Accounts. Although the official national accounts for the period 1970-79 indicate an overall GDP growth rate of 1.8 percent per annum, revised estimates by Bank staff show an annual increase of 3.9 percent over the same period, or about 2.2 percent per capita. Real output of the agricultural sector, which contributes almost 40 percent of total value-added, increased 1.6 percent annually during the past decade, less than the rate of population growth. Industrial production, which accounts for about 18 percent of GDP, expanded by 3.5 percent per year from 1970-79. The main source of growth in the economy was government and other services, which increased 5.6 percent yearly over the same period. The greatest expansion in the services sectors accompanied the substantial increase in externally-financed development projects which followed the drought. Total output fell sharply in 1980, largely because of a recurrence of poor weather which depressed crop production, but the economy returned to a positive growth trend in 1981 and 1982.

1.3.02 The incremental capital:output ratio has averaged about 5.0 during the past decade. The productivity of investment might have been greater but for the dearth of resources besides external capital in the country, and the lack of coordination of public investment which is almost entirely donor-financed.

1.3.03 Evaluating savings performance is complicated by the fact that the distinction between investment and consumption is difficult to draw, and because of the country's heavy dependence on foreign resources. For example, much of what is recorded as Government consumption represents "development expenditures" which are collateral to fixed investment--such as expenditures on agricultural extension--and which are financed from abroad. It is also the case that a significant share of foreign aid directly supports consumption (e.g. food aid) rather than investment. Since private consumption and savings cannot be directly determined with any accuracy, estimating these values from other national accounts aggregates poses the problem of classifying the sources and uses of resources. To illustrate, estimating gross domestic savings as the difference between investment and the resource gap produces a large negative average savings rate -- yet this rate reflects mainly the availability of foreign aid and workers' remittances which have generated the demand for, and financed, a large flow of imports. If remittances and some share of foreign public transfers are deducted from the resource gap (on the grounds that these represent consumption rather than foreign savings), the resulting value of gross national savings is significantly positive.

1.3.04 A more meaningful assessment of domestic resource mobilization can be obtained from less aggregated sectoral data. It is clear that domestic savings are highly constrained in Upper Volta, where incomes are close to subsistence level and opportunities for productive investment relatively scarce. Yet what private investments there are have apparently been largely self-financed through private domestic savings. As to the public sector's savings performance, tax revenues have been fairly elastic, although a much tighter control of expenditure is needed to ensure a satisfactory level of public savings in the future.

1.3.05 The Monetary Sector. As a member of the West African Monetary Union (UMOA), Upper Volta is guaranteed convertability of its currency and is subject to union guidelines on the growth of money and credit. An external source of liquidity in the case of Upper Volta--workers' remittances--provides an additional stimulus to the economy. Although not accounted for in monetary policy ex ante, these inflows have probably substituted for some of the credit that would otherwise have been demanded from the banking system. Whereas the growth of credit to the private sector was modest over the 1976-1981 period (remaining a steady 19 percent of GDP), which partly reflects sluggish demand, central bank credit to the Government increased markedly to finance budgetary shortfalls. In the last couple of years the Government has come close to its statutory limit of credit from the Central Bank. Public enterprises have become an increasing source of demand for bank credit - at the same time, their worsening liquidity situation has led to growing credit defaults. These trends underline the necessity of improved budgetary management and financial reform of public enterprises, to achieve more efficient domestic resource allocation.

1.3.06 The economy's dependence on external financial inflows, both private and official, may help explain the sources of domestic inflation, which has remained higher than international price trends. In order to maximize the benefits from these inflows and minimize their inflationary import, it is particularly important that they be directed to financing productive activities.

1.3.07 Balance of Payments. Balance of payments policy is also carried out within the framework of the monetary union. The main determinant of the external position is the availability of foreign financing (aid and remittances) which sets the limits of the country's capacity to import.

1.3.08 Recorded exports grew 6.4 percent annually on average from 1976-81, although with wide swings from year to year - for example, both cotton and livestock exports dropped 20-25 percent in 1981. Recorded imports expanded at an annual rate of 4.9 percent with cereals, capital goods and petroleum the fastest growing imports over most of the period. In the aggregate, these purchases were counterbalanced by grants (for example, food aid) and loans for development projects. The trade gap more than doubled from 1976-81, largely because foreign resources were available rather than because domestically-generated aggregate demand resulted in deficits which required

financing. A substantial decline in these inflows would be followed by a reduction of the trade gap, but also of investment and growth. The trade imbalance does not signify a need at the present time, therefore, for additional policies to dampen internal demand, but measures to reduce the growth of petroleum imports and ensure buoyant export sectors (especially cotton and livestock) will be important to achieve greater stability of the external account over the long term.

1.3.09 Public Finance. Public financial management in Upper Volta is complicated considerably by the absence of a centralized and explicit accounting for major areas of expenditure. Given the general looseness of financial procedures, performance in this sector has not been too bad in the past - the overall deficit on central Government operations averaged only 2 percent of GDP in 1977-81, which was largely met by the Central Bank within its credit restrictions and by drawings on cash balances accumulated during earlier administrations. The trend appears to be towards increasing deficits, however.

1.3.10 Fiscal revenue mobilization can be summarized as relatively good in certain areas and poor in others. Potential sources of increased revenue exist which should be exploited, although the scope is not great for very substantially increased revenue. Financing an expanded program of expenditure in certain areas such as education and health will only be possible, therefore, if the present allocation of budgetary resources undergoes substantial revision.

1.3.11 The pattern of budgeted expenditure indicates that defense, student stipends, and general administration--all items with little real impact in terms of production or the expansion of public services--place the largest demands on fiscal resources. But a very large share of expenditure (such as for agricultural extension) does not appear in the national budget. Moreover, the expenditure claims on Government for the local share of investment projects and for the ensuing recurrent costs cannot be assessed because the Government does not consolidate ongoing investment expenditures or incorporate recurrent cost estimates in any systematic way into the preparation of the national budget.

1.3.12 The financial requirements of the Government to cover the operating losses of certain public enterprises (such as the railroad) are likewise poorly accounted for, although they already represent a significant burden. If the situation is not redressed soon these financial claims could seriously drain the Treasury as well as disrupt the services which the public enterprises are supposed to deliver. As one indicator of the potential magnitude of the problem, the debt service of the parastatals for which the Government is liable in the event of default amounted to 53 percent of all public debt service in 1981. The Government has begun to examine measures to rehabilitate certain of the public enterprises. More generally, there is a need to reevaluate the Government's participation and to provide the appropriate conditions to ensure their financial viability, which could imply either a relaxation of public involvement (e.g. in price regulation) in given activities or greater assurance of public budgetary support for enterprises of an essentially administrative character.

1.3.13 Overall, the public financial situation in the past few years has been marked by a rapid deterioration, in the sense of a growing imbalance between the demand and supply of public financial resources. Although to some extent this imbalance is inevitable given the rapid expansion of investment activity, the major issue of concern is that the Government manifests insufficient control of its financial obligations, so that it is unable to adequately plan for necessary adjustments in revenues and expenditure. A better management of financial resources is essential -- implying stricter accounting of all ongoing obligations, capital and recurrent, and more selectivity concerning future commitments -- if broader impact is to be obtained from them to expand human capital and other development programs.

1.3.14 Investment Planning. The planning function in Upper Volta has been oriented mainly towards maximizing the inflow of foreign assistance rather than towards setting priorities or assessing limits on absorptive capacity. The weaknesses of planning have been exacerbated by the large and rapid inflow of foreign aid during the past decade, which has financed almost 90 percent of all investment. It is now necessary, particularly with the increasing impact over time of the recurrent cost requirements of these projects, for the Government to evaluate more carefully aid proposals, suggesting changes in design to reduce recurrent costs and improve efficiency. The need for a substantive change in the quality of planning is made even more urgent by the prospect that the availability of aid is becoming more constrained and by the fact that the Government's own development priorities require a focusing of foreign resources on certain areas such as recurrent cost financing. Improved coordination between investment planning and budgeting is an essential first step to permit Government decision-makers to assess their capacity of absorbing new investment and the ensuring recurrent costs.

4. The Agriculture Sector

1.4.01 The prospects of the Voltaic economy depend essentially on those of the agricultural sector (crops and livestock) which is still largely subsistence-oriented. Further increases in production require measures to raise productivity which entail heavy inputs of management and coordination. To realize these improvements it will be necessary to make more efficient use of the very scarce administrative and recurrent financing resources of Government.

1.4.02 In the area of rainfed production which accounts for the bulk of crop output, the main emphasis in the Southwest should be on further improving cereal yields to enable more of the region's resources to be shifted into higher value export crops. An approach to assisting migrants in the region to adopt environmentally-sound farming practices is also an urgent priority. On the central plateau, adaptive research is needed to address the lack of widely applicable technologies and the deteriorating resource base, which are the fundamental constraints to increased production. Many of the same technological problems must be faced in the eastern region, where the absence of transport infrastructure is a major additional barrier to exploiting unused agricultural resources.

1.4.03 Although the theoretical potential for irrigation is considerable, there are formidable obstacles to its development on a large scale at the present time. In view of the serious technical and managerial problems confronting many existing schemes, priority should be given to strengthening the returns achieved on those areas already developed and to expanding cultivation of small bottomlands.

1.4.04 The institutional and financing issues in the sector arise because the present allocation of public financial resources is already exceeding Government's capacity, without addressing the major constraints and areas where returns can best be achieved. Improving the utility of agricultural research will require a much stronger coordination of the many donor-assisted interventions by both the Ministry of Higher Education and Scientific Research and the Ministry of Rural Development. The productivity of agricultural extension can be improved by better staff supervision, and by contracting the service to make it consistent with the tasks which can be effectively carried out. Direct public intervention in cereals marketing may be a less productive use of resources than financing measures which alleviate the constraints (such as poor roads) which handicap private as well as public marketing efficiency, or improving agricultural services (such as extension) which further food supply objectives. Expenditure on fertilizer subsidies poses a major burden on public revenues which, because of Government's inability to finance the subsidy during recent campaigns, has led to a rupture of supplies in certain areas. In this way, the subsidy policy runs counter to the objective of increasing fertilizer use and overall output, and absorbs resources which could be better allocated to addressing other constraints to production.

1.4.05 The livestock subsector is characterized by low productivity, stemming from poor animal health, shortages of water and good quality pasture, and the high cost of alternative foodstuffs. Measures to combat diseases are reasonably assured of effectiveness, but will be only practicable if cost recovery is increased. Improving extensive herding will depend on successfully addressing the difficult cultural and administrative issues concerning land rights of herders and cultivators. Over the long term, intensifying livestock production by integrating it with crop farming is the major prospect for livestock development, but much more adaptive research will be needed to refine technical themes for mixed farming which are economically and financially attractive.

5. Human Resources Development

The Demographic Factor

1.5.01 The qualitative and quantitative profile of Upper Volta's population in large part determines the developmental constraints which the country faces as well as the prospects of dealing with them. Although Upper Volta's population is at least as youthful as that of many developing countries, and it has been slower-growing in the past than many, the very poor educational and health status implies that the challenge of raising the standard of living is especially great and will become more so as population increases more rapidly in the future.

1.5.02 Alternative demographic projections indicate that, depending essentially on the changes in fertility and emigration that occur, total population could grow from its current size of about 6.4 million to at least 10.5 million and conceivably to nearly 16 million in 30 years. The trends in emigration have a particularly striking effect on future population size. A continuation of the net emigration rate which prevailed in the past decade would produce a total population in the year 2010 which is 25 percent lower than if emigration were to cease; under certain assumptions regarding an increase in emigration, total population in thirty years could be reduced by 40 percent. Even if a modest decline in fertility were only to begin after 1995, the total population fifteen years later would be about 8 percent lower than if there had been no change, regardless of the migration assumption. The potential for future growth would be dramatically curtailed, with the growth rate in 2005-2010 cut by 25-30 percent.

1.5.03 The rate and pattern of population growth have major implications for the demand on social services and economic resources. For example, the primary school age population will grow 20-40 percent over the next 15 years and by 60-140 percent in thirty years. The natural increase in the primary school age group (with no emigration) would be cut in half by 1995 if the highest migration assumption were in force, however. A decline in fertility would reduce the numbers about 12 percent after fifteen years. The pool of men and women of working age is likely to more than double over the next thirty years; about 3 million persons would be added to the labor force, or about 4.5 million if there were no net emigration. Under the highest population projection, almost all the stock of usable agricultural land will be needed by 2010 just to maintain current per capita levels of food supply.

1.5.04 Under any foreseeable circumstances, the demographic trends to be faced during the next couple of decades point to the urgent necessity of achieving more cost effectiveness in public services, improving agricultural productivity, and managing the use of natural resources. In order for these improvements not to be outpaced by population growth, concerted efforts should be made now to start reducing the rate of population increase, both by maintaining an open policy towards emigration and providing more encouragement of family planning. Improvements in education and health status -- although they may lead to an increase in population growth in the near term -- are necessary conditions for a sustained decline in fertility, in addition to increasing beneficiaries' economic prospects (including the opportunity of emigration).

The Approach to Expanding Human Resources Services

1.5.05 In Upper Volta the unmet needs for education and health care are already vast, as indicated by the enrollment rates and life expectancy cited earlier. At the same time, the costs of expanding these services are formidable - for example, the ratio of teachers' salaries to per capita income in Upper Volta is among the highest in the world, even taking account of differences in the supply of educated manpower. Expanding education and health services will only be possible, therefore, if different approaches are taken than in the past to the design of services and to their financing.

1.5.06 A strategy for human resources development in Upper Volta must in the first instance define a very basic level of education and health care which can be provided to a wide share of the population in a reasonable period of time. Strict choices need to be made to determine the most cost-effective interventions. In education, the proposal is made here to deemphasize certain traditional objectives such as a high level of teacher training in favor of providing more and better textbooks, teaching materials, and teacher supervision - which can ultimately improve the quality of instruction at lower cost. In health, the already modest targets of health care set by the Government need to be phased in more gradually so that in the near term there is less expansion in the network of health facilities and more emphasis put on improving drug provision, immunization coverage, staff retraining, and planning and evaluation in order to make most effective use of health resources.

1.5.07 A workable approach to accelerating the development of human resources must address the recurrent financing constraint above all. Substantial progress would be needed in all of the following areas to arrive at the formulation of affordable programs:

(a) reducing the determinants of high unit cost directly - especially by changing the composition of professional staff so as to lower average salaries;

(b) adjusting the efficiency of expenditures--for example, through better allocation of existing personnel and a higher ratio of expenditures on materials relative to salaries;

(c) shifting the internal allocation of budgetary resources, both within the health/education sectors and by allocating larger shares of the national budget to these sectors;

(d) shifting some of the financial burden from Government to private individuals: through fees for services (in hospitals); village contributions, especially to capital costs and recurrent materials (e.g. drugs); and encouraging the private sector as a substitute for free or subsidized government services (private schools and private medical practice); and

(e) raising additional public revenues to be allocated to education and health.

1.5.08 Education Sector. This report makes a number of recommendations aimed at enabling Government to increase primary school enrollments relatively rapidly (8-10 percent per year). There are a number of possible combinations of policy reforms - pertaining both to the financing of education and to the structure of unit costs -- which could enable this increase to be achieved. A substantial reduction in unit costs could be realized through the introduction of a new cadre of instructors at a lower salary level than the current staff and by a limitation on the rate of internal promotions within the service to make wage increases more closely reflect gains in teaching proficiency. Some reallocation in expenditure priorities within the education sector will likely

be needed as well, for example, with a reduction in the share of resources accorded to stipends for secondary school and university students, which at present absorb nearly 40 percent of the education recurrent budget. Transferring more of the costs of secondary and higher level education to private individuals and their families would remove a glaring inequity in the present financing of education, whereby primary school students pay higher out-of-pocket expenses than students in secondary schools and universities (net of stipends). Even with these reforms in place, an increased level of external funding of the incremental recurrent costs will be necessary for an extended period before an expanded education system can be fully sustained with domestic resources.

1.5.09 Health Sector. Major improvements in the health status of the population will only occur over the long term, through larger enrollments in primary education (especially increases in female literacy), greater access to safe water and sanitation, rising income in rural areas, and expanding food production--as well as a continuous extension of preventive health coverage and improvements in the quality of curative services. The significant level of funding devoted to the sector could have a much greater impact on the health status of the population if redirected to support a coherent health strategy which focuses on cost-effective approaches to the major health problems and mobilizes private resources to finance health care. The Government's primary health strategy contains most of the elements needed to address the two major objectives in the sector: the reduction of mortality, especially in infants and children, and the reduction of morbidity in adults. The constraints to implementation--financial, administrative, and manpower-related--are formidable, however, and require careful selection of priorities for action. The gradual implementation of a primary health program--implying the provision of a primary health post in 40 percent of villages by 1990 and to all in twenty years--would require an increase in the budgetary allocation to health, as well as the adoption of measures to generate private initiatives for the financing of village health workers, drug supply, and hospital operating costs. Increased donor support of recurrent costs would enable primary health care to be extended while the major financing reforms take effect.

6. Conclusion

1.6.01 Overall, Upper Volta's economic performance during the past few years compares favorably with that of many of its neighbors in the Sub-Saharan region, especially in view of the country's extreme constraints of physical and human resources. This performance reflects in large part the Government's sound and prudent economic management and the effects of the large inflow of external capital during this period. These foreign transfers, primarily development assistance and, to a lesser extent, workers' remittances, have provided the main stimulus to the growth of the secondary and services sectors and to the demand for external goods and services. The most serious shortcoming in the Government's record is the absence of monitoring and coordination in the central area of public finances and investment planning. The Government clearly has insufficient oversight of the nature and extent of its

financial obligations, with the result that it is unable adequately to ensure that its development objectives can be pursued, to make necessary adjustments in revenue and expenditure, or even to direct foreign financing to meet the expected budgetary shortfalls.

1.6.02 The future course of the economy will depend critically on the Government's taking a firmer hand in managing capital and recurrent resources so as to address the major constraints to increasing productivity. The present analysis indicates that the authorities are not burdened by policy errors of the past, and that it is possible to envision a realignment of priorities to achieve substantial gains in the development of agriculture and of human resources. In particular, a substantial expansion of primary education and health care could be achieved in a decade if certain reforms in strategy and policy are undertaken and with a concerted mobilization of domestic resources from both public and private sources.

1.6.03 Under these circumstances, the justification for and the practicality of donor support for some of the increased recurrent costs over an extended period becomes clear. Provided that the Government undertakes to expand services within a coherent sectoral framework as outlined here, and adopts necessary measures to adjust costs and generate domestic resources, the major danger of external recurrent financing of human services - that it will permit an expansion which the country will never be in a position to support independently - is considerably reduced, although for a country in Upper Volta's tenuous economic situation, this danger can never be completely eliminated. It is also incumbent on the Government to undertake a much improved coordination of development expenditure and recurrent cost budgeting, so that Government and the donors can be assured that the totality of its financial obligations are being carefully monitored and that adequate provision, either through domestic or external financing, can be made for them. If such reforms in sectoral and macroeconomic management are realized and if the argument which is central to this report is accepted - that an improvement in human capital is a prerequisite for the long run economic growth of the country - then donor financing of recurrent costs appears a feasible (and, indeed, essential) course of action.

1.6.04 An explicit effort of aid coordination, initially focused on the human resources sectors, would serve the Government's interest by providing a forum to direct donor assistance to the sectoral programs and by ensuring that donor interventions meet a coherent set of objectives and targets in education and health. By the same token, this more coordinated and coherent approach to these sectoral programs would provide greater assurances to donors and thus would very likely lead to a larger volume of financing for these sectors, especially for recurrent costs, than in the past.

II. MACROECONOMIC DEVELOPMENTS

1. National Accounts

A. Sectoral Performance

2.1.01 For a number of years available information inexplicably suggested that despite substantial capital inflows and relatively sound economic management over the period of the seventies, the Voltaic economy was barely able to sustain the living standards of its resident population, whose growth, after emigration, averaged 1.7 percent per year. More recent information changes a number of perspectives relating to growth and its sources. Table 2 summarizes comparisons of sectoral growth rates as estimated by official government sources and by Bank staff. 1/

2.1.02 The Bank estimates reveal that crop output grew 2.6 percent per annum from 1970-79, the period covered by the official figures, rather than stagnating or declining as the latter imply. Livestock output fell, but not as sharply as suggested by the official data. The Bank recalculations of agricultural income result in an increase of about two percentage points in the annual growth of total GDP as compared to the official figures.

2.1.03 A comparison of trends in the crops subsector between the first and second half of the decade reveals that growth was lower in the latter period, which is somewhat surprising, given that the greatest drought occurred in 1973-74. 2/ The pattern of output of the main crops is charted in Figure 1, and of GDP in Figure 2 (see Appendix). The larger growth rate in the first half of the decade appears because the country rapidly recovered from the crop failures in 1973/74, while two recurrences of bad weather caused downturns again in the latter period, most seriously in the 1980/81 season. The largest increase in cotton production also occurred in the first half of the decade, starting from a very low base. Growth rates of value-added are generally lower than those of gross output for the main crops throughout the decade, and especially in the second half, because the use of inputs expanded most rapidly during this period (25 percent annually). The major drought of 1973/74 had the most depressive effect on the livestock subsector, whose growth picked up in the second half of the decade as herds were reconstituted.

1/ The Bank estimates of the agricultural sector production are based on recalculations of value-added using a) official data on physical output of livestock and of all crops except the main food crops, for which FAO production data were used (and which are slightly below official estimates for the years in question); b) official prices; and c) official data on the use of modern agricultural inputs (fertilizers and insecticide).

2/ Note that this pattern in crop GDP appears regardless of whether the least squares growth rates are calculated with 1975, 76 or 78 as the middle year. Taking a compound growth rate from the 1970/72 average to 1975/77 or 1976/78, and from there to 1979/81 also produces a higher rate in the earlier period.

Table 2: NATIONAL ACCOUNTS BY SECTOR
AVERAGE ANNUAL GROWTH RATES 1/

	Current Growth Rates 1970-79		Constant Growth Rates			
	Official	IBRD Est.	1970-79	1970-81	1970-76	1976-81
			IBRD Estimates			
Crops	9.5	14.7	2.6	2.1	3.3	0.6
Livestock	4.6	11.2	-0.7	-0.3	-0.6	1.1
Agricultural Sector 2/	7.7	12.6	1.6	1.4	2.1	0.9
Manufacturing, Mining	12.0	12.0	4.0	3.4	4.6	2.0
Construction	11.6	11.6	1.3	0.7	5.8	-4.3
Industrial Sector 3/	12.1	12.1	3.5	2.9	5.0	0.7
Commerce	14.6	13.2	4.2	4.4	-0.7	7.0
Transport	12.0	12.0	9.7	8.4	9.6	5.1
Public Administration	22.0	22.0	9.4	8.3	11.7	3.4
Services Sector 4/	14.4	14.4	5.6	5.3	4.2	5.0
Total GDP factor cost	10.9	12.4	3.6	3.3	3.5	2.6
Total GDP market prices	11.3 (Constant) (1.8 5/)	13.4	3.9	3.5	3.8	2.5

Source: IBRD estimates - Table 2-1b. Official estimates - Ministry of Economy and Plan, Comptes Nationaux et Indicateurs Economiques, 1970-79, June 1981.

Notes:

1/ Least squares growth rates.

2/ Includes forestry and fishing.

3/ Includes electricity, gas, and water.

4/ Includes other services.

5/ Official estimate of growth in constant prices provided only for total GDP at market prices.

2.1.04 Interpreting growth in the secondary and services sectors from 1970-79 poses the problem of selecting appropriate deflators, since estimates of prices and indicators of real changes in output of most of the component activities do not exist. Calculations of real values based upon reasonable assumptions reveal some anomalies, most of which suggest that GDP growth was at least as high as Bank estimates indicate in the table. Annex I provides more detail on the nature of these anomalies and on the derivation of the sectoral deflators. The sharp interannual fluctuations and intersectoral disparities in growth trends cast considerable doubt on the validity of most of the sectoral GDP estimates apart from those of agriculture, and few firm conclusions can be drawn from them. In general, the relatively high growth rates (at least 3 percent) maintained by most non-agricultural activities over the decade suggest that the large influx of foreign assistance did have a noticeable impact, especially on the services sectors, by inducing higher consumption and domestic investment as well as by creating some productive infrastructure. 1/

2.1.05 The economy suffered a sharp decline in 1980 as poor rainfall caused a drop in agricultural output of 15 percent and political uncertainty surrounding the change in Government contributed to a fall of 5 percent in overall value-added. In 1981 and again in 1982, the economy clearly rebounded in most sectors, especially agriculture, commerce, and transportation.

2.1.06 The primary sector's share in constant GDP declined slightly from 42.8 percent in 1970 to 36.3 percent in 1981, with the livestock share dropping from 11.0 percent to 7.9 percent (Table 3). The contribution of crop production fell only marginally, but it rose in current prices, which reveals that agricultural prices increased more steeply over the period than general inflation. 2/ Manufacturing's share of real GDP showed no change, although the importance of the traditional industry was nearly matched by modern industry (which accounted for 30.8 percent of manufacturing in 1970 and 41.6 percent in 1981). Commerce (strikingly for Africa) only rose from 15.0 percent to 15.9 percent, while Government's share expanded from 7.4 percent to 12.2 percent.

2.1.07 To summarize, it is clear that the economy's performance over the past decade was much better than previously believed. The main sectors recuperated the losses suffered during the major drought of 1973-74, when the staple cereal crops fell about 20 percent below the 10-year average, (even more in some areas) and cattle herds about 5 percent. Much of the economy's performance in fact reflects a relatively judicious economic management,

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1/ In this connection it must be noted that the low and declining growth rate of construction, which should reflect as much as any sector the foreign-financed investment activity, suggests highly inaccurate estimates of output.

2/ See Table 15 for a direct comparison of these price trends.

UPPER VOLTA: TABLE 3
NATIONAL ACCOUNTS BY SECTOR

(AS SHARE OF CONSTANT GDP)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Crops	24.6	24.5	23.1	20.5	24.1	24.3	24.0	21.6	22.2	21.6	19.4	22.3
Livestock	11.0	10.9	11.0	11.4	10.7	9.0	8.5	8.7	8.3	7.9	8.5	7.9
Forestry, Fishing	7.3	7.3	7.6	7.7	8.4	7.9	6.5	6.6	6.4	6.1	6.5	6.2
Total Agriculture Sector	42.8	42.7	41.7	39.6	43.2	41.3	39.0	36.9	36.9	35.6	34.4	36.3
Mining, Manufacturing	13.2	13.4	14.3	15.1	14.1	14.4	14.0	14.3	14.0	13.8	14.4	13.3
(Traditional)	69.2	68.2	63.2	61.8	61.6	59.5	58.1	58.7	57.3	56.4	57.8	58.4
(Modern)	30.8	31.8	36.8	38.2	38.4	40.5	41.9	41.3	42.7	43.6	42.2	41.6
Electricity, Gas, Water	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	1.0	0.9	1.1	1.1
Construction	4.6	4.8	4.3	5.4	3.5	5.2	5.8	3.6	3.9	3.6	3.8	3.5
Total Industrial Sector	18.6	19.0	19.4	21.3	18.5	20.5	20.7	18.8	18.9	18.4	19.3	17.9
Commerce	15.0	14.9	14.9	13.8	13.8	12.0	12.0	15.5	15.6	16.7	15.9	15.9
Transport	7.6	7.5	7.9	7.7	9.6	10.1	10.4	11.4	11.7	12.1	11.7	12.1
Banking	6.2	6.3	6.0	6.0	4.9	4.6	3.7	3.5	3.6	3.8	4.0	3.8
Other Services	2.3	2.3	2.3	2.3	2.1	2.2	2.1	2.1	2.1	1.9	2.1	1.9
Public Administration	7.4	7.4	8.3	9.6	9.5	10.4	12.1	11.8	11.3	11.5	12.7	12.2
Total Services Sector	38.6	38.4	39.3	39.5	39.9	39.3	40.3	44.3	44.2	46.0	46.4	45.8
GDP at Factor Cost	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(AS SHARE OF CURRENT GDP)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Crops	24.6	23.8	27.4	24.0	27.1	24.4	25.3	26.5	28.9	27.3	25.0	28.1
Livestock	11.0	12.0	10.1	10.5	9.5	10.5	10.8	9.6	9.3	9.8	10.5	9.7
Forestry, Fishing	7.3	7.0	6.8	6.8	6.6	5.8	5.3	4.8	4.7	4.3	4.5	4.3
Total Agriculture Sector	42.8	42.8	44.3	41.2	43.2	40.6	41.4	40.9	42.9	41.4	40.1	42.1
Mining, Manufacturing	13.2	13.8	14.5	15.1	14.7	14.5	14.4	13.4	12.4	12.8	13.0	12.1
(Traditional)	69.2	67.5	64.4	61.7	55.8	54.4	51.0	50.2	48.4	48.5	50.0	50.6
(Modern)	30.8	32.5	35.6	38.3	44.2	45.6	49.0	49.8	51.6	51.5	50.0	49.4
Electricity, Gas, Water	0.8	0.8	0.9	1.0	0.9	0.8	1.0	1.0	1.0	0.9	1.0	1.0
Construction	4.6	4.8	3.9	5.2	3.7	5.5	5.9	3.8	4.3	3.7	3.9	3.6
Total Industrial Sector	18.6	19.5	19.3	21.3	19.4	20.7	21.3	18.2	17.7	17.3	18.0	16.7
Commerce	15.0	14.4	13.6	13.1	13.2	12.2	11.8	15.3	15.8	16.0	15.0	15.1
Transport	7.6	7.4	7.5	7.1	7.9	7.6	7.4	7.6	6.3	7.0	7.0	7.2
Banking	6.2	6.1	5.6	5.8	4.8	4.8	4.1	3.6	3.3	3.7	3.8	3.7
Other Services	2.3	2.3	2.2	2.4	2.1	2.0	1.8	1.7	1.5	1.5	1.6	1.5
Public Administration	7.4	7.5	7.6	9.1	9.5	12.1	12.2	12.7	12.4	13.1	14.5	13.9
Total Services Sector	38.6	37.7	36.4	37.5	37.5	38.7	37.4	40.9	39.4	41.3	41.9	41.2
GDP at Factor Cost	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Table 2-1A and Table 2-1B

particularly with respect to agriculture, where state intervention mechanisms have not led to the high levels of implicit (or explicit) taxation of agriculture for the benefit of urban populations often witnessed in Africa.

2.1.08 On the other hand, the data do not provide much ground for optimism regarding the economy's future prospects. For one thing, the crop sector's recurrent setbacks during the decade underline the economy's fundamental vulnerability to climate - a situation worsened by the progressive deterioration of soils on the central plateau. While further growth in agriculture is likely to be possible over the decade of the eighties, it will be an increasingly expensive proposition, as described in more detail in Chapter Three.

2.1.09 Further constraints on the economy's growth potential are posed by the parastatal sector, particularly those enterprises involved in manufacturing, about which little firm information is available (see Section 1.4). While operating deficits have not reached the catastrophic proportions found in some neighboring African countries, a large share of these entities are in serious financial trouble, which suggests that they may not be making the most productive use of the generous allocation of bank credit (about one-third of the total), educated manpower (some 6,000 employees as compared to 22,000 working in civilian activity with the Government in 1980), and tax exoneration which they receive.

2.1.10 The effect on the economy of the expansion of Government's share of GDP is difficult to interpret. It is obvious that the growth of some activities such as defense has absorbed a large portion of at least literate manpower and financial resources which might have been used more productively in other sectors; and that funds devoted to education, because of high teachers' salaries and the large expenditure on stipends, has purchased fewer real services (i.e. enrollments) than might otherwise have been obtained. Yet as the analysis below demonstrates, a large level of non-capital expenditures by Government (supported by donor intervention) has accompanied capital investments - and much of these additional "development" expenditures, in the broad sense of the term, will probably have to continue as a necessary input to promote growth of agriculture, and other sectors as well.

B. Savings and Investment

2.1.11 A recent official revision of the national accounts suggests that total gross investment averaged about 20 percent of GDP over the decade, rather than the 25 percent earlier estimated. 1/ Domestic investments as a share of GDP have recently manifested a downward trend since peaking in 1974 at 28.4 percent, and amounted to only 16.9 percent in 1981. The decline may reflect in part the slowdown in aid disbursements since 1978. Overall, the lower average rate of investment and higher growth of GDP imply that performance as measured by ICORs was considerably better than originally supposed.

1/ As earlier estimated in Ministere du Plan et de la Cooperation, Institut National de la Statistique et de la Demographie, Les Estimations des Aggregats des Comptes Nationaux et Indicateurs Economiques de la Haute-Volta de 1970 a 1978, April, 1979.

Table 4: INCREMENTAL CAPITAL:OUTPUT RATIOS a/

1970-75	1975-79	1976-81
5.0 b/	4.0	5.8

a/ Based upon government estimates of gross fixed investment as given in Ministere du Plan, Institut National de la Statistique et de la Demographie, Comptes Nationaux et Indicateurs Economiques 1970-79, June 1981; and IBRD estimates of GDP growth (also of investment in 1980-81).

b/ Calculated as the sum of gross fixed investment in each year of period 1970 to 1974, divided by the increase in GDP at market price between 1970-75, all in constant prices.

2.1.12 The average return to capital is constrained by the general scarcity of productive investment opportunities with short term yields, as a result of the country's impoverishment of natural resources and low level of human resource development. The very large aid build-up after the drought would therefore be expected to realize its effect on production with more than a five-year lag (apart from the immediate impact on certain service activities). It is also possible that the rate of return realizable in certain investments does not reflect the actual value of capital, because of the artificially high cost of labor in Upper Volta relative to its productivity, a phenomenon supported by the demand for workers in the Ivory Coast.

2.1.13 The rather high level of expenditures complementary to fixed capital formation which are undertaken by Government can be seen from Table 5. For the four years for which more or less comparable data exist, 1977-80, what might be called here total development expenditure--including that externally financed on a projects basis, rather than as strictly fixed capital formation--was roughly 50 percent greater than the public share of total fixed investments as measured in the national income accounts.

Table 5: COMPARISON OF NATIONAL ACCOUNTS INVESTMENT AND PUBLIC DEVELOPMENT EXPENDITURE
(CFAF billion)

	1976	1977	1978	1979	1980
Fixed Investment a/ (National Accounts Basis)	34.0	35.9	39.2	41.1	46.3
Private	10.5	12.4	17.1	15.1	17.1
Public	23.5	23.5	22.1	26.0	29.2
Public Share as %	69.1	65.5	56.4	63.3	63.1
Public Development Expenditure b/		30.3	33.3	41.7	49.3
Externally Financed		25.7	29.5	32.3	40.8
Domestically Financed		4.6	3.8	9.4	8.5
Total Public Development Expenditure as % of Public Fixed Investment		128.9	150.7	160.4	168.8

a/ Based on official estimates. See Table 2-2a.

b/ From Table 8. These figures can be taken as indicative only. Externally-financed investments represent those foreign grants and capital flows which balance of payments data suggest to be associated with investment projects; thus flows computed for food aid were excluded. Domestically-financed investments include those expenditures carried out under the Equipment and Investment component of the budget (Title IV). These generally represent a proportion of local costs of projects financed by external assistance, but include strictly local projects as well. The small share of investment (about CFAF 3 billion annually) carried out through special accounts of the Treasury is included here under Domestically-financed investment in 1979 and 1980.

2.1.14 Many developing countries will show a high level of collateral spending associated with gross fixed capital formation, particularly where substantial financial inputs such as for extension workers are "projectized" as start-up costs (as is the practice of the World Bank). The large share of non-capital development expenditures would become even more evident to the extent that donors finance a proportion of the recurrent costs associated with education and health as "investments in human resources". Yet in Upper Volta an additional factor may in part account for the heavy amounts of collateral expenditures in question (and which appear as government consumption in national accounts, or should). It is increasingly apparent that to develop Voltaic agriculture requires ancillary inputs not simply limited to fertilizer,

but also agricultural techniques involving land preparation and management, soil and water conservation, etc., which implies the need for very highly staff (and research) intensive projects. There are in fact very few large-scale projects in agriculture or other sectors with a satisfactory rate of return--labor or capital-intensive--available in Upper Volta which can be carried out with a minimum of such "consumption" expenditures, and the situation is unlikely to change rapidly.

2.1.15 Evaluating savings performance in Upper Volta is complicated considerably by the fact that the distinction between investment and consumption is in this sense difficult to draw, and because of the country's heavy dependence on foreign resources. Since the data do not permit private consumption or savings to be determined directly, estimating these values as residuals from the national accounts data poses the problem of how the uses and sources of resources are to be classified.

2.1.16 To illustrate (see Table 6), estimating gross domestic savings as the difference between investment and the resource gap produces an extremely low average savings rate (-5.9 percent of GDP since 1976)--yet this rate reflects mainly the very large share of foreign finance which the country has been receiving. The resource gap, which averaged 26.3 percent of GDP from 1976-81, has grown because of the availability of aid and remittances (together averaging 22.8 percent of GDP over the period) which generate the demand for, and finance, a large flow of imports. Moreover, national accounting convention assumes that the resource gap entirely represents foreign savings, which is clearly unrealistic in the case of Upper Volta, where 10-12 percent of foreign assistance consists of food aid. To some extent the foreign inflows also compensated for sharply declining terms of trade over the latter part of the decade. 1/

2.1.17 Unfortunately, it is not possible to estimate with any accuracy what proportions of private financial inflows (mainly remittances) and public inflows are actually saved and what share add to the income base. If we assume that all the private flows are consumed, then we arrive at an estimate of gross national savings averaging 1.2 percent of GNP 2/ (from line 6 of Table 6). At the extreme, if all grant aid were consumed, gross national savings would amount to 12.7 percent of GNP. 3/

1/ Note that when adjusted to constant prices, the resource gap averaged only 19.3 percent of GDP and domestic savings averaged -1.9 percent from 1976-81, because of the deterioration in the terms of trade.

2/ GNP is the relevant comparator here rather than GDP since the private flows are added to total income.

3/ Although rather than GNP, the relevant income comparator should be GNP plus public transfers, which would lower the average savings rate slightly.

UPPER VOLTA : TABLE 6
ESTIMATES OF SAVINGS RATE

(IN BILLIONS OF CURRENT CFAF)

	1976	1977	1978	1979	1980	1981
Total Investment	40.2	41.0	46.0	46.0	51.5	54.0
less Resource Gap	36.9	54.0	60.1	67.6	72.6	79.7
equals Gross Domestic Savings (GDS)	3.3	-13.0	-14.1	-21.6	-21.1	-25.7
plus Net Factor Income From Abroad /a/	6.9	6.8	13.0	17.1	18.3	21.1
plus Current Transfers (Private)	3.9	4.9	2.3	4.7	5.1	6.3
equals Gross National Savings (GNS) (i)	14.1	-1.3	1.2	0.2	2.3	1.7
plus Public Transfers /b/	17.4	21.2	30.0	33.7	34.1	35.0
equals Gross National Savings (GNS) (ii)	31.5	19.9	31.2	33.9	36.4	36.7
GDS as % of GDP	2.1	-6.9	-6.3	-8.6	-7.9	-8.0
GNS (i) as % of GNP	8.5	-0.7	0.5	0.1	0.8	0.5
GNS (ii) as % of GNP	19.1	10.2	13.1	12.6	12.8	10.8
Memorandum:						
GDP	158.1	188.3	225.6	252.0	265.8	319.4
GNP (GDP plus Net Factor Income from abroad)	165.0	195.1	238.6	269.1	284.1	340.5

Source: Table 2-2A and Table 2-4.

Notes: /a/ Includes workers' remittances.
/b/ Official grant aid.

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2.1.18 The true estimate of savings performance probably lies somewhere between the extreme values given here and the point of this discussion is to illustrate the implications of different national accounting conventions. In general terms, an evaluation of the country's domestic resource mobilization can be made, however. It is certain that private domestic savings are not high given that incomes are near subsistence and there are not many opportunities for productive investment. Yet private investments, including accumulations of stocks, have apparently been largely self-financed through private domestic savings, given the Central Bank limitations on the growth of domestic credit over the past few years 1/. Upper Volta's membership in the West African Monetary Union, which guarantees convertibility of the CFA franc and thus encourages remittances, and the absence of systematic price controls in the country further suggest that the policy environment has been conducive to private resource mobilization. As to the public sector's savings performance, government revenues have been fairly elastic. An important share of Government consumption can be justified as development expenditure, as noted earlier. Yet the preponderance of current expenditures on non-productive activities, the lack of mechanisms to thoroughly evaluate new project commitments, and the growing trend of public enterprise losses point to a much less satisfactory public savings situation in the future. More will be said about each of the points raised here in subsequent sections of this report.

2.1.19 In sum, it is possible that in some cases the ready availability of foreign financial resources substituted for domestic savings, or permitted a higher level of dissavings than would otherwise have been maintained, although this is a thesis which the Government questions and which cannot be proven here. Nevertheless, the effort of domestic resource mobilization in Upper Volta during the past decade has been relatively good considering its extreme poverty and shortage of attractive investment opportunities as compared to many other low income countries.

2. Money and Credit

2.2.01 A number of elements characterizing Upper Volta's economy, and particularly the management of aggregate demand, stem from the country's membership in the West African Monetary Union (UMOA). As a result of the line of credit (the Operations Account) managed by the French Treasury for the benefit of the six member countries of UMOA, the jointly used CFA franc is guaranteed convertibility into foreign exchange. To maintain the free convertibility of the currency, the member countries of the CFA franc zone are obliged to accept restrictions on the growth of money or credit in order to limit domestic absorption so that increases in joint liabilities on the Operations Account are kept to a minimum. Prior to 1975, the Central Bank controlled the growth of the money supply through rediscount quotas; since that time, a number of alternative instruments are relied upon to curtail aggregate demand. First, each year the Central Bank sets projections for

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1/ Note that over the period in question domestic credit grew at about the same rate as nominal GDP.

the growth in net foreign assets (in negotiation with the other UMOA countries) and domestic credit, which serve as indicative targets, though not strict ceilings, for the expansion of the monetary sector. Second, it imposes annual and monthly ceilings on total lending by each bank. In recent years, actual demand for credit by the private sector has fallen short of these limits. Third, the Central Bank exercises the right of prior authorization of all credits over a certain minimum size to private borrowers in the country, thus directly controlling the use of credit. Fourth, government borrowing is limited to a ceiling of 20 percent of the previous year's fiscal receipts. As discussed below, the availability of an external source of liquidity - workers' remittances - provides an additional stimulus to the Voltaic economy which does not directly enter the formal monetary system. Although monetary policy does not explicitly account for these inflows ex ante, they have probably substituted for some of the credit that would otherwise have been demanded from the banking system.

A. The 1976-81 Period

2.2.02 Over the five-year period between 1976 and 1981, measured domestic money supply (including quasi-money) increased by CFAF 32.1 billion, virtually doubling its original level of CFAF 31.6 billion (see Table 2-3). Associated with this increase in the money supply during the period was an almost identical increase in credit to the private sector amounting to CFAF 30.7 billion. The ratio of the money supply and of private sector credit to GDP remained almost constant at 19 percent over the period, suggesting that no financial deepening had taken place in the economy during that time.

2.2.03 Net foreign assets increased rapidly from the low point reached in the middle of the five year period (1978). This increase essentially reflected an upsurge in workers' remittances, which was particularly notable in 1981 following political disturbances in the host countries. Despite a concurrent rise in foreign liabilities of the commercial banks, total net foreign assets grew CFAF 1.4 billion in 1981, to an end-year level of CFAF 8.3 billion.

2.2.04 The relatively slow growth of credit to the private sector reflects in part the sluggish demand for credit and, in part, the availability of workers' remittances as an external source of liquidity. These net inflows--after deduction for outflows from French residents of Upper Volta--amounted to CFAF 83.2 billion between 1976 and 1981. Although exports and foreign aid as well as remittances may in theory add to foreign assets and therefore to the money supply (as well as give rise to offsetting imports), remittances which enter the banking system create direct claims on cash and therefore directly add to available liquidity. The effect of remittances on total liquidity, including unmeasured money supply, is even greater to the extent that some of these remittances are held as cash outside the banking system. The currency flows associated with workers' remittances supplied incremental demands for real balances without the need for much additional liquidity creation by the Central Bank. To the extent that these incremental flows entered the banking system, they provided whatever increase in liquidity was required to finance the growth in credit to the private sector registered during the period as well as the recorded increase in the money supply.

2.2.05 Net lending of the banking system to the Government, ordinarily a source of monetary expansion and a potential source of spillover onto the Operations Account, increased by CFAF 5.0 billion as the Government's net creditor position vis-a-vis the banking system fell from CFAF (-7.0) billion in 1976 to CFAF (-2.0) billion in 1981. Although Central Bank lending to the Government, still below statutory limits, was expansionary to a point where net claims on the Government at end-1981 were positive at CFAF 1.4 billion, this was in large part offset by increases in Government deposits with the commercial banks (essentially forced transfers of the working capital balances of public enterprises to the CNDI 1/, a publicly-owned investment institution).

B. Developments in 1981-82

2.2.06 The deterioration in the money and credit situation in 1981, specifically in terms of a CFAF 4.9 billion increase in the banking system's net claims on Government, reflects mainly the Treasury's need to finance a large budget deficit. The Government increased its borrowing from the Central Bank and drew on the above-mentioned deposits of the CNDI to cover the budgetary shortfall. In 1982, a further CFAF 2.6 billion was obtained from the Central Bank, bringing the Government to within CFAF 2.4 billion of its credit ceiling. Major sources of domestic credit growth were the public enterprises, specifically the Tambao railway project, Silmande Hotel, and Air Volta. Government's involvement in the financing of these operations in 1982 affected the already severely strained Treasury situation, which required the Government to seek recourse to foreign borrowing (mainly from Arab and French (CCCE) sources) for additional budgetary support.

2.2.07 Credit to the private sector also rose sharply (by 15 percent) in 1982. It is important to note that in Upper Volta, the public enterprises which have a commercial or industrial purpose are classified as "private sector" for purposes of access to credit--these enterprises include the cereals marketing board (OFNACER), Office of Posts and Telecommunications (OPT), army supply store, and the Office de Tambao, for example. Therefore, some of the observed increase in private credit in 1981 and 1982 represented borrowing by public enterprises, many of which are in a very poor financial state (see Section 4D), for current or capital expenditures rather than a resurgence of activity by the genuinely private sector. The liquidity problems of the Treasury have further weakened those of the public enterprises, which were largely responsible for a CFAF 2 billion increase in defaulted credit in 1982 (not reflected in the monetary data).

2.2.08 In sum, recent trends in the monetary sector indicate a declining availability of domestic credit to Government as the Central Bank ceiling is reached; worsening credit-worthiness of public enterprises; a possible crowding-out of private sector access to credit; increased absorption of credit by the public sector for activities of dubious productivity; and

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1/ Caisse Nationale des Depots et des Investissements.

increased financing ties between the Treasury and public enterprises (via the CNDI) to meet current budgetary shortfalls. These trends, which could spell serious trouble for the economy if allowed to continue unchecked, underline the necessity of an improvement in budgetary management by Government and a financial reform of the public enterprises.

C. Inflation

2.2.09 Although the growth of credit has been quite restrained up to 1981, domestic inflation (as measured by the GDP deflator) has remained higher than international price trends--which, other things being equal, would be expected to influence the domestic inflation heavily given the openness of the economy. Voltaic inflation has even been higher than that of France despite the currency linkage and the fact that France is the largest single trading partner (although Upper Volta does not share a majority of her trade with France). The predominant role of external financial inflows to the economy, both private and official, may help explain the sources of domestic inflation. In order to maximize the benefit which the economy receives from these inflows, and to minimize their potential inflationary effect, it is particularly important that they be directed to financing productive investments or current services which promote development.

Table 7: COMPARISON OF DOMESTIC AND INTERNATIONAL PRICE TRENDS

	1976	1977	1978	1979	1980	1981
GDP deflator a/	100.0	118.7	135.9	145.5	160.0	176.0
North European Inflation Index b/	100.0	111.8	118.8	123.7	133.9	171.1
French Inflation Index c/	100.0	109.0	119.4	131.5	146.8	163.9

a/ See Annex I.

b/ Economy-wide index for north OECD countries, based on OECD inflation indices (denominated in dollars) for individual countries and aggregated by Economic Analysis and Projections Department, World Bank. The composite index has been adjusted for change in US$:CFAF exchange rate.

c/ Based on OECD data. Index refers to inflation in all sectors and is denominated in French francs.

3. Balance of Payments

2.3.01 Government economic policy with respect to the balance of payments is subject to the guidelines imposed by the monetary union, in particular those limiting public and private credit. The union's guarantee of currency

convertibility largely removes the problem of a foreign exchange constraint at the national level, although it remains a concern for the monetary zone as a whole. Upper Volta's external position is determined less by domestic demand management than by the availability of foreign financing (aid and remittances), which sets the limits of the country's capacity to import and thus affects the net balance of payments.

2.3.02 Analysis of Upper Volta's trade flows is complicated considerably by the existence of a common currency, which, although it eases intraunion cash transactions, makes it difficult to record the volume and nature of these transactions. As an indication of this problem, Upper Volta's estimated trade balance is characterized by a substantial disparity between recorded and total trade--unofficial exports average 40 percent of estimated total goods exports, while unrecorded imports represent a smaller but still significant 15 percent of the total foreign purchases. 1/

2.3.03 The data on recorded imports as summarized in Table 2-5 indicate that cereals, capital goods and petroleum products have been the fastest growing items during the past six years although capital goods imports fell off in 1981, possibly reflecting a build up of stocks resulting from the slowdown in investment in the latter part of 1980. Total food imports increased over 40 percent in 1981 to CFAF 18.9 billion, of which CFAF 4.3 billion were cereals (CFAF 8.3 billion including cereal products). Some of this increase possibly reflected the poor harvest of 1980/81 - it also may have resulted from the lumpiness of food aid deliveries, which include substantial quantities of milk and oils as well as cereals. Food aid financed about one-fifth of food imports in 1981 and over 50 percent in previous years. Among total cereal products imported, it is interesting to note that only 12 percent represented coarse grains which would meet the traditional local demand, while the remainder consisted of rice and wheat flour, mainly for the urban market, and malt for beer. Thus some 88 percent of recorded cereals imports (and the same share of food aid) comprise items for which there will be very limited local production capacity in the foreseeable future, and the increase in such imports will depend more on the trend in urban incomes than on agricultural production policy. The composition of imports suggests that the country was able to meet domestic food needs, at least for the cereals of mass consumption, almost entirely through local production and stocks, even after a particularly bad crop year; this conclusion would be modified, however, to the extent that unrecorded imports comprised coarse grains.

2.3.04 Recorded exports (Table 2-6) show sharp annual fluctuations especially of livestock and cotton, which account for well over half the total; for example, the volume exported of these two commodities fell 20-25 percent in 1981. In the case of exports, unofficial trade consists mainly of live animals and various crops other than cotton, which is almost exclusively marketed

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1/ With total trade figures estimated by the Central Bank and official trade based on customs receipts.

through official channels. To the extent that the estimated gap between recorded and total receipts represents goods and not other types of inflows, the large disparity may be explained in part by the difference between the officially-assessed value and actual value of commodities; and by the ease of selling agricultural goods across the border to neighboring markets (whereas most imports are acquired from Europe through the Ivory Coast, and therefore more subject to official checks).

2.3.05 The estimated resource gap more than doubled from 1976 to 1981 and averaged over one-fourth of GDP during this period in contrast to 10-12 percent of GDP during the early seventies (Table 2-4). The marked differences between the earlier and latter parts of the decade reflect the very substantial increases in external inflows as well as the more recent sharp decline in the terms of trade. It is likely that growth in the absorption of external resources took place because these resources were available rather than because domestically-generated aggregate demand resulted in deficits which required financing.

2.3.06 Foreign assistance flows, averaging roughly CFAF 45-50 billion since 1979, financed about two-thirds of the estimated resource gap during the period. Some of this assistance had a direct counterpart in project-related imports of capital goods ranging in value between CFAF 15-20 billion, 1/ or in food aid imports of CFAF 5-6 billion. Foreign aid in the form of grants and loans also finances a substantial proportion of costs not directly associated with imports, i.e., those of technical assistance and domestic labor services, which would induce increases in demand for imports and reductions in exports. Any reduction in these flows or in private remittances would depress domestic consumption of imports and of exportable goods (particularly livestock), except to the extent that marginal import propensities had been affected by increasing foreign inflows.

2.3.07 One additional striking feature of the balance of payments is the tripling of net factor income (essentially workers' remittances) between 1976 and 1981. The CFAF 42.8 billion increase in the resource gap was largely financed, therefore, by increases in aid of CFAF 21.5 billion and in net remittances of CFAF 14.2 billion. Neither foreign aid nor remittances has kept pace with the growth of the resource gap since 1979, however, which has resulted in a gradual deterioration of the overall account balance. Upper Volta's foreign borrowing to date has been almost entirely at highly concessionary interest rates. Although the ratio of public debt service to exports of goods and nonfactor services amounted to a manageable 8.8 percent in 1981, it is rising rapidly (11.8 percent in 1982), and it is worth noting that total debt service payments are projected to almost double between 1981 and 1985 as the grace periods on concessional loans expire. 2/

1/ The publicly financed share of capital imports, estimated as equivalent to the public share of total domestic investment as shown in Table 5.

2/ According to IBRD Debt Reporting Service projections, based on debt incurred as of December 31, 1981. Debt service payments payable by the Government of Upper Volta (as opposed to public enterprises) are projected to more than double over 1981 levels by 1984.

2.3.08 Thus despite the very large resource gaps which have been characteristic during the latter part of the seventies, Upper Volta's balance of payments appears to be sustainable, reflecting for the most part stable, long-term financial flows. Measures to curtail the growth of imports of petroleum and luxury consumer goods such as alcoholic beverages, and to ensure buoyant export sectors (especially livestock and cotton), will be important to promote stability of the external account over the long term. However, because so much of the trade deficit is externally generated and because of the built-in controls exercised by the monetary union, it does not appear that much stricter policies to dampen domestic demand are warranted on balance of payments grounds at the present time.

4. Public Finance

2.4.01 Public financial management in Upper Volta is made particularly difficult by the absence of a centralized and explicit accounting for major areas of expenditure. The large part of investments which are financed from abroad and of project-related recurrent costs (such as for extension workers) are not consistently recorded in the national budget or in any other regular domestic account. Similarly, obtaining a complete picture of public financial operations in the sense of including public entities is virtually impossible because many of them either do not keep complete financial accounts or do not make them regularly available to the Government authorities. These circumstances imply that here, even more than in most developing countries, financial decision-making must proceed in a relatively ad hoc and arbitrary manner, and consequently an evaluation of public finances depends more than usual on inference and approximation.

2.4.02 At the outset, it is worth noting that in spite of the general looseness of financial procedures, performance in this sector has not been too bad in the past - the overall deficit on central Government operations averaged only 2 percent of GDP in 1977-81, which was largely met by the Central Bank well within its credit restrictions. This outcome was achieved because of several factors in the Government's favor - such as the availability of cash holdings accumulated before 1977 on which it could draw, increasing foreign aid flows (up to 1979), and a willingness on the Government's part to take measures to improve tax collection. However, these factors cannot be relied on indefinitely, and it is becoming evident that the basic structural problems - weak budgetary controls, the lack of accounting for investment and recurrent costs, and the generally poor prospects for raising additional revenues adequate to cover the rising costs of increased government services--could create a much more strained financial situation in the future. The sections below examine the trends in revenue and expenditure with a view to determining how much flexibility exists to improve the present budgetary situation, in particular to better meet the objectives of expanded Government services.

UPPER VOLTA : TABLE 8
CONSOLIDATED CENTRAL GOVERNMENT OPERATIONS

(IN BILLIONS OF CFAF)

	1977	1978	1979	1980	1981	1982 /f/
Current Budget						
Tax	24.5	27.2	27.9	34.4	39.2	43.4
Non Tax /a/	3.4	2.3	10.3	6.8	5.7	6.6
Total Revenue	27.9	29.5	38.2	41.2	44.9	50.0
Current Expenditures /b/	-21.3	-25.8	-31.3	-33.4	-36.7	-45.3
Unclassified Expenditures /c	-1.9	-0.9	-0.6	-0.7	-1.8	-5.2
Net Lending	-1.7	-1.9	0.9	0.5	-1.8	-0.6
Current Surplus/Deficit (-) = Budgetary Savings	3.0	0.9	7.2	7.6	4.6	-1.1
Investment Budget						
Title IV Expenditures	-4.6	-3.8	-6.5	-5.2	-7.3	-2.4
Other Investments /d/	-25.7	-29.5	-35.2	-44.1	-41.3	-43.3
Total Investments	-30.3	-33.3	-41.7	-49.3	-48.6	-45.7
Foreign Financing /e/	25.4	29.8	35.6	35.6	39.1	42.4
Grants	15.9	21.8	24.9	24.6	29.1	29.7
Loans (net)	9.5	8.0	10.7	11.0	10.0	12.7
Budgetary Savings	3.0	0.9	7.2	7.6	4.6	-1.1
Overall Surplus/Deficit (-)	-1.9	-2.6	1.1	-6.1	-4.9	-4.4
Other Financing	1.9	2.6	-1.1	6.1	4.9	4.4
Central Bank	2.9	1.8	1.9	-0.5	3.3	2.6
Other Banks	0.0	0.0	-2.0	-1.5	1.6	-2.8
Deposits of Correspondents	0.0	0.0	0.4	0.9	0.4	1.5
Other Domestic Non-Bank	-1.0	0.8	-1.4	7.2	-0.4	3.1
Memorandum:						
Surplus/Deficit as % of GDP	-1.0	-1.2	0.4	-2.3	-1.5	-1.2

Source: Based on Treasury Accounts and IMF Staff Estimates.

Notes: /a/ Includes adjustment for unclassified revenue and Special Account revenue. Excludes foreign grants which enter the budget.
/b/ Includes current expenditure of Special Accounts. Principal on public debt and budget transfers to Special Accounts have been netted out to avoid double counting.
/c/ Includes check float and payment arrears.
/d/ Estimate of Other Investment derived from inflows of Foreign grants and loans adjusted for technical assistance and food aid, also takes account of share of investment (about CFAF 3 billion annually) channeled through special Treasury accounts.
/e/ Includes some foreign grants and loans for current budgetary support.
/f/ Provisional.

A. Overall Budgetary Situation.

2.4.03 The balance on central Government operations as illustrated in Table 8 has, with one year's exception, been deficitary since 1977. The trend over the past six years has clearly been that of widening deficits. Much of the fluctuation in budgetary savings (the excess of current revenues over current expenditure) from year to year reflects the flow of unclassified receipts and payments which are obviously difficult to analyze. Since the major share of budgetary investment (about 85 percent) can only be estimated from inflows of foreign aid and therefore is generally assumed to be fully financed, the overall deficit mainly represents the degree to which budgetary savings falls short of that investment which is to be financed from domestic resources. However, the particularly large deficit in 1980 (CFAF 6.1 billion) which occurred despite a sharp rise in tax revenues, reflected an apparent lag in foreign disbursements financing investment. An upsurge in locally financed investment contributed to another large deficit in 1981. In 1982, a shortfall of over CFAF 4 billion recurred, mainly because of a sudden jump in current expenditures related to an across-the-board salary increase for civil servants.

B. Revenue.

2.4.04 Upper Volta's recent performance in revenue mobilization can be summarized as relatively good in certain areas and poor in others. Potential sources of increased revenue exist which should be exploited, although the scope is not sufficient to expand human resources programs by increasing revenues only. These conclusions are elaborated below both with respect to a "macro" view of taxation and to a "micro", or personal income, perspective.

2.4.05 Total tax revenue, which represents about 85 percent of total budget receipts, expanded 14 percent annually in nominal terms from 1976-81, equivalent to the growth rate of GDP. Income and profits taxes from both businesses and individuals, although only about 15 percent of total revenues, grew slightly faster than industrial GDP and private consumption, which might be considered proxies for the revenue bases of these direct taxes (see Table 9). The largest single-year rise in these taxes (42 percent) occurred in 1980 as a result of measures to enforce business tax obligations.1/ Excise taxes and taxes on international trade, which together accounted for half of total revenues in 1981, have shown a rather low growth over the 1976-81 period, however--12 to 13 percent.

2.4.06 In terms of taxes as a share of GDP, Upper Volta's total tax take is low (about 12 percent) even relative to other very poor countries. 2/ The

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1/ The Government's 1982 revenue estimates assume that efforts taken to further strengthen the tax administration could capture an additional CFAF 2.9 billion in revenues owed from earlier years.

2/ Tax revenue to GDP ratio for all low-income sub-Saharan African countries in 1977 averaged 16.6 percent, and for semi-arid countries 14.3 percent. See IBRD, Accelerated Development in Sub-Saharan Africa, Table 39.

Table 9: SUMMARY INDICATORS OF BUDGETARY REVENUES (Actual), 1976 - 1981
(in current prices)

	% Average Annual Increase a/	Elasticity With Respect to GDP
Tax Revenue	14	1.02
(as % of GDP)	(12)	
Income and Profit Taxes	20	1.45
- Enterprises	19	1.37
- Individuals	16	1.14
Indirect and Other Taxes	12	.92
- Turnover Tax	17	1.27
- Excises	13	.99
- International Trade	12	.87
- (Import Taxes)	11	.84
- (Export Taxes)	4	.23
Nontax Revenue	12	.88
Total Budget Revenue	14	1.00
Memorandum:		
Total GDP (market prices)	14	
Private Consumption	14	
Industry value-added (modern sector)	12	
Imports, CIF b/	20	
Exports, FOB b/	12	

Source: Table 2 - 7A

Notes: a/ Least squares growth rates
b/ Recorded trade

country does not have a very broad base on which to draw, however--a large share of imports, for example, are associated with development projects and therefore duty-free, while there is no buoyant export sector which can be heavily taxed without serious disincentive effects. A recent international comparison of taxable capacity among 63 developing countries worldwide, which took account of non-export income per capita, the share of mineral production, and the share of nonmineral exports in GNP, indicated that Upper Volta's "tax effort" over the period studied was in fact 19 percent above the level predicted by these variables. 1/

2.4.07 As compared to the taxable surplus of personal income (defined as that income exceeding the level required for basic subsistence) the tax effort also appears quite high--31 percent in 1980--which even compares favorably to tax ratios in industrialized countries where nearly all income can be considered surplus. 2/ This conclusion is tempered somewhat by taking account of the size distribution of income, however. Although reliable calculations of income distribution do not exist for Upper Volta, data from other comparator countries suggest that about two-thirds of total national income is received by the top 40 percent of the population. Assuming that the existing tax burden falls on the top two income quintiles in the same promotion as their share of income, their effective tax rate would be only 22 percent. If taxes could be targetted to this group more directly, some increases in the tax to GDP ratio would be possible.

2.4.08 Taxing the rich more heavily runs into the same political and administrative difficulties which operate in the highly-taxed, more developed economies. Insofar as the poor consume the same taxed products as the rich--above all imported goods, the primary tax base in Upper Volta--it is difficult to target the tax burden primarily to the rich, and Upper Volta's weak tax administration effectively forestalls more rapid development of direct taxation. There are other limits in that as tax rates rise, evasion as well as disincentives to earning additional income become increasingly serious.

2.4.09 It nevertheless remains true that some improvement in tax revenues is feasible. Table 10 illustrates that for two categories of taxable goods - petroleum products and imported beverages - effective tax rates since 1976 have sharply fallen. In the case of petroleum products, the decline apparently occurred because the tax is assessed on a fixed indicative price (valeur mercuriale) rather than on the actual market price. Revenues from other

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1/ See Tait, Alan and others, "International Comparison of Taxation for Selected Developing Countries, 1972-76", IMF Staff Papers, Vol 26, No.1 (March 1979), pp. 141, 153-56.

2/ Data and assumptions used to assess tax effort in relation to personal income are further explained in Annex II.

TABLE 10
REVENUE MOBILIZATION FROM CONSUMPTION TAXES

(IN MILLIONS OF CFAF)

ITEM		1976	1977	1978	1979	1980	1981
a) PETROLEUM PRODUCTS TAX REVENUE	1	425.0	490.0	1,005.0	1,110.0	1,166.0	1,051.0
b) REVENUE INDEX	2	100.0	115.0	236.1	260.9	273.9	247.0
c) VALUE PETROLEUM PRODUCTS IMPORTS	3	2,700.0	3,935.0	4,750.0	7,236.0	11,300.0	14,234.5
d) VOLUME INDEX OF PETROLEUM IMPORTS	4	100.0	145.3	161.4	180.5	198.2	204.8
e) TAX RATE (A/C) (%)	5	15.7	12.4	21.2	15.3	10.3	7.4
f) IMPORTED BEVERAGES TAX REVENUE	6	228.0	238.0	146.0	120.0	118.0	202.0
g) REVENUE INDEX	7	100.0	104.4	64.0	52.6	51.8	88.6
h) VALUE OF BEVERAGE IMPORTS	8	515.0	625.0	440.0	557.0	498.0	496.2
i) VOLUME INDEX OF BEVERAGE IMPORTS	9	100.0	112.8	134.4	-	-	67.0
j) TAX RATE (F/H) (%)	10	44.3	38.1	33.2	21.5	23.7	40.7

SOURCE: Ministry of Finance and custom data.

DATA SET: UPV/MS

Table 11: PROJECTION OF TAX REVENUES TO 1990
(in billions of 1981 CFAF)

		1981 Actual	1990 Projected
1.	Petroleum Product Imports a/	14.2	30.6
2.	Average Tax Rate (%) b/	7.4	18.0
3.	Petroleum Tax Revenue	1.1	5.5
4.	Total Recorded Imports c/	91.4	119.3
5.	Average Import Tax Rate (%)	19.4	22.8
6.	Total Import Tax Revenues	17.7	27.2
	of which:		
7.	Consumption Imports d/	18.2	25.9
8.	Implicit Tax Rate (%) (Line 6÷7) e/	97.3	105.0
9.	Other Tax Revenue f/	20.4	27.8
10.	Total Tax Revenue (line 3+6+9)	39.2	60.5
	As % of GDP g/	12.3	14.5

Notes: a/ Volume assumed to increase 8% annually; constant price increase in US$ taken from IBRD price projection (July 1982), adjusted for increase in CFAF: US$ exchange rate in 1982.

b/ Rate for 1981-90 is average tax rate of 1978-79. See Table 10. Note that these are excise taxes and not included in import taxes.

c/ Projected at constant 3% growth rate per year (average annual increase was 5% from 1976-81). Imports are on CIF basis.

d/ Projected at constant growth rate of 4% per year (average annual increase was 5% from 1976-81) Excludes cereals.

e/ This implicit rate is shown here because consumption goods are the major taxable category of imports other than petroleum products.

f/ Projected at constant 3.5% growth rate (implying elasticity with respect to GDP of 1.17).

g/ Assuming annual increase in GDP of 3%.

Sources: Tables 2-5, 2-7A.

items are based on specific taxes (that is, fixed in CFAF rather than as a percentage of the item prices) which fail to increase in line with the market value. Total import tax revenues as a share of total recorded imports have also fallen sharply, from 27 percent in 1976 to 19.4 percent in 1981 (although in part this reflects the growth of non-taxable imports such as project-related investment goods and food aid). Table 11 presents an estimate of the revenues which would be attainable if Government brought tax rates closer to the average of earlier years. If the higher tax rates proposed here for petroleum and total imports had been in effect in 1981, they would have yielded an additional CFAF 4.6 billion, or 12 percent over actual fiscal revenues, enough to absorb almost the entire overall budgetary deficit in that year. The Government did in fact institute some increases in specific taxes on certain petroleum products and raised valeurs mercuriales on some imports in 1982.

2.4.10 In assessing the possible increase in average taxes, it is important to note that most of the incidence of import taxation falls on consumption goods (excluding cereals) - therefore a rise in the average import tax rate from 19 to 23 percent would require an increase in the implicit tax on these items of almost 10 percent. Apart from petroleum excises and import taxes, other main sources of revenue increases could include adoption of ad valorem rather than specific taxes on locally produced beverages, realignment or abandonment of valeurs mercuriales, an elimination of the tax exonerations accorded to many public enterprises, and tighter enforcement of existing tax laws. 1/ The projection assumes that these other revenues could expand with an elasticity relative to GDP of about 1.20, which should be feasible based on past trends and with the new measures listed above.

2.4.11 In total, the projected revenue increases imply a rise in the average tax-to-GDP ratio from 12.3 percent to 14.5 percent by 1990 - which, although modest in comparison to many countries, is probably close to the limit of what is politically acceptable and likely neither to create undesireable disincentives nor excessively burden private income. Given the low average income, neither increases in taxation nor in non-tax contributions by beneficiaries can be the only means to finance expanded government services, such as for health and education, though both measures are necessary. Reductions in the costs of services and changes in the allocation of tax revenues can have an equally important impact on the capacity of certain government activities to expand.

Expenditure

2.4.12 The process by which expenditure requests are handled in the preparation of the national budget indicates a great deal about problems of financial management in Upper Volta. A key factor determining the makeup of the budget is the legal requirement that the budget approved by the Government must

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1/ In the occasional instance where the actual market value of a taxable item declines, as has recently been the case with some petroleum products, the tax regime could provide for a floor value of the tax or valeur mercuriale, in order to prevent a fall in corresponding revenues.

appear balanced by domestic resources 1/ - consequently, not only does most investment, which is financed from abroad, get excluded from the budget even as an annex, but a share of necessary current expenditure--such as Upper Volta's contribution to international organizations of which it is a member--may also be omitted from the final draft if the necessary budget revenues are not expected to be forthcoming. The impact of these cuts on different categories of expenditure is very difficult to assess because the initial budget estimates are very imprecise, as is the classification of certain important expenditures.

2.4.13 Three examples illustrate this problem. In the past couple of budgets, the initial requests submitted by the ministries for counterpart expenditures - government contributions to the capital costs of investment projects - exceeded CFAF 5 billion while the amount voted and reportedly spent was of the order of CFAF 300 million (and only CFAF 34 million in 1982). 2/ The apparent agreements with donors were honored, however. In part this suggests that the initial request was vastly overestimated; it also reflects serious budgetary problems which in some cases required that the counterpart expenditures be paid out of funds obtained from other donors. Likewise, estimates of public debt payments, also a required budget expenditure which should be clearly known in advance, have exceeded the actual payments recorded by as much as three times 3/ - yet again, obligations have apparently been met, although not explicitly accounted for. The budgetary item, "recurrent costs of investment projects", on the other hand, has averaged around CFAF 400 million both for the budgeted and actual expenditure - which appears low and suggests that a large share of recurrent costs are either not financed or enter the main operating cost component of the budget. The funds available for these types of expenditures are not necessarily limited to the sums which appear in the budget, because of special extra-budgetary accounts which exist for some projects, and because the Treasury sometimes makes advances which then have to be rectified in a revised budget. In any case, proper financial planning would require that all foreseeable expenditures of these sorts be estimated as accurately as possible and consolidated in some overall budget or account.

2.4.14 The trends in actual and authorized budget expenditures for 1976-81 are summarized in Table 12. Public debt and subsidies and transfers grew considerably faster than the total budget over the period. The equipment and investment component showed the lowest annual increase on actual expenditure

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1/ The 1983 approved budget departs from this practice by showing a deficit to be covered by nonbudgetary resources.

2/ A significantly larger sum (some CFAF 1 billion) has been allocated in the 1983 Budget for counterpart expenditures.

3/ About CFAF 300 million of the budget request for public debt payments is to cover contingencies (e.g. defaults on publicly-guaranteed debt of public enterprise), however.

Table 12: SUMMARY INDICATORS OF BUDGET EXPENDITURE, 1976-81
(in current prices)

	% Distribution of Increase in Actual Expenditures	% Average Annual Growth of Actual Expenditures a/	Average % Difference in Actual/Authorized Expenditures b/
Public Debt	9	53	-28
Operating Expenditure	61	15	3
Personnel	48	15	7
Materials	13	17	-9
Subsidies, Transfers	16	20	-7
Current Expenditure	86	17	0
Equipment, Investment	14	13	16
Total Expenditure	100	16	2
Sectoral Breakdown of Current Expenditure			
General Services, Admin.	18	18	
Defense	20	12	11
Education	20	17	
- General	12	16	12
- Stipends, subsidies	7	23	-20 c/
Social Services	15	22	
- Health d/	7	18	5
- Pensions	5	22	
Economic Services	8	13	
- Rural Development d/	3	14	4
- Commerce, Industry	0	11	-3
- Public Works, Transports	2	11	1
Other	20	23	

Source: Tables 2-8A, 2-9A
Notes:

a/ Least squares growth rates.
b/ Calculated as total actual expenditures over period divided by total authorizations, less 1.00.
c/ Authorized expenditure used here is from Ministry of Finance, "Bordereau Sommaire" and is 20 percent higher than the figure printed in the revised 1981 budget for education stipends and subsidies.
d/ Growth rates are underestimated because both health and rural development expenditures were subsumed under the budgets of larger ministries at the beginning of the period.

(13 percent), while personnel expenditures grew 15 percent per annum, and remained slightly over half of total expenditures which expanded at an average annual rate of 16 percent. A detailed analysis of the growth in personnel expenditures is provided in Annex III.

2.4.15 The sectoral breakdown of current expenditure reveals that defense has consistently been allocated a larger share than any other sector, and received about the same proportion of the 1976-81 increase in total current expenditure as education (20 percent). The defense budget has declined slightly relative to the total, however. As indicated above, education transfers (stipends and subsidies) as well as pensions were the most rapidly growing components among the main sectoral categories of expenditures (exceeding 20 percent per year), while the economic sectors such as rural development in general received a declining share.1/ Only defense and general education services substantially exceeded their authorized budgets (by over 10 percent) during the period, which suggests that these sectors create the greatest unforeseen pressure on the actual allocation of budget resources.

2.4.16 In general, it can be said that analysis of budget expenditures reveals relatively little about resource allocation because so much is excluded from the budget. Moreover, the sectoral emphases in the budget are misleading, as for example the consistantly heavy share of education expenditures reflects the growth of stipends and salaries, rather than increasing enrollments. A preponderance of budgetary resources is tied up in expenditures which have no direct link to productive activities (administration, defense, pensions). Considerably more efficiency could be obtained in the use of budgetary resources even with the present sectoral allocations, but to evaluate fully the Government's margin of manoeuver, it is necessary to have a better idea of the extra-budgetary demands on public resources.

D. Other Public Sector Financial Operations

2.4.17 Only approximate information is available on the financial operations of the public sector extending beyond the national budget, that is, including the public or parapublic organizations. In Upper Volta, these organizations include a heterogeneous collection of entities with vastly different roles and financial relationships to the State.

2.4.18 In general, they can be grouped into two categories: a) *etablissements publics*, or public institutions either of a commercial/industrial character (e.g. utility companies) which are financially autonomous or of an administrative, or "special" character (e.g. the Social Security fund); and (b) *societes*, or corporations, either with mixed public-private participation or international (e.g. regional) ownership. At present, there are about 60

1/ Although a large part of public expenditures on rural development occur through the Regional Development Organizations (ORDs) and do not appear in the national budget.

etablissements, of which some 40 are ostensibly of a commercial/industrial type, and about 60 societes, of which the State holds a major share in about 20 and roughly a dozen are jointly owned with other countries. About two-thirds of the organizations were founded prior to 1974, with many of the State participations occurring to replace foreign ownership. In the last few years, the Government has shown an increasing inclination to consider creating etablissements to carry out administrative or commercial functions for which existing institutions or the private sector could be as well or better suited.

2.4.19 Many, possibly most, of the public organizations are in serious financial condition at the present time, 1/ in part for reasons imposed on them by the Government. A large share of the etablissements with formal financial autonomy have in fact an administrative function and have almost no regular source of income apart from grants received from the national budget. When the budget is particularly constrained, as has been the case in recent years, these organizations find their operating funds - or provisions for capital increases in the case of mixed societes - sharply curtailed. Government price restrictions have sometimes prevented the organizations from charging remunerative prices and tariffs - the retail price of refined sugar, set well below cost, is a case in point. The enterprises have also been forced to assume the costs arising from development programs or undertake current services imposed upon them by Government without a compensating increase in their resources.

2.4.20 The shaky financial situation of the public enterprises has also arisen from internal faults, such as over-ambitious investment programs, excessive hiring and salary increases, and a generally weak management, as reflected in the virtual absence of financial accounts in some institutions. The lack of any significant technical or financial oversight of the enterprises by either the sectoral ministries or by a central ministry is a factor which perpetuates their managerial shortcomings.

2.4.21 As mentioned in Section II.2, the worsening liquidity situation of the public enterprises was responsible for a large increase in defaults on bank credit in 1982, as well as substantial tax arrears. A few specific examples will illustrate the nature and order of magnitude of the financial condition of public organizations, and the consequent implications for the central Government.

2.4.22 The Office des Postes et Telecommunications (OPT) has deteriorated in financial performance in recent years largely as a result of overly generous investment and personnel policies. The OPT illegally withdrew a total of CFAF 4.6 billion from the Postal Checking Account, of which it is obliged to repay 2.4 billion and the Government is liable for the CFAF 2.2 billion used to meet postal branch operating deficits.

1/ A recent report by an industrial consultant reveals that roughly half the etablissements and societes of which the State is a majority shareholder were deficitary in 1979. See Meine Pieter van Dijk, "Politique Industrielle de la Haute-Volta", Direction Generale de l'industrie et de l'artisanat, Ouagadougou, July 1981.

2.4.23 The Abidjan-Ouagadougou railroad (Regie des Chemins de Fer Abidjan-Niger-RAN) jointly owned by Ivory Coast and Upper Volta is presently in dire financial straits, as a result of a large debt service incurred from past investments, inadequate tariff increases, an inefficent use of personnel, and shortfalls in traffic. As of May 1983, the Government of Upper Volta owed the RAN about CFAF 6 billion in arrears on scheduled maintenance expenditures.

2.4.24 External audits have confirmed the weak financial situation of the Banque Nationale de Development (BND) for a number of years, although the bank's board of directors failed to accept the auditors' recommendations or to act on them until this year. The bank's difficulties stem from past poor management and a lack of clear authority to evaluate projects in which it invests, sometimes under pressure from Government. As a result, the bank faces a portfolio of bad debts to other public institutions (e.g. the ORDs) who are unable to repay. Following changes in management during the past year, proposals are under consideration by Government to clear some of these debts between the BND and other Government entities and to increase the bank's capital base.

2.4.25 The Regional Development Organizations (ORDs) are included in the parapublic sector in Upper Volta because of their formal financial autonomy, although they are essentially a branch of the government administration carrying out agricultural extension. Those ORDs which are neither supported by foreign aid nor receive revenues from substantial cotton production depend largely on grants from the central budget. The authorized grant to all eleven ORDs has declined from 1976-82 in nominal terms, and amounted to only CFAF 217 million in 1982, while the ORDs requested CFAF 1.1. billion. The organizations consequently accumulate payment arrears and even have drawn on reimbursements of farmer credits to meet operating budgets, while interruptions of payments to extension staff continue to occur.

2.4.26 The Government's participation in several societies required capital contributions in 1982 estimated at CFAF 6.4 billion, of which CFAF 670 million is owed to Air Afrique, and CFAF 2.2 billion to local banks and development finance institutions 1/. None of this obligation was inscribed in the 1982 budget.

2.4.27 The Government's policy of subsidizing fertilizer for cereals has resulted in a rapidly rising subsidy bill which has no regular source of financing, and has thereby caused a financial drain to the cotton agency, SOFITEX, which imports the fertilizers. Government has consequently resorted to STABEX funds and grants from bilateral donors to meet the subsidy payments owed to SOFITEX.

1/ Ministry of Finance, Avant-Projet du Budget de l'Etat, 1982.

Table 13: TREND IN COST OF FERTILIZER SUBSIDY

	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82
Subsidy on cereal fertilizer a/	127	218	287	433	602	786

Notes: a/ Compound fertilizer only.

2.4.28 It is clear from this partial evidence that financial operations outside the budget already entail a significant drain on the State; unless the situation is redressed soon, the burden could seriously distort the government Treasury and the efficient allocation of bank credit and other resources in the economy generally, as well as disrupt the services which the public enterprises are supposed to deliver. As a further indicator of the seriousness of the situation, the total outstanding debt of the parastatal sector which is guaranteed by the Government amounted to US$ 77.4 million at the end of 1981 (CFAF 20.9 billion at that year's exchange rate), which represents about 16 percent of external public debt; service of the parastatal debt in 1981 equalled US$7.5 million, however, or 53 percent of all public debt service, much of which would become a liability of the State if the enterprises had to default.

2.4.29 The Government established a commission to study the public enterprise sector in 1981. Although the commission has issued a report, the recommendations have not been made public and apparently have not been put into effect. However, a central control agency (Inspection General d'Etat) has recently been created as a general surveyor of financial operations of these enterprises. Measures have been taken to financially rehabilitate the OPT. The salaries of public enterprise directors have been cut back to the levels prevailing in the civil service, and the Government has agreed to reduce fertilizer subsidies gradually. The World Bank has under discussion with the Governments of both Upper Volta and the Ivory Coast a program to correct the financial situation of the RAN. An external auditor's report on the ORDs has been completed and is under review. The Government has also requested the World Bank's assistance to conduct a survey of the financial sector, with particular attention to the two major financial intermediaries, the BND and CNDI (Caisse Nationale des Depots et des Investissements), with a view to recommending appropriate policy and institutional changes to improve efficiency.

2.4.30 Even more wide-reaching steps should be taken to correct the financial problems of the public enterprise sector, however. Most importantly, there is need for the Government to determine whether its various participations in these institutions are appropriate, given their functions and the availability of alternative sources of funds and management; and, if necessary, reaffirm its commitment to support the administrative institutions which have

no real prospects for financial autonomy. Guidelines regarding the levels of remuneration for all staff of the public enterprises need to be established and enforced, and a realistic set of prices and tariffs put into effect. More specific prescriptions for the various institutions require a detailed review of the public enterprise sector.

2.4.31 To summarize the public financial situation, it is clear that there has been a rapid deterioration, in the sense of a growing imbalance between demand and supply of public financial resources, in the past few years. To some extent such an imbalance is inevitable given the expansion of investment activity and the resulting new requirements for Government to administer and maintain the services and infrastructure newly developed. The worrying issue in Upper Volta is that the Government has insufficient control of the scope of its financial obligations, so that it cannot in the present circumstances adequately plan for necessary adjustments in expenditure and revenues, nor create a plan for external requirements to meet the budgetary shortfalls.

2.4.32 To redress this situation, three changes are needed: a) information on all ongoing investment has to be consolidated in some centralized budget or account so that it can be properly monitored, b) the recurrent expenditures arising from this investment have to be estimated and provision made for them - which is only possible once the nature and magnitude of all present investments are accounted for, and c) decisions regarding new investments must only be taken after thorough evaluation of their implications for the domestic capital and recurrent budget, an assessment which obviously depends again on complete and up-to-date information concerning expenditure commitments already made.

5. Investment Planning

2.5.01 In many very poor countries with low or negative domestic savings, there is a tendency to regard the opportunity cost of capital obtained from abroad as negligible. Domestic income growth in the short term is seen as a direct function of increasing aid flows and the stimulus which these flows provide to local business activity. While the countries should still be concerned with making sure that such resources are allocated according to their rates of return, this tends to be an abstract notion when meaningful economic data are often lacking and local capabilities of project evaluation are weak. Moreover, donor policies, which generally favor capital over recurrent cost financing, tend to foster an uncritical acceptance of new investments by governments who often perceive the external aid as non-fungible. For these reasons, the recipient countries are often far more concerned about the total size of aid flows rather than with their application.

2.5.02 Investment planning in Upper Volta has in practice served to maximize rather than optimize the use of external capital resources. The weaknesses of planning in the country are aggravated by the large and rapid increase in aid inflows which followed the drought, and the competing nature of donor interventions; by the particularly small stock of educated manpower able to undertake project evaluation; and by political considerations.

2.5.03 In the early 1970s, the Government's investment program was of modest proportions, in part determined by the level of aid it was receiving at the time and in part by the tight budgetary control policy it was pursuing; the pipeline of investment projects under preparation was correspondingly geared to the size of the investment program. Moreover, technical ministries were organized to respond only to the basic and essential functions of Government; therefore, the planning function evolved gradually, and was initially shifted by each successive government from one technical ministry to another. In 1978 a planning ministry was finally created in its own right.

2.5.04 The major drought which culminated in 1973 brought about a doubling of aid commitments to Upper Volta. Since 1976, commitments have increased about 17 percent per year, or above the growth of nominal GDP, with the level of annual disbursements roughly equalling the entire government budget. The magnitudes of these aid flows have caused the domestically-financed share of the investment effort, which has grown 8 percent annually, to shrink to the present level of about 12 percent of total development expenditure.

2.5.05 The rapid growth of funds had two consequences: (i) the quality of project identification and preparation greatly suffered in the attempt to generate sufficient projects, and (ii) the technical ministries began to approach every donor directly with a list of projects, thereby shunting efforts by the Ministry of Plan (MOP) to coordinate the country's economic development. The donors for their part fostered this approach by competing with each other to finance projects which satisfied political objectives, and even on occasion short-circuiting channels of project preparation in order to meet given disbursement targets.

2.5.06 Planning being in essence the selection of options in a constrained environment, the relative abundance of external funds has placed little pressure on the Voltaic Government to prepare a comprehensive development plan, to coordinate centrally the financing of the plan, and to have one government interlocutor with the various donors. The resulting lack of coordination of investment has undoubtedly contributed to maintaining the incremental capital:output ratio above what it might otherwise have been.

2.5.07 The functions of investment planning therefore have had relatively little practical importance. The quality of project identification and evaluation varies greatly depending on the source. Almost half of new project ideas originate from donors and from the agricultural research institutes; their economic evaluation, at least of the investment phase of the projects, is often fairly complete, although donors' projects clearly reflect their own views of development priorities--which, given the wide range of donors, results in a highly mixed and uncoordinated portfolio. The remaining half of the proposed projects originate in the technical ministries, which have a weak capacity for feasibility assessment. The Department of Studies and Projects in the MOP likewise is ill-equipped for the task of evaluating projects. In fact, only a small proportion of projects is routed through the MOP and undergoes such scrutiny; the main reason for the lack of cooperation between MOP and the technical ministries may lie in the latter's historical independence and their resistance to what they consider interference in their technical domain.

2.5.08 The project analysis which is undertaken focuses on the investment component of the project; operating and maintenance costs, as well as local manpower and counterpart funding required to implement the project are generally not evaluated. The absence of a proper system in either the MOP or the Finance Ministry to account for recurrent costs reflects (i) the unavailability of detailed information on the local resource requirements of many projects, (ii) the lack of effective authority of these two ministries to obtain this information from the technical ministries where it exists, and (iii) an overemphasis by all ministries on the investment aspect of projects to the detriment of total project financing, and the entailing preoccupation with maximizing foreign aid resources at the expense of planning and selecting their utilization.

2.5.09 Project selection, consequently, has not followed from a process of economic evaluation. The overriding criterion for the selection of projects has been the availability of external financing - thus even projects with a debatable contribution to the national economy too often assume a high priority if financing has been secured. Moreover, the Government may take decisions to pursue individual projects based on political concerns or on the advice of technical ministries without referring to the judgement of the MOP. The Government has indicated that under the Fourth Plan, which is still in early stages of formulation, project selection will be more strictly controlled.

2.5.10 The financial execution of projects is subject to insufficient oversight from any source within the Government. The Directorate of Financial Execution (DEF) in the MOP which is responsible for monitoring the financial implementation of projects is understaffed. The DEF keeps track of about one-third of 35 donors, with emphasis on the FAC and CCCE, 1/ and the projects which it monitors amounted to only about half of the total envelope of investment under the Third Plan (1977-81). The Directorate of Public Debt in the Ministry of Finance also monitors some financial implementation of projects, but a large share is handled directly by the donors. The execution of local counterpart expenditures for projects is also not reviewed centrally. For most projects in the past, the specified government contribution has been of a non-financial nature, although where there is a financial contribution it does not systematically enter the budget planning and preparation exercise as indicated in Section 4, in part because there is de facto no central Government unit knowledgeable of all project conventions signed.2/ As appparent from Table 14, the Ministry of Plan has not assessed actual investment under the Third Plan beyond 1979; although the ministry's estimates suggest that the total planned investment was undertaken (CFAF 249.7 billion), the actual inflows of foreign aid indicate that it is unlikely that more that CFAF 160.4 billion, or 64 percent of the planned expenditure, was actually realized.

1/ The French Fonds d'Aide et de Cooperation and the Caisse Centrale de Cooperation Economique.

2/ In fact several ministers are authorized to sign project agreements.

TABLE 14
REALIZATION OF PLAN INVESTMENTS, 1977-81

ITEM		1977	1978	1979	1980	1981	TOTAL
				(IN MILLIONS OF CFAF)			
RURAL SECTOR	75	5,236	7,821	11,199	20,791	19,129	64,176
AGRICULTURE	76	1,475	2,589	4,361	8,371	7,445	24,241
LIVESTOCK	77	845	1,060	2,126	2,888	1,783	8,702
OTHER	78	2,916	4,172	4,712	9,532	9,901	31,233
INDUSTRIAL SECTOR	79	5,040	6,999	9,058	8,419	13,024	42,540
ENERGY	80	712	1,862	1,639	1,446	3,297	8,956
MANUFACTURING	81	3,689	4,744	7,018	4,854	4,522	24,827
OTHER	82	639	393	401	2,119	5,205	8,757
SERVICES	83	1,149	1,211	1,146	5,831	9,149	18,486
TRANSPORT	84	860	835	745	969	750	4,159
POST & TELECOMMUNICATIONS	85	271	251	338	2,002	3,129	5,991
OTHER	86	18	125	63	2,860	5,270	8,336
ECONOMIC INFRASTRUCTURE	87	5,329	5,361	11,053	17,465	17,492	56,700
ROADS	88	4,937	3,889	4,985	12,974	13,099	39,884
RAILROADS	89	144	473	2,571	1,515	1,087	5,790
OTHER	90	248	999	3,497	2,976	3,306	11,026
SOCIAL SERVICES	91	4,814	5,122	6,512	10,612	11,341	38,401
EDUCATION	92	3,101	3,257	3,365	4,313	4,971	19,007
HEALTH	93	1,535	1,399	1,874	3,115	2,170	10,093
OTHER	94	178	466	1,273	3,184	4,200	9,301
RESEARCH	95	864	1,503	1,843	1,832	2,117	8,159
TOTAL /1/	96	22,432	28,017	40,811	64,950	72,252	228,462
				(IN BILLIONS OF CFAF)			
TOTAL IN CURRENT PRICES /2/	97	22	28	41	71	88	250
TOTAL DEVELOPMENT EXPENDITURE ACTUALLY FINANCED /3/	98	30	33	46	40	43	193
ADJUSTMENT OF TOTAL PLAN INVESTMENT /4/	99	22	28	41	33	36	160

SOURCE: Ministry of Economy and Plan.

NOTES: /1/ Figures for 1980 and 1981 are in 1979 prices and are the difference between actual expenditures in 1977-79 and total Plan estimates.
/2/ With figures for 1980 and 1981 raised 10 percent per year to reflect current prices
/3/ From Table 6.
/4/ Figures for 1980 and 1981 adjusted to maintain the same ratio of Plan expenditures to development expenditure as prevailed in 1977-79.

2.5.11 In an attempt to strengthen investment planning and budgeting, a proposal to create a Fonds National d'Investissement Public (FNIP) has been under consideration for several years. Although in some quarters of government the FNIP has been viewed as literally a fund which would attract yet additional resources for investment, the Finance and Planning Ministries have generally agreed that the purpose of the proposal is to create a mechanism by which all development investments, both domestically and externally financed, can be consolidated in one account, and which would allow a comprehensive analysis to be made of both the counterpart requirements and ensuing recurrent costs of projects in relation to the totality of Government's financial obligations. Despite intervening changes of the personnel involved, the two central ministries have accepted in principal the need for such a coordinating arrangement; the proposal has been persistently deadlocked, however, over who will actually approve the investment expenditures--a function which already formally belongs to the Ministry of Plan, although not exercised, and which implies substantial economic power.

2.5.12 The ultimate objective of a mechanism to coordinate investment planning and budgeting would be to provide policy makers with adequate information with which to select the best projects available and to make necessary adjustments to other sources of revenues and expenditure. Yet merely creating formal communication links between investment and budgeting activities will not produce a substantive change in the quality of planning in Upper Volta unless there is a willingness on the part of Government to permit central review of investment proposals by the planning ministry, and to avoid clearly uneconomic projects which have political appeal. The danger posed by the lack of such a procedure is illustrated by the Government's decision in 1982 to begin construction of the Tambao railway, a CFAF 100 billion project which was presented as a means to promote the development of the isolated northeast and permit exploitation of manganese deposits. A line of credit (CFAF 4.4 billion) from local banks was obtained for this project, and the Government actively solicited external financing. The results of a recent feasibility study confirm earlier findings that the project cannot be justified economically or financially, and it is unlikely that significant external finance will be forthcoming for the project.

2.5.13 Up to the present, the Government has acted (and apparently with some success) on the belief that aid could be maximized without coordination of planning and budgeting and without incurring harmful effects on the economy. Yet to the extent that (a) the recurrent financing obligations from past projects are beginning to create demands which limit the Government's overall maneuverability, (b) the abundance of aid will not continue as in the past, and (c) the Government's own priorities depend on donor assistance in financing some of these recurrent costs (such as for education and health), this traditional approach will become increasingly self-defeating.

III. The Agriculture and Livestock Sectors 1/

1. Introduction

3.1.01 The prospects of Upper Volta's economy depends essentially on those of the agricultural sector (crops and livestock) which represents, together with forestry and fishing, almost 40 percent of GDP and about 90 percent of total exports and employment. 2/ The present state of development of the sector is indicated by the fact that three staple cereals - sorghum, millet, and maize - account for about two-thirds of the total value of crop production and that only 10-15 percent of the total output of these crops is estimated to be marketed, of which not more than about one-fifth is produced with modern inputs (chemical fertilizer and animal traction). Cotton, the major export crop, represents less than 5 percent of total crop value-added. Livestock production is predominantly extensive, much of it nomadic, with the integration of agriculture and livestock - in the sense of mixed farming - still in an embryonic state. Therefore, although the agricultural sector has shown a positive response to the development efforts of the past decade, particularly for cotton, it is important to note that the sector is still fundamentally subsistence-oriented and that crop diversification and structural change remain to be introduced in most parts of the country.

3.1.02 Government policies have been generally appropriate in their orientation and supportive of the agricultural sector. Taxation, which is largely limited to cotton and livestock, has been modest and more than offset by subsidization of crop inputs (such as fertilizer) and the inflow of foreign assistance to the sector. Producer prices except for cotton are largely determined by the market. The trend in both private prices and the official prices which apply to the very limited government purchases indicate that the internal terms of trade for the crop subsector (with respect to input prices) have been favorable. For both crop and livestock producers, output prices have risen faster than general inflation (See Table 15).

3.1.03 In areas where farmers have the technical means to increase their production the response to these prices has been good. Output of cotton,

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1/ This chapter is based largely on two IBRD sector reports, "Upper Volta Agricultural Issues Study", September 10, 1981, Report No. 3296-UV, and "Upper Volta Livestock Subsector Review", April 21, 1981, Report No. 3306-UV, which treat the issues raised here in greater detail. The analysis has also benefited from a USAID-financed report, "Agricultural Sector Assistance Strategy for Upper Volta", Development Alternatives, Inc., Washington, D.C., March 1982.

2/ According to the 1975 Census, 91 percent of the male labor force aged 15-60 was employed in the agricultural sector.

Table 15: SUMMARY AGRICULTURAL PRICES

	Price Level (CFAF/KG) 1970	1980	Percent Increase
Agricultural Inputs a/			
Fertilizer (NPK)	39	40	2.6
Producer Commodity Prices b/			
Cotton (first quality)	32	55	71.9
Millet, Sorghum, Maize	12	45	175.0
Rice (Paddy)	30	63	110.0
Groundnuts (Shelled)	25	81	224.0
Sesame	27	75	177.8
Sheanuts	7	27	285.7
In CFAF per head:			
Cattle c/	12,500	35,000	180.0
Sheep/Goats	2,270	2,900	27.8
Pigs	2,250	5,250	133.3
Poultry	100	350	250.0
General Price Indices			
Low-Income Consumer	100.0	228.0	128.0
GDP Deflator	100.0	234.2	134.2

Notes:

a/ Fertilizer price for 1970 taken from IBRD, " Upper Volta Agricultural Issues Study", October 1982, Report No. 3296-UV, Table 1-10.

b/ From Ministry of Economy and Plan, "Comptes Nationaux et Indicateurs Economiques de la Haute-Volta de 1970 a 1979", June 1981. Crop prices are official. For a more extensive comparison of trends in official and private commodity and input prices, see "Agricultural Issues Study", Table 1-11.

c/ 1980 Cattle price reported by Ministry of Plan document is CFAF 29,500; higher figure quoted here is consistent with prices quoted in IBRD, "Upper Volta Livestock Subsector Review", November, 1982, Report No. 3306-UV, Table 8.

which is limited to the southwest, has expanded 11 percent annually from 1970 to 1981 with yields almost tripling through the use of fertilizers and insecticides and better husbandry (Table 16). Output of the three main cereals has grown at about the same rate as population (1.7 percent per year) over the same period, with yield increases confined to sorghum and maize in the southwest zone, reflecting relatively good results attainable from the applications of fertilizer to these crops in that region and the expansion of cultivation to more fertile areas. Yields in the center have stagnated or declined, however, as a result of increasing soil deterioration.

Table 16: GROWTH OF AGRICULTURAL PRODUCTION

	Average Annual Increase a/		
	Output b/	Acreage c/	Yields c/
Cotton	10.9	0.0	12.3
Millet	(1.2)	3.1	-3.0
Sorghum		0.5	2.0
Maize d/	7.5	4.2	-1.6
Paddy	-0.6	1.4	-2.7
Cowpeas	10.3 e/	n.a.	n.a.
Groundnuts	0.7	2.5	-0.1
Sesame	2.8	3.9	-1.0
Sheanuts	12.0 e/	n.a.	n.a.

Notes: a/ Least squares growth rates.

b/ From Table 3-1. Growth rates are between 1970 and 1981 except for cowpeas and sheanuts, for which 1980 is last available year.

c/ From IBRD, "Upper Volta Agricultural Issues Study", October 1982, Report No. 3296-UV, Table 1-2. Growth rates are for 1970-79 for cotton, groundnuts and sesame; for other crops, 1978 is last available year.

d/ The discrepancy between growth rate of output in comparison to that of acreage and yield may be explained by the differences in periods covered.

e/ Note that because of extreme fluctuations in output, growth rate between 1970/72 average and 1979/80 average is only 2.9 percent for cowpeas and 6.6 percent for sheanuts.

3.1.04 Although efforts to maintain adequate price incentives remain essential to promote increases in production, especially in view of the need to reduce fertilizer subsidies (discussed below), development of the sector over the long term depends even more on the introduction of measures which put productivity improvements at the technical reach of farmers - and, in the case of crop cultivation on the central plateau, arrest the present losses in soil productivity. The measures needed to achieve improvements in productivity will require heavy inputs of management - both on the part of the farmer and of the Government - and coordination. At the same time, the financial and manpower resources of Government are already stretched to the limit--therefore if the more management-intensive approach to agricultural development is to be realized, it will be necessary to adopt a "minimalist" style of administration which makes most efficient use of scarce personnel and restricts the dependence on government services in favor of greater organization by farmers and herders themselves. These points are developed further below with respect to the main issues of rainfed production, irrigation, institutions and financing, and the livestock subsector.

2. Rainfed Production

3.2.01 The vast majority of crop output at the present time is produced under rainfed conditions, and the incomes of most Voltaic farmers will continue to depend for many years to come on the prospects for improving dryland production. The problems and approaches in this subsector are defined differently according to the four major climatic zones of the country, which are associated with distinct population densities and socio-cultural patterns. In general, the issues to be addressed in a strategy to expand rainfed production concern: (a) technology - the need for refinement of technologies which can be effectively and economically applied throughout each of the zones; (b) the choice of crops - the prospects for diversification of crops in order to raise the value of output and exploit new markets, (c) the availability of labor - which appears to be a binding constraint on the ability of farmers to intensify production at critical periods, even in regions with an ostensible surplus of population relative to land, and (d) resource conservation - the rapid degradation of the environment, as evidenced by the loss of tree cover and top soil, and poor conservation of water seriously constrain present and future productivity. Success in addressing these issues will depend essentially on efforts of agricultural research and extension.

A. The Southwest

3.2.02 This region, whose northern demarcation is a line running from Dedougou to Po, has the advantages over the rest of the country of rainfall averaging above 900 mm, a longer growing season, richer soils, and better access to external markets. It also contains most of the lands freed from riverblindness, permanent water courses, and moderate population density (with about 30 persons per km^2 of arable land, versus 60 for the country as a whole), which accounts for the inflow of migration to the region. Improved technologies for this area already exist, based on fertilizers, insecticides, and animal traction, which have enabled the southwest to develop a major

export crop, cotton, and to produce a cereals surplus for the rest of the country. The main focus of development efforts in this region should be on further improving cereal yields (for example by increasing cultivation of maize which is highly responsive to inputs), so that more resources can be shifted to higher value export crops, the region's comparative advantage. However, more research is needed to identify export crops besides cotton which can be widely grown and to find an alternative to the costly and acidifying NPK fertilizer. 1/ There appears to be considerable potential to grow high-quality fruits and vegetables which, however, requires good organization of markets (including export markets) and small-scale irrigation.

3.2.03 An approach must also be developed to address the problems of migration in the area, specifically for its implications to the environment, as migrants lack ownership of the land and tend to overcultivate without investing in land improvements. The Volta Valley Authority (AVV), a highly structured institution set up to settle new families in the onchocerciasis-freed areas, has followed an excessively costly approach to date and more study is needed of ways to assist and motivate settlers to adopt environmentally-sound farming systems without a large public administrative input.

B. The Central Plateau

3.2.04 The central region, covering the band between the 600 and 900 mm isohyets, has a short and highly variable rainy season and generally shallow, sandy soils which have been seriously weakened by the pressure of continuous cultivation brought on by an average population density of over 100 persons per km^2 of arable land. The priorities for the region are clear - adoption of drought-resistant varieties, a halt to soil erosion and the decline in soil fertility, and better water conservation. But measures to achieve these objectives require considerably more adaptation and testing under the varied conditions found in the region.

3.2.05 In effect, changes are required throughout the farming systems. Indications are that the rock phosphate produced in the southeast has a favorable long term impact on soil fertility, but more evaluation of the results over time is needed. The integration of livestock and farming, specifically through animal traction, will be a key element in improving the farming system. Animal traction permits ridging to conserve water and reduce erosion; 2/ alleviates the labor constraint at critical periods for land preparation and weeding; and provides organic fertilizer to soils. Production of fodder should eventually be an important addition to the crop mix, although this is still at a nascent stage in the region's farming systems.

1/ Nitrogen-phosphate-potassium compound used on cotton and cereals.

2/ Although there is some evidence that under certain conditions, animal traction can increase soil erosion.

Crop diversification in the region may actually be declining as farmers are required to devote an increasing share of resources to producing the family's cereal requirement in the face of falling yields. Legumes such as cowpeas and vegetables grown during the dry season with small pump irrigation also have good prospects in the region but again, restoring yields of the basic staples and improving access to external markets will be important elements in the success of crops other than the traditional cereals. Overall, technology and the deteriorating resource base remain the fundamental constraints to increasing production on the plateau. Small-scale interventions, such as those financed by the Rural Development Fund, appear to be a good vehicle for testing viable cultural improvements and replicating them while measures applicable to the region on a wider scale are developed.

C. The East

3.2.06 Like the central plateau, much of the region east of Koupela is characterized by poor soils and light and variable rainfall, although with considerably less population density. Further to the south and east, rainfall is higher and soils heavier, but road infrastructure is almost nonexistent. The eastern region faces basically the same technological constraint as the center, with adoption of animal traction an even more important feature of an improved farming system to permit the expansion of areas cultivated. But the prospects for increasing output in this region depend ultimately on the improvement of transportation linkages both to the rest of the country and to the neighboring markets (especially Nigeria).

D. The Sahel

3.2.07 The zone north of the 600 mm isohyet has little prospect of improved technology for the few crops which can be grown there (mainly millet, sorghum and groundnuts). Livestock production is the primary economic activity, and the region's major vocation in this respect is as a breeding ground for the national herd.

3. Irrigation

3.3.01 In theory, the potential for irrigation is substantial - over 100,000 hectares could be cultivated with full water control and 25-30,000 hectares with partial control, mostly swampy bottomlands and areas below small dams. Only about 10,000 hectares, or 5%, of the potential has been realized, about a third of it through small bottomland schemes. These small schemes (maximum 100-200 hectares) appear to be quite promising, but maintenance requires a degree of farmer organization which is rare in most parts of the country. Most of the existing irrigated areas, which are largely devoted to rice production (with the exception of a sugar plantation of 2600 hectares in Banfora) have a major problem of inadequate returns relative to the initial investment and maintenance costs. The difficulty in achieving the necessary yields has arisen largely because of technical problems, especially with water management, which are exacerbated by the lack of an extension service experienced in irrigation. In some cases farmers have shown insufficient motivation for the

higher cropping intensity to which they are unaccustomed and which appears unattractive while the less demanding alternative of rainfed production is still available.

3.3.02 In recognition of the formidable management and financial requirements of developing irrigation, government policy has been to proceed cautiously, although more recently the Government has expressed a desire to press ahead with large-scale dam irrigation which it perceives as more secure than small dispersed schemes. But considerably more experimentation with existing developments to improve their yields and develop effective farmer organization of maintenance is needed before the potential advantages of irrigation under full water control can hope to be realized. In the near and medium term, priority should be given to strengthening the returns achieved in existing schemes and expanding bottomland cultivation. As farmers became more proficient and the availability of good land becomes more scarce over the longer run, bringing larger areas under full water control will prove to be a better economic investment.

4. Institutional and Financing Issues

3.4.01 Agricultural development clearly depends on a complex package of improvements requiring strong management and coordination. As indicated in the public finance discussion, the present allocation of public financial resources in the sector - in particular to fertilizer subsidies and ORDs - is already exceeding Government's capacity, without always addressing the major constraints and the areas where the best returns to these resources can be realized.

A. Research

3.4.02 In the area of agricultural research, the substantial levels of expenditure and involvement of many donors and international research organizations have created local research stations for most of the major commodities, but a relatively small share of the effort has been devoted to studying the problems of existing farming systems or to testing the applicability of research results for specific commodities under actual farm conditions. In the last couple of years steps have been taken to improve the orientation of research in this direction. The Economics Program of ICRISAT 1/ and the Farming Systems Unit of SAFGRAD 2/ have been undertaking farming systems research since 1979. The Government has begun to set up substations in the ORDs supported by donor projects 3/ to conduct on-farm trials of improved

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1/ International Crops Research Institute for the Semi-Arid Tropics.

2/ Semi-Arid Foodgrain Research and Development.

3/ Commonly known as PAPEM - (Point d'Appui de Pre-vulgarisation et d'Experimentations Multi-Locales).

practices generated by the research institutions. The Institut Voltaique de Recherches Agronomiques et Zootechnique (IVRAZ) has been established under the Ministry of Higher Education to oversee both basic research and some of the adaptive research activities. ORD-level adaptive research remains under the jurisdiction of the Ministry of Rural Development.

3.4.03 Farming systems research is a priority in the research field in Upper Volta, but it is especially demanding in terms of coordination and multidisciplinary skills required. In order for the new emphasis on adaptive research to be productive, it is essential that explicit channels of coordination be established between the Ministry of Higher Education and Scientific Research, and the Ministry of Rural Development with its direct links to extension and the ultimate consumers of agricultural research, the farmers. A clear strategy for agricultural research must be defined so that resources (especially the very limited numbers of Voltaic research personnel) can be properly allocated without permitting a proliferation of overlapping and poorly supported farming systems research efforts which will be no real improvement over the situation in the past.

B. Extension

3.4.04 The extension service as organized in the ORDs is the major item of recurrent expenditure for the Government in the agricultural sector. The returns from this expenditure in many parts of the country are low because an effective technical message is lacking, the extension agents receive inadequate guidance, and middle level supervision personnel are poorly trained. Yet a viable organization of extension is critical to the promotion of productivity improvements in the sector.

3.4.05 Given the Government's financial constraints and the poor near-term prospects for improving the technical recommendations for many areas, the focus in the near and the medium term should be on contracting and consolidating the administrative infrastructure of the ORDs to make it consistent with the tasks which can be effectively carried out. This is somewhat the effect, although not the explicit intention, of the Government's failure to provide regular financial support to the ORDs outside of the major development zones which do not have donor financing. In order for consolidation of the ORD administration to lead to greater efficiency, however, Government must commit itself to ensuring a reliable source of financing for the ORDs, at whatever level of operation is deemed appropriate, rather than leave the institutions suspended indefinitely with no financial security (see Section II.4.D. for more discussion of the financing situation of the ORDs).

3.4.06 Within existing financial constraints, the productivity of existing staff could be increased by structuring their work through the Training and Visit System and by in-service training. The severe limitations of government resources also point to the necessity of promoting farmer organizations which can take over some of the role of the extension agents and assume the support tasks of input and credit supply.

C. Cereals Marketing

3.4.07 Until very recently, the Government's role in cereals marketing through OFNACER (Office National des Cereales) has been limited to purchases of no more than 15,000 tons in any year 1/, or about 10 percent of the estimated marketed surplus. Government's ambitions for the agency are greater, however, and are restricted mainly by operating funds - its objective is to purchase and resell 50-60,000 tons annually (including 10,000 tons security stock), or about one-third of marketed quantities, in order to stabilize private prices and provide a floor and ceiling to the market. 2/ To date, the agency's sales have been constituted mainly by food aid, with the result that its actions have probably benefitted the consumer more than the producer overall, although OFNACER's presence as a marginal buyer in some surplus regions may exert some upward influence on the producer price in those areas.

3.4.08 Although marketing data are poor, evidence suggests that the private commerce, combined with the practice of on-farm storage, works reasonably well in Upper Volta within the restrictions posed by the very poor transport infrastructure. However, the Government argues that price stabilization is necessary to give producers production incentives (that is, to protect them from severe price drops) and to cushion price rises for consumers that occur because of variable harvests and because private trade is unable to fully smooth out price fluctuations. Carrying out a price stabilization scheme, however, may require the holding of stocks from year to year, which can be extremely expensive. OFNACER in fact found itself in this situation after making unusually large purchases in 1981/82 which it was unable to sell in the same campaign or in 1982/83, when there was again a bumper crop. The Government also justifies its public marketing activity on the grounds that there is little alternative commercial channel in remote areas - which, however, implies inevitable financial deficits for the agency to the extent that it attempts to subsidize these areas. The poor distribution of cereal surpluses, coupled with regional inequities in purchasing power, is indeed a major food problem in the country, as in most years a sufficient quantity of grains is produced per capita but some regions experience chronic deficits and subsequent malnutrition, particularly in certain seasons.

3.4.09 The main policy issue is whether direct intervention in marketing is the most effective use of government resources to meet the objectives of promoting production and protecting consumer incomes. As an alternative, the financial resources which would be required to fully carry out a price stabilization scheme might be employed to better effect in supporting production more directly (such as through a strong extension service). Likewise, expenditures on roads and improvements to market information would alleviate the constraints

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1/ With the exception of the 1981/82 campaign, when 28,700 tons were purchased.

2/ Ministry of Rural Development, "Rapport de Synthese de la 2eme Conference des Cadres", Ouagadougou, June 15-17, 1981, p. 108.

to private commerce which equally handicap public trade, and lead to better market integration. In any case, a more qualified use of food aid, to directly relieve pockets of hardship in the country and to avoid the potential price-depressing effect to producers of general food aid sales in urban areas, should be a feature of Government's marketing strategy.

D. Fertilizer Subsidies

3.4.10 The public financial implications of the subsidy of fertilizer applied to cereal crops were discussed in Section II.4.D. The impact of the subsidy to the agricultural economy is equally a cause of concern. The compound fertilizer presently used has proven its profitability even at full economic prices on certain crops (especially maize) in areas of higher rainfall. There is little apparent justification for an income transfer by means of a fertilizer subsidy for farmers in these zones. In many parts of the country at the present state of technology the fertilizer is not economic, however, and its acidifying effects argue against a subsidy which encourages widespread use until a better fertilizer formulation or more effective technical package can be developed. Despite the technical problems with the compound fertilizer applied at present, it is clear that greater use of chemical nutrients is essential to permit growth in per capita output over the long term. Yet as long as Government's financial constraints restrict the quantity of fertilizer which can be imported and sold at the subsidized price, the policy of subsidization is in effect counterproductive to the goal of food self-sufficiency.

3.4.11 In view of the formidable constraints to production discussed above (especially the insufficiency of adapted research findings and the need for soil and water conservation), the expenditure on fertilizer subsidies represents a less than optimal use of government resources. In fact, measures such as soil and water conservation which have long term results and externalities may represent a much more valid case for public subsidies to bring the development costs in line with privately-perceived benefits.

5. The Livestock Subsector

3.5.01 The importance of livestock to the overall economy, in terms of its contribution to GDP, has noticeably declined over the past decade, in large part because of losses to the herd suffered during the major drought. Still, livestock remains the primary means of livelihood for an important share of the population, and the source of more than one quarter of all exports. The subsector is characterized by low productivity, which stems from poor animal health, the scarcity of water and pasture, declining quality of rangelands, and the high cost of alternative foodstuffs. The major challenge in the subsector is to define interventions which are economically feasible and culturally acceptable, while remaining within the financial and administrative constraints of Government.

A. Health

3.5.02 Measures to combat animal diseases, both epidemic and endemic, are prerequisites to maintaining and improving herd productivity, and the most favourable experience acquired by the Livestock Service has been in the area of health. The major issue is that of recurrent costs. Some cost recovery is presently achieved through charges for vaccines, but maintaining effective revolving funds has proven difficult and charging for the use of infrastructure and for veterinary services has yet to be attempted. Ultimately, the responsibility for health services should be increasingly assumed by the livestock owners themselves through their direct support of village vaccinators and private veterinarians. The major health problem posed by tsetse infestation in the more productive pastoral areas of the southwest is best addressed by growth of the share of the herd (such as taurin cattle) which is resistant to trypanosomiasis.

B. Extensive herding

3.5.03 In theory, there is considerable scope to increase extensive livestock production by moving herds from overstocked areas to pastures that are not now fully grazed (east and south), and by improving pastures where stocking rates are already high (center and north). Severe technical constraints are posed by the prevalence of tsetse flies in the south and the scarcity of groundwater in the east. The most intractable problems, however, are institutional and cultural. Conflicts are already increasing between farmers, who traditionally have priority rights to land, and herders. There is need for some organization of herders to control water and pasture rights, yet experience with such efforts in Upper Volta and elsewhere in West Africa is scarce and not very promising. Improving extensive production will take time to develop improved techniques of range management and clarify rights of land tenure - and still, given increasing population pressure on cultivable land, extensive herding cannot be viewed as a major approach to livestock development over the long term.

C. Intensification

3.5.04 Integrating livestock raising with crop cultivation is an approach consistent with the objectivies of improving both crop and herd productivity in the face of physical and institutional constraints to further extensive production. Livestock can contribute a source of power (animal traction) and transport as well as nutrients (manure) to the farm, while closer herd management and better feeding can permit a higher offtake of milk and meat than would be possible under less intensive production. But to realize the potential of integrating livestock with crop farming, much more adaptive research is needed to develop financially and economically viable technical themes for improving animal husbandry and forage cultivation, which must take account of constraints on family labor and alternative uses of agricultural by-products. Training of extension staff in animal husbandry must also be a component of a strategy to develop intensive cultivation.

IV. HUMAN RESOURCES DEVELOPMENT

4.0.01 The qualitative and quantitative profiles of Upper Volta's human resources in large part define the developmental constraints which the country faces as well as the prospects of dealing with those constraints. Upper Volta's population is at least as youthful as that of most developing countries, although it has been slower growing than many (after emigration). The poor educational and health status of the population, however, implies that the challenge of providing affordable services and raising the average standard of living is especially great and will become more so as population increases more rapidly in the future. The present chapter first examines in detail the demographic trends--in particular the nature and rate of population growth--which are likely over the next couple of decades and their implications for development. The remaining sections of the report consider the prospects for significantly improving the overall quality of human resources in light of a growing population and a deteriorating public financial situation.

1. The Demographic Factor 1/

A. Population Size, Structure, Distribution and Growth

4.1.01 Upper Volta's only census, in December 1975, enumerated a de jure 2/ population of 5.64 million. According to the preferred Bank projection it would stand at about 6.4 million in mid-1982. The estimated annual rate of population growth during the early 1980s is estimated at 2.1 percent 3/, resulting from natural increase of 2.7 percent combined with net emigration of 0.6 percent. The age structure of this population is fairly youthful, with children under 15 years making up 45 percent of the population in 1975, and adults in the prime productive ages (15-60) representing 49 percent. This age profile is the product of high fertility, high mortality, and substantial net emigration concentrated in the young adult age groups particularly among males.

1/ Summarized from the background paper "The Demographic Situation of Upper Volta" by Althea Hill, PHN, Policy Unit.

2/ In French, "population residente", defined as all persons normally resident in Upper Volta and actually present at the census date, plus all persons normally resident in Upper Volta but absent abroad for less than 6 months at the time of the census. This is clearly an unsatisfactory definition of population both conceptually and practically, but is what has been adopted and used by the Government.

3/ In determining a per capita growth rate of the economy throughout the 1970s, an average net population growth rate of 1.7 percent is used in this report, which is close to the medium estimate given here for 1975-80 and is the rate commonly quoted by Government for the past decade.

4.1.02 A recent Bank study 1/ estimated that in the early 1970s there was an annual net emigration of 33,000 persons per year, resulting from an annual outflow of 70,000 and an annual inflow (mainly return migration) of 37,000. The number of emigrants actually abroad in 1975 was put at 700,000, plus another 300,000 persons of Upper Volta nationality (mainly children of emigrants). There were indications that the rate of emigration had been increasing over time. In recent years emigration of couples or families has become more common, in contrast to the earlier pattern of temporary emigration by single men.

4.1.03 There are also important streams of internal migration in Upper Volta. The major movements are out of the densely populated central and northern areas into the richer and emptier western lands--net interdepartmental migration from parts of the plateau was estimated as 8 percent of the region's population in 1975. 2/ Rural to urban migration accounts for only about one tenth of all internal lifetime migration. Its relative unimportance is due partly to the small size of the urban base and partly to only a moderate rate of urban growth.

4.1.04 Mortality in Upper Volta is undoubtedly high. Reports collected in the 1976 Post Enumeration Survey (PES) indicate that, in the early 1970s, about 27 percent of all children born died before reaching the age of 5, with the infant mortality rate standing at around 160. 3/ No information on adult mortality is available from 1976, but if earlier survey data from 1960 on age patterns of mortality are used as a guide the expectation of life at birth in the early 1970s can be put at 43. Urban child mortality was, and no doubt still is, considerably lower than rural; child mortality was also markedly lower in the western part of the country than in the central Mossi regions.

1/ K.C. Zachariah, J. Conde and N.K. Nair: "Demographic Aspects of Migration in West Africa": OUP and World Bank Staff Working Papers Nos. 414, 415, 1980.

2/ Julien Conde, "Migration in Upper Volta", draft report for IBRD/OECD migration study cited above, June 1978, Table 30.

3/ Even this level of childhood mortality is a considerable improvement on the level estimated from early survey data of 1960/61, which gave 41 percent of children dying before age 5 and an infant mortality rate of around 230; adult mortality data were also collected, and the resulting expectation of life at birth can be put at 31. Unfortunately the 1976 and 1960 sets of child survival data prove to be quite incompatible. Each suggests an extremely minor and gradual decline over the previous 15 years, but at sharply different levels throughout. Where the two series overlap in time (the reports of the oldest women in 1976 and the youngest women in 1960) the gap is very substantial and quite unbridgeable. Hence a fully satisfactory determination of levels and trends in mortality is impossible. (For further details see the background paper cited above). It is probably wise, however, to treat the 1976 estimates very much as a minimum.

4.1.05 Fertility in Upper Volta is also high, and has been rising in the recent past. Estimates from the 1976 PES and earlier survey data from 1960/61 indicate that the total fertility rate has increased from about 6 to 6.6 between the 1950s and the early 1970s. This rise is mainly due to a reduction in abnormally high levels of sterility found in some parts of the country, most notably in the Hauts Bassins area 1/, with an accompanying increase in the relatively low level of fertility; fertility in the Mossi regions has remained rather constant, at a Total Fertility Rate (TFR) of between 6.5 and 7. It is likely that fertility has been rising somewhat in urban populations, due probably to some combination of better medical facilities and the shortening of traditional periods of lactation and post partum abstinence. Since sterility levels are still above normal in the affected parts of the country and urbanization has been increasing, albeit at a moderate pace, there is still a possibility of further rises in fertility.

B. Population Projections

4.1.06 A set of six population projections was constructed for the period 1975-2010. The base population for all was the census de jure population of 1975. 2/ The age/sex distribution was not adjusted or corrected for age misreporting because of the difficulty of allowing for the genuine distortions caused by emigration and some possible undercounting of females. Given the uncertainty over current mortality levels, and the possibility that the estimates for the early 1970s based on the 1976 PES data are on the low side, the values for the period 1975-80 were taken to be the same as for the early 1970s, i.e. an expectation of life at birth of about 43 years. The level of fertility estimated for the early 1970s, a TFR of 6.55, was conservatively assumed to be unchanged in the period 1975-80.

4.1.07 One assumption of future mortality trends was retained for all six projections, namely a continuing decline, with life expectancy reaching 55.4 by the 2005-2010 period. 3/ Two assumptions of fertility trends were employed; the first being of no change throughout the projection period, and the second of no change until 1995-2000 followed by a slight decline to a TFR

1/ The causes of this elevated level of sterility are not established beyond dispute. It seems most likely, however, that most of the sterility is pathological in origin.

2/ As already noted, this is a very unsatisfactory base. Either the de facto population or the administrative population would be much better both practically and conceptually. However neither has been published in a full 5-year age distribution and the administrative population is certainly grossly undercounted because of the underreporting of emigrants abroad. Hence there is no attractive alternative in practice.

3/ Trend estimated according to standard Bank methodology; see K.C. Zachariah, M. Vu and A. Elwan, "Population Projections 1980-2015 and Long-Term (Stationary Population)", July 1982.

of 5 by the period 2005-2019. 1/ 2/ Three assumptions of net migration were used. The first is of no net migration throughout the projection period, which is not intended to be realistic but merely to act as a yardstick of natural increase in the absence of migration and to demonstrate the effects of halting emigration. The second is of a continuance of the net emigration rates estimated to be in force in the early 1970s, implying of course steadily rising numbers of net emigrants. These rates were calculated by accepting the Bank study estimate of an annual net outflow of 33,000, converted to age and sex specific net emigration rates. The third assumption is of continuing numbers of annual emigrants equal to those estimated for 1970-75 but without any return migration, hence a net annual outflow of 70,000, also broken down by age and sex. This of course implies declining net emigration rates throughout the projection period and a radical change in the propensity of migrants to return; both are rather unlikely, but could perhaps arise as a response to a fairly steady level of demand for labor combined with increasing development of empty land in the host countries.

4.1.08 The projections thus fall into three groups of two; each of the three embodies a different migration assumption coupled with constant or declining fertility. Our preferred projection is of constant net emigration rates and fertility declining after 1995. Predictions of migration are notoriously tricky, but the hypothesis of constant rates seems the safest. A gradual fertility decline after 1995 also seems somewhat more probable than the supposition of no change at all over the next 30 years. A comparison of these Bank projections with those produced by the Institut National de la Statistique et de la Demographie (INSD) of Upper Volta can be found in Annex IV. The Bank's projections produce significantly higher estimates of population than the INSD's projections in all cases.

4.1.09 The results of these projections are shown in detail in the Statistical Appendix Tables 4-1 to 4-4. Table 17 which follows shows just some summary features; three projections are selected for display, namely the combination of constant fertility and no migration (Projection A) which entails the largest population, the combination of declining fertility and constant numbers of emigrants (Projection C) which produces the smallest population, and our preferred combination of declining fertility and constant rates of emigration (Projection B) which yields a medium-size population.

1/ Trend estimated according to standard Bank methodology; see K.C. Zachariah, M. Vu and A. Elwan, "Population Projections 1980-2015 and Long-Term (Stationary Population)", July 1982.

2/ It should not be forgotten that fertility may possibly continue to rise as it has been doing in the recent past. The hypothesis of no change between 1975 and 1995 adopted here could be viewed as simply the net result of some rise in fecundity counterbalanced by some voluntary restriction of childbearing.

Table 17: Summary of Demographic Projections, 1980-2010

	1975-80			1980-85			1995-2000			2005-2010		
	A	B	C	A	B	C	A	B	C	A	B	C
Projection Assumptions												
Total Fertility Rate	6.55	6.55	6.55	6.55	6.55	6.55	6.55	6.09	6.09	6.55	5.00	5.00
Expectation of Life at Birth/a	43.2	43.2	43.2	45.2	45.2	45.2	51.2	51.2	51.2	55.4	55.4	55.4
For migration assumptions see Table 4.1 and text.												
Projection Results (Rates per 1,000)												
Crude Birth Rate	47.7	47.6	47.4	47.3	47.0	46.6	47.2	44.5	44.8	46.7	38.3	38.7
Crude Death Rate	22.4	22.4	22.4	20.4	20.5	20.5	15.8	15.6	15.8	13.1	12.4	12.4
Net Migration Rate	0	-5.9	-12.1	0	-6.0	-11.3	0	-6.2	-8.5	0	-6.1	-7.0
(Rates percent)												
Rate of Natural Increase	2.53	2.52	2.50	2.69	2.65	2.60	3.15	2.89	2.91	3.36	2.59	2.63
Rate of Population Growth	2.53	1.93	1.29	2.69	2.05	1.47	3.15	2.26	2.05	3.36	1.96	1.93

	1980			1995			2010		
	A	B	C	A	B	C	A	B	C
Projection Results/b (Population in Millions)									
Total Population	6.33	6.16	5.99	9.73	8.59	7.80	15.84	11.79	10.52
School Age Population	2.06	2.02	1.98	2.97	2.70	2.49	4.95	3.87	3.49
MCH Population	2.54	2.47	2.40	3.96	3.52	3.21	6.42	4.68	4.21
Working Age Males	1.57	1.49	1.42	2.45	2.11	1.85	4.09	3.02	2.64
Working Age Females	1.64	1.60	1.55	2.56	2.30	2.11	4.03	3.31	2.96
% Age Distribution									
0-14 Years	45.9	46.3	46.8	44.7	45.5	45.8	45.9	42.8	43.2
15-64 Years	50.7	50.1	49.6	52.4	51.3	50.8	51.2	53.7	53.2
65+ Years	3.5	3.6	3.6	2.9	3.2	3.3	2.9	3.5	3.6
Dependency Ratios/c	.97	.99	1.02	.91	.95	.97	.95	.86	.88

/a Assuming a sex ratio at birth of 103

/b Values for the years 2000 and 2005 are not shown because the projection program package used by the Bank contains a bug in the interpolation procedure used for extracting non-standard age groups (such as primary and secondary school age populations from a series of standard 5 year age groups, which produces the anomaly of more children in the group when fertility has been declining than when it has been constant, for the cohorts immediately following the initiation of fertility decline.

/c Dependency ratio = $\frac{(0 - 14 + 65 +)}{(15 - 64)}$

Projected Size and Growth of Population

4.1.10 Three striking features emerge from the results of these projections as presented in the Tables. The first is the massive growth of population to be expected whatever the assumptions of fertility or migration used. The population will grow from its current size of between 6 and 6.5 million to at least 10.5 million in 30 years' time, and conceivably to nearly 16 million; these represent percentage increases of between 76 and 150 percent. The potential for future growth is also huge. Projected growth rates in the 2005 and 2010 period range from 1.9 to 3.4 percent, implying that the population will double afresh in the following 20 to 40 years. Clearly increases of this scale and rapidity will demand careful planning.

4.1.11 The second striking feature is the substantial effect of variations in levels and trends of migration. By 2010 A projection produces a population nearly 40 percent larger than C, and nearly 25 percent larger than B. Put another way, if the rates of net emigration which prevailed in the early 1970s continue, they will remove 30-32 percent of natural increase over the next 30 years; if the numbers emigrating in the early 1970s are maintained, but return migration ceases, the reduction will be 43-46 percent. Variation between these two migration assumptions alone alters the 2010 population size by about 12 percent. The effect on the growth rate is also dramatic. Both B and C assumptions produce a reduction of 18-24 percent from the rate of natural increase; hence net emigration lengthens the doubling time after 2010 by about a third.

4.1.12 The third important feature is the significant effect by 2010 of even a rather belated and modest fertility decline. After only 15 years of gradually falling fertility, the total population is 7 to 8 percent smaller than if there had been no change, whatever the migration assumption. Moreover, the impact on the potential for future growth is quite dramatic, with growth rates in 2005-2010 cut by 25-30 percent, and doubling time after 2010 lengthened by 30-45 percent.

4.1.13 Equally important are the economic implications of the projected population growth, which must inevitably create substantial strains on Upper Volta's economy and natural resources. We shall therefore try to quantify roughly the size of some of the challenges posed to the country's planners and leaders.

C. Economic Implications of Population Growth
Expenditure on Education

4.1.14 The argument has already been made in this report that an improvement in the educational level of the population is indispensable for real economic and social development. It is therefore important to plan for the growth of demand for education. Table 4-3 shows that the primary school age population will grow by 20-40 percent over the next 15 years and by 60-140 percent over the next 30 years; corresponding increases for secondary school age children will be 33-50 percent and 90-150 percent.

4.1.15 Levels and trends in migration and fertility, of course, cause substantial variation. For example, the numbers of primary school age children due to be added to the de jure population by 1995 through natural increase would be cut by half if the highest net emigration assumption were in force, while potential additions of secondary school age children would be reduced by a third. A decline in fertility after 1995 also has some significant effect on primary school age numbers even by 2010, reducing them by 11-12 percent, although the secondary school age numbers will have only had time to be cut by one or two percent. On our preferred projection, the school age population will increase by one third over the next 15 years and nearly double by 2010.

Expenditure on Health

4.1.16 Health levels in the population are generally and rightly taken as an indicator of a country's economic and social progress, and of the welfare of its inhabitants. High priority is usually given to the provision of maternal and child health (MCH) services, in order to reduce childhood mortality and improve the health of two of the most vulnerable (and usually most undernourished) groups in the population. Table 4-3 indicates clearly the large inevitable increases projected in the "MCH population", or total numbers of women in the reproductive ages and children under 5. As before, variations in migration and fertility have important effects, comparable in magnitude to the effects on the primary school age population. Even under the "medium" projection, however, potential MCH clients will increase by more than 40 percent in the next 15 years and nearly 90 percent over the next 30 years.

Labor Force, Employment and Agricultural Resources

4.1.17 Two interrelated aspects of population growth are of critical importance for the economic development of Upper Volta, namely the growth of the labor force and the capacity of the subsistence agriculture sector to absorb it. Table 4-4 shows the projected growth of the conventional "working age" population (men and women aged 15-64) and the labor force (men and women of working age who are economically active). 1/

4.1.18 The projected fertility decline after 1995 of course has no effect on these numbers, since the reduced cohorts will not reach working age until after the end of the projection period. Migration, however, exerts a powerful influence. Variation in assumed levels of emigration can reduce the potential working age population by 12 to 22 percent. The effect for males is even

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1/ The proportion of males of working age recorded as economically active in the 1975 census was 93 percent and this figure has been used here. The census data for women, however, are acknowledged to be seriously in error, since they were almost all classified as housewives (and hence, according to the usual, though questionable, convention, economically inactive) despite their known heavy involvement in agricultural work. We consequently adopted the male rate of 93 percent for the female population also.

greater, with a reduction of a quarter to a third by 2010; with no future emigration there would be roughly equal numbers of men and women workers over most of the projection period, while with emigration there will be about 9 men for every 10 women. However, even fairly substantial levels of net emigration cannot prevent rapid growth of the working population; on our preferred projection, numbers of both men and women of working age will increase by 40-45 percent over the next 15 years and more than double over the next 30, with about 3 million persons added to the labor force during the entire period.

4.1.19 The changes in the size and proportion of the working age population imply shifts in the dependency structure - the number of persons under age 15 and over 65 as a ratio of the working age group. The dependency structure of the population has an economic meaning, in that it indicates the number of (theoretically) non-working residents who must be supported by those employed; it also compares the size of the population which is the heaviest user of social services (schooling and health care) to the population that can pay for those services either directly or through taxation. Summary Table 19 reveals that although the continuation of emigration initially produces higher dependency ratios under projections B and C than in the case of no worker outflow, a modest reduction in fertility causes a sharp net decline in the dependency ratio even in the presence of emigration. As a result, by the year 2010, the dependency ratio under the preferred (B) projection is down to .86 as compared to .95 if there were no emigration or reduction of fertility.

4.1.20 Adequate provision of agricultural land or jobs will be necessary for the roughly 3 million persons to be added to the labor force over the next thirty years. The former is by far the more important factor. There is little likelihood that the economy of Upper Volta can change over the next 15 to 30 years in such a fashion as to displace agriculture, and particularly subsistence farming, from its present position of complete dominance as an activity for both men and women.

4.1.21 The remaining absorptive capacity of agriculture in Upper Volta is therefore crucial. We can attempt only a very rough and simple estimation here to indicate general orders of magnitude, leaving aside perforce such issues as soil quality, land fallow practices, water resources, endemic disease patterns, differing levels of agricultural technology, pattern of ethnic settlement etc., which demand a major study in their own right. The 1977-1981 Five Year Plan document gives an estimated total quantity of usable agricultural land of 8.9 million hectares, of which 2.7 million hectares, or 31 percent, were actually under cultivation in 1975; another 16.2 million hectares are suitable only for pasture land. On this basis the trend in quantity of usable agricultural land available per capita is portrayed below.

Table 18

Projection	Hectares of Usable Agricultural Land Per Capita	
	1980	2010
A	1.41	.56
B	1.45	.76
C	1.49	.85

4.1.22 It is estimated that at the levels of agricultural techology and productivity currently found in Upper Volta, one hectare can feed between 2 or 4 people 1/ (depending on their age and sex), though only on a fairly basic diet. There will probably be some improvements in productivity over the next 30 years, but the average quality of currently unused land is likely to be worse than that of the cultivated areas. Some share of cultivable land must also be kept fallow each year to retain its productivity, reducing the amount of land effectively available, although this practice is already disappearing in some parts of the country because of population pressure. Hence the ratio of land required per capita probably will not improve much throughout the projection period. Consequently, it appears that if there is no net emigration, almost all the stock of agricultural land will be needed by 2010 just to maintain current levels of food supply per capita. Even with migration the supply of land will be approaching exhaustion and would certainly all have to be fully utilized in the course of the following 20 to 40 years. Fertility reduction makes a significant impact even by 2010 2/, but it is evident that under any circumstances there will be very little absorptive capacity left in agriculture by the end of the projection period, and substantial improvements in agricultural productivity will be urgently required.

D. Summary and Conclusions

4.1.23 It is abundantly clear from even this very rough and incomplete survey of the implications of population growth that it poses a very considerable challenge to the future economic and social progress of Upper Volta. Additions of at least another 2 million persons or so within the next 15 years, and a total increment of at least 4.5 million within the next 30 years, seem unavoidable, even on the assumption of continued emigration and some fertility decline towards the end of that period. Yet the rate and pattern of growth which does occur and the level which the population reaches in the next few decades make a considerable difference to the standard of living which the country will eventually be able to attain. Upper Volta must plan

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1/ Assuming an average yield of coarse grains of 600 kg/ha, per capita annual consumption of 180 kg, and 10 percent seeds and losses.

2/ Figures are not given here for all 6 projections, but show an increase of 9 percent in the land available per capita by 2010 if fertility declines rather than remaining constant.

now for the necessary improvements in such areas as cost-efficiency in public health and education, expansion of other public services, industrial development, agricultural productivity, and the efficient management of currently unexploited or underutilized agricultural and other natural resources. But in order for the effects of these improvements not to be simply swallowed up by population growth, concerted efforts should be made now to start reducing the rate of population increase.

4.1.24 There are just three ways of reducing future growth to a level consonant with Upper Volta's resources and feasible rate of economic development: namely, increases in mortality, huge permanent net emigration, or a substantial reduction in fertility. Obviously a rise in mortality is undesirable and unacceptable from every point of view. Massive permanent net emigration has the disadvantage of being subject to political and economic changes in host countries; it cannot, therefore, be securely planned for. Hence a substantial reduction in fertility appears to be indispensable to the long-term economic and social progress of Upper Volta. In addition to public encouragement of family planning, improvements in the education and health levels of the population--although they may lead to an increase in population growth in the near term--are necessary conditions for a sustained decline in fertility.

4.1.25 The sections below examine in detail the potential for accelerating the development of health and education. In the discussion of the possible expansion of services and their future costs, it is presumed that population will increase according to the moderate or "preferred" projection discussed above. Obviously, any substantially faster growth of population will make it that much more difficult for the Government to achieve a given expansion of public services over the next couple of decades.

2. Development of the Education Sector 1/

4.2.01 When Upper Volta achieved independence in 1960, it had one of the lowest primary school enrollment rates in the world - around 5 percent. It continues to trail behind most other developing countries, even though substantial efforts have been made to expand access to education. About 20 percent of the recurrent budget has been allocated to the sector, a share which, although exceeded by some developing countries, is better than average for the poorer states in Africa. 2/ Moreover, Upper Volta features a very

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1/ Upper Volta's education system is, in terms of structure and organization, similar to that in other French speaking West African countries. A primary course of six years is followed by a four-year lower secondary and a three-year upper secondary course leading to the "baccalaureat".

2/ The average for low income countries in Sub-Saharan Africa in 1978 was 15.2 percent. IBRD, Accelerated Development in Sub-Saharan Africa, Table 41.

dynamic system of private schools, the growth of which demonstrates the large unmet demand for education, especially in urban areas - in 1980/81, almost 9 percent of all primary students and 51 percent of general secondary school students were enrolled in private schools. The village communities also take a major part in the construction of classrooms and teachers' houses in rural areas, this local initiative accounting for an increase of 185 new classes (5 percent) in 1981. The combined public and private efforts have enabled the country to sustain a 6-7 percent annual growth of enrollments in primary and secondary schooling throughout the past decade. However, even this pace of developing the education sector cannot be sustained, nor can Upper Volta close the gap in educational achievement as compared to other countries, unless certain fundamental parameters determining unit costs and resource allocation within the sector are changed.

A. The Government's Sectoral Objectives

4.2.02 The Government has been grappling for some time with the problem of expanding a basic education system that would serve the entire population, over 90 percent of which is rural. Realizing that it would take a very long time to increase the coverage of the formal system, the Government attempted in the early 1960s, with the support of the international donor community, to create a low-cost system of Rural Education Centers, followed by the IDA-assisted Young Farmers Training Centers (CFJAs) to provide unschooled adolescents in rural areas with practical skill and literacy training. After 20 years, the system has not been significantly expanded. The recurrent costs are higher than expected--in fact, estimated as four times the per student costs of formal primary education, 1/ mainly because of much lower student:teacher ratios in the CFJAs. It is becoming clear that, while the CFJAs meet some of the education and training needs of their particular target group, the program is neither very cost effective as a vehicle of basic education nor of vocational training for agriculture. Future reorientation of the program should aim to strengthen its capability for post-primary training as a complement to a more widely expanded formal primary education system.

4.2.03 The Government has made considerable progress in formulating its priorities for the education sector. On several recent occasions the Government has issued policy statements emphasizing the priority it attaches to the expansion of educational opportunities and stressing in particular the need to rapidly expand first-level education. The Government has acknowledged the need to adopt realistic targets which take account of the constraints on the recurrent budget, and has confirmed that its policy options for expanding primary education remain open.

1/ According to 1982 estimates given by F. Orivel, "Cout et Financement des Services Educatifs en Haute-Volta: Situation Actuelle et Perspectives", IREDU/CNRS, November 1982. Comparison includes recurrent expenditures of CFJAs financed by foreign aid; the unit costs of CFJAs financed by the Voltaic Government alone amount to 2.7 times the unit recurrent cost of primary education.

B. Main Issues in Education
Teachers' Salaries

4.2.04 The high costs of education in Upper Volta relative to average national income and to the Government's financing capability represent the single greatest constraint to expanding the system. As outlined in Table 4-6, the average annual recurrent cost per student in primary school was CFAF 16,000 in 1981 (US$59) and CFAF 115,000 (US$423) in general secondary school. Although the unit cost are not out of line compared to other poor countries, they representing 32 percent and 228 percent of GDP per capita respectively, which are among the highest ratios in the world. The major component of these unit costs are teachers' salaries, which averaged CFAF 850,000 (US$3,128) at the primary level in 1981 and CFAF 1,000,000 (US$3,681) at secondary, or 17 and 20 times GDP per capita. The impact of salaries on the primary school unit cost is moderated by a relatively high pupil/teacher ratio (56:1); this is not the case at the secondary level, however, where the pupil/teacher ratio in public schools is only 20:1. The unusually high ratio of teachers' salaries to national income reflects the following factors:

(a) the large proportion (by West African standards) of primary school teachers who meet the educational qualifications for relatively high civil service rank: 89 percent of the teachers have at least a lower-secondary school diploma 1/ plus two years of professional training. This situation implies that a large share of teachers are at the high end of the pay scale - it may also indicate that certification requirements have been more strictly enforced in Upper Volta than in many other countries, further restricting teacher supply;

(b) The power of the teachers' unions, which managed in 1978 to engineer a rebasing of the salaries for most of the primary school teachers and further increases for the remaining teachers in 1981 to achieve an internal consistency among salaries within the profession. These changes made teachers the highest paid members of the civil service for their level of qualifications;

(c) Related to (a) and (b), very flexible standards of promotion from the rank of "instituteur adjoint" (level B_2) to "instituteur" (level B_1), which carries a salary increase of 6 percent. Between 1975 and 1981, the total number of higher level teachers doubled through promotions alone, increasing their share of the total force from 23 percent to 37 percent.

(d) The market for teachers (and other jobs requiring similar educational qualifications) in the Ivory Coast, where salaries are higher and the relatively well-trained Voltaic instructors are in considerable demand.

1/ BEPC - Brevet d'Etudes Premier Cycle, received after 10 years of schooling.

(e) The general shortage of trained manpower in Upper Volta, which enables such personnel to command a scarcity price.

4.2.05 To attempt to quantify to what extent, and why, salaries of primary school teachers in Upper Volta are high relative to those of other countries, a cross-country statistical (multiple regression) analysis was undertaken of teacher salaries and their major likely determinants.1/ The result can be summarized as follows: First, not surprisingly, teachers' salaries tend to rise proportionally, essentially on a one-to-one basis, with per capita income. Second, the supply of people with sufficient education to become teachers also has a major effect on teachers' salaries: the scarcer the supply of educated people, the higher their salaries will be. Thus, one important reason why Upper Volta's teachers' salaries, as a share of per capita income, are far above the international average is because it has among the smallest pools of educated manpower from which to draw its teachers. Third, countries that were former French colonies tend to have much higher teachers' salaries--about 80 percent higher--than other countries (with comparable incomes and pools of educated power). The complex reasons for this have to do in part with the conception of the role of the public service, with the historical importance and continuing power of teachers' unions, and with the demonstration effect of the salaries of expatriate teachers (now at the secondary level but previously at the primary level as well). Fourth, there is the range of other relevant factors, primarily country-specific. (The regression analysis explained 88 percent of the variation in teachers' salaries, leaving the remaining 12 percent to these other factors.) In the case of Upper Volta, observed salaries were still about 15 percent higher than would be predicted by allowing for the effects of the three factors cited above. Part of the reason here is probably the opportunity, noted earlier, for educated Voltaics to obtain jobs in the Ivory Coast.

4.2.06 What are the implications of these findings for Upper Volta? On the one hand, there are understandable historical and other reasons why the salaries of its primary school teachers are about twice those predicted for its income level and supply of educated manpower. (This takes account of the 80 percent factor noted for former French colonies and the 15 percent further "residual" for Upper Volta.) On the other hand, Upper Volta has one of the world's lowest school enrollment rates and is likely to continue to face very tight financial constraints on what it can spend on primary education. To understand the reasons why costs are high is not to say that the Government, and the children, of Upper Volta must remain trapped in this high-cost structure. Rather, what is necessary is to find ways to reduce unit costs of primary education -- as stressed in various places in this report -- in order to permit its most rapid expansion and improvements in its quality.

1/ A technical note giving details on these regressions is available on request.

Stipends

4.2.07 The unusually high costs of schooling in Upper Volta are also a function of very generous stipends at the secondary and university levels. About half of the public secondary school students (both general and technical) and a quarter of the private school students receive a stipend which averaged about CFAF 72,000 per year in 1981 - or 140 percent of GDP per capita. Students at the University of Ouagadougou in 1981 drew monthly stipends of CFAF 32,500, which on an annual basis is 770 percent of per capita GDP and about equivalent to the salary of a low-ranking civil servant. Largely because of the expenditure on stipends at the university level, higher education absorbed almost the same share of the education recurrent budget in 1981 as primary schooling (about one-third), although university enrollments are less than 1 percent of those in primary. In total, stipends at the university and secondary levels amounted to 35.1 percent of the education budget and 7.5 percent of the Government's overall recurrent budget in 1981 (Table 19).

4.2.08 The objective of a stipends policy should be to promote equitable access by providing funds directly to students with financial need--and in view of the numerical importance of private secondary schools, the availability of some financial assistance may be necessary to ensure fairness. No stipends policy could entirely redress the basic inequity in educational access which is created by the relative lack of primary schools in rural areas, however, and could on the contrary worsen the inequity. A recent Government study of stipend recipients in secondary schools suggests that, while the number of students with agricultural backgrounds is probably higher than it would be in the absence of such financial assistance, the policy has not really improved educational equity (as measured by the economic origins of the students).1/

4.2.09 According to this study, in 1969/70, 58.6 percent of secondary school students (both public and private) came from families of cultivators or herders, whereas in 1977/78 the number had shrunk to 42.1 percent - with the increasing share of students representing primarily merchant, civil servant, and military classes. About two-thirds of all student receiving stipends have agricultural backgrounds, and of the students from farm families the majority do receive financial aid from the Government, but these proportions have also fallen sharply. Of course, the urban recipients of stipends may be as poor or poorer than some of the rural applicants, and since Government did reduce the total number of secondary school stipends over the period studied, it is not surprising that the availability of awards to any group of students would also decline. But the data do indicate that there is room for improving the allocation of stipends to achieve a more equitable distribution of secondary school places.

1/ Ministere du Plan, Institut National de la Statistique et de la Demographie, "Scolarisation et Formation en Haute-Volta, 1960-1980," Dossier Technique #7, 1981.

Table 19: EDUCATION SECTOR RECURRENT EXPENDITURE BUDGET, 1981

	1981 Budget (CFAF million)	Share of Education Budget (%)	Share of Total Recurrent Budget (%)
Primary Level	2958	34.5	7.3
Secondary Level	1762	20.5	4.4
- Operating expenditures	880	10.3	2.2
- Stipends b/	629	7.3	1.6
- Subsidies to private schools	253	2.9	0.6
Administration (Primary and secondary)	433	5.0	1.1
Higher Education	2704	31.5	6.7
- Operating expenditures a/	236	2.7	0.6
- Stipends b/ c/	2388	27.8	5.9
- Subsidies	80	1.0	0.2
CFJA d/	726	8.5	1.8
Total Recurrent Education Expenditures	8583	100.0	21.3

Source: Budget de l'Etat 1981, final edition.

Notes:

a/ Excludes expenditures by the Direction Generale de la Recherche Scientifique et Technologique in the Ministry of Higher Education.

b/ Excludes stipends to students in professional training schools not administered by Ministry of National Education or Ministry of Higher Education (estimated at CFAF 25 million in 1981).

c/ Budget estimate of stipends for local university education was unusually low in 1981 - therefore figure shown here is the average of 1980 and 1982 budget estimates.

d/ CFJA (Young Farmer Training Program) is financed under Ministry of Rural Development budget.

4.2.10 The large expenditure on stipends, especially at the university level, raises a broader issue as to whether this is a fair and rational allocation of public resources in a country where students are a relatively advantaged group as a whole. Moreover, the average amount of stipends far exceeds the out-of-pocket costs of secondary and higher education, with each university student receiving a net public subsidy 1/ of over CFAF 300,000 in 1981, in contrast to a net private expenditure required of primary school students. 2/ Beyond its public finance and equity implications, such a structure of subsidies feeds the social demand for post primary education. Lowering the amount and number of awards, and substituting loans or other form of reimbursement by the student, would clearly permit a more equitable overall use of scarce public funds and lead to a more efficient allocation of resources within the education sector.

4.2.11 Other educational issues reflect in some way the higher costs of providing schooling to the mass of the rural population. Although access to education is everywhere relatively low, there are considerable geographic disparities. For instance, the enrollment rate in Dori Province is 5.6 percent compared with 53.3 percent in Ouagadougou. Biannual recruitment is commonly practiced in rural areas in such a way that complete age cohorts may be denied a place in school.

4.2.12 The quality and internal efficiency of schooling are also low. Every year, 20 percent of the students in primary school repeat and 10 percent drop out; only 45 percent of those that enter reach grade 6, and less than 35 percent obtain the primary school-leaving certificate. Almost all schools suffer a severe shortage of textbooks, especially for math and science, and teacher guidebooks. Measures to improve the basic efficiency and quality of instruction will be essential as an accompaniment to any expansion of primary enrollments.

1/ Calculated as amount of stipend and food subsidy to each university student less direct private costs for books, supplies, and transportation.

2/ IBRD staff mission notes, June 1982. Private expenditure by primary school students includes costs of books, supplies and transportation (when the school is not located in the home village, as is often the case) which are not easily estimated. The net cost to the student, however, is probably positive, since the only assistance provided is through the French textbook grant (valued at CFAF 100 per public primary school student annually) and school lunches furnished with food aid (valued at about CFAF 10,000 per student, on average, in the USAID-financed program in 1980), while out-of-pocket expenditures have been estimated as high as CFAF 20,000. The tuition paid by primary school students in the few private schools is yet an additional expenditure. For more information, see report by F. Orivel cited earlier.

C. Outline of a Sector Strategy

4.2.13 If a significant expansion of primary education is to be realized over the next twenty years, a sector strategy will have to be adopted which combines a number of policy changes, most of which need not represent major modifications of current practices. The reforms to be considered apply, first, to the financing of education - mainly through an increase in primary education's share of the total government budget, which could imply reallocation of resources within the education sector away from secondary and higher education. Second, measures to reduce unit costs could be undertaken, which would primarily have to address the average level of teachers' salaries by lowering promotion rates between salary grades and/or recruiting a share of teachers at a lower grade than the current norm. There is a wide variety of policy options available to achieve larger enrollments. The desirability of the approach chosen depends on its pedagogical impact, its administrative feasibility, and, last but not least, its political palatability. The Bank and the Government are engaged in a continuing dialogue concerning the basic objective of revising the financial structure of the sector to achieve greater enrollments, and the relative merits of different strategies. The discussion which follows serves to illustrate the implications of some of the possible choices, without prejudging which specific options should be selected.

4.2.14 Table 20 illustrates four of the possible scenarios for the expansion of primary education which have been derived on the basis of a computer model currently being used by the Bank and the Government in their ongoing sector discussions. Case A (base case) indicates that if the allocation of tax revenues to primary education remains unchanged, given present teacher salaries and promotion rates, the rate of growth of enrollments which can be achieved will actually decline from about 7 percent annually at present to 5 percent. With even moderate population increase, the enrollment rate (relative to the 7-12 year age group) will rise only from 19 percent in 1981 to 28 percent in 1990 and 37 percent in the year 2000. Case B shows that with modest adjustments to the financial parameters but no change in the policies regarding teacher salaries, an enrollment ratio of 63 percent could be achieved by the year 2000. Alternatively, modifications of teaching costs with little or no measures to increase the proportion of budget resources allocated to primary education would allow enrollments to reach 49 percent in two decades, still a significant improvement over the base case. Obviously, a combination of policies to increase the resources available to primary education and to lower unit costs would increase the likelihood that a large expansion of primary enrollments could be maintained. Even if total budget resources grew only 3 percent per annum in real terms, with both policy and education reforms in effect an enrollment ratio of 63 percent could still be achieved in twenty years; if the budgetary base grows 4 percent annually (which should be possible if the tax reforms mentioned in Section II.4 are realized), fully 86 percent of the 7-12 age group could be included in school.

UPPER VOLTA: TABLE 20
ALTERNATIVE PROJECTIONS OF EXPANSION OF PRIMARY EDUCATION

	1981	IN YEAR 10				IN YEAR 20			
	ACTUAL	A	B	C	D	A	B	C	D
Enrollment ('000) /b/	203.6	341.2	518.1	389	519.5	570.1	982	754.5	980.5
% Growth p.a.	6 to 7					5	10	7	10
Enrollment Rate (%) /c/									
Age 7-12	19	28	42	32	42	37	63	49	63
Age 7		32	50	37	50	45	78	60	77
Unit Cost ('000 CFAF) /a/	19.00	18.19	17.00	15.61	14.09	17.89	17.42	13.41	12.95
Total Teachers	3,597	5,679	8,415	6,335	7,846	9,612	16,411	12,603	15,446
Primary Education Budget As % Total Recurrent Budget /a/	(8)					12.6	-	11.9	14.9
With Latter Growing at 3%						8.6	14.4	8.1	-
With Latter Growing at 5%									

Assumptions Underlying Projections:	A	B	C	D
1. % p.a. ave. real increase primary education budget	5	derived	5	derived
2. % p.a. ave. real increase total government budget	-	5	-	3
3. % p.a. ave. real increase secondary education budget	-	5	-	3
4. % p.a. ave. real increase public subsidies to private secondary school	-	0	-	2
5. % p.a. ave. real increase scholarships to secondary school students	-	0	-	0
6. % p.a. ave. real increase higher education budget	-	3	-	3
7. % p.a. ave. real increase student stipends (University level)	-	1	-	1
8. % p.a. ave. real increase CFJA budget	-	0	-	-2
9. Total Education Sector Budget Increasing to 27% of Total Government Budget By Year 20	-	-	-	yes
10. 75% of new primary teachers recruited at level D1	nc	nc	yes	yes
11. Reduction of teacher promotion rates p.a. (From 3% to 1% between B2 and B1)	nc	nc	yes	yes
12. Tripling of expenditure on books and materials	nc	nc	yes	yes
13. Reduction of primary class hours per week (30 to 28) by Year 20	nc	nc	nc	yes
14. Reduction of average primary class size (55 to 50) by Year 20	nc	nc	nc	yes

Source: Computer Simulation Model for the Financing of Education (IBRD)

Notes: - = not entered in projections, nc = assume no change from existing practice
/a/ Note that the simulation model used slightly different figures for total budget, primary education budget, and unit costs in 1981 than those quoted elsewhere in this report. This discrepancy does not affect the validity of the trends indicated by the projections.
/b/ Enrollment and enrollment rate include private primary school students.
/c/ With school age population increasing according to demographic projection which assumes declining fertility and constant net emigration rate.

4.2.15 To carry out educational expansion on such a large scale will obviously require considerable planning of policy measures in detail, with an evaluation of specific trade-offs. Some of this analysis is already underway by Government with World Bank assistance. Specifically, the following reforms are worth exploring further:

a) the generation of additional resources for primary education. At least two options are available here: (i) a special tax could be instituted by the Government (such as an import tax surcharge or head tax), the proceeds of which to be directed to primary education. The well-known disadvantages of earmarking fiscal resources would have to be weighed against the benefits of acquiring new resources for the sector (which, of course, would have to be additional to, and not substitute for, primary education's share of other budget revenues); (ii) a school cess could be instituted by each community (based on families' ability to pay), which would create a fund managed by the parents and teachers themselves to cover costs of materials and school maintenance. This approach would establish a very explicit link between the fee paid and the benefits received; it would also formalize the contributions which many families already make for upkeep of the schools. However, since materials constitute a very minor share of total educational expenses, cost recovery of this sort cannot consitute a very significant source of overall financing for the sector, although it may be politically useful.

(b) limitation of expenditures for public secondary education. Although increased primary enrollments will create greater pressures for secondary schooling, a strong case can be made for reducing the growth of budgetary expenditures to the public institutions. The average rate of increase in enrollments in the past (about 6 percent) could still be maintained, provided measures to reduce costs are undertaken, such as increasing the pupil/teacher ratio and revising the level and availability of scholarships. Some modification of the subsidy policy towards private education--for example, by setting subsidies as a function of private school enrollments rather than as a fixed share of their ex ante deficits--would also be in order to enable public resources to go farther in support of private secondary schools. This does not imply that the State would renege on its traditional commitment to providing education; rather, given the obvious limitations of the State's ability to carry out this commitment, greater development of the private schools would be a pragmatic approach to assure wider educational access. A reduction in the growth of secondary level expenditures would permit a corresponding transfer of budgetary resources to primary education.

(c) a tight control of public expenditures on higher education. To achieve a better balance of resource allocation within the education sector, the scholarship policy at this level should be made more restrictive and the Government's plans for university expansion phased gradually over time. Even if total public expenditures on

higher education were held constant, however, the demands on the government budget from this level would vastly increase as external bilateral support, which presently covers most of the university's recurrent costs, is eventually phased down. The only way to forestall this drain on the Budget is to begin a serious effort to shift more of the costs of university education to the students and their families (possibly through a loan scheme, for example).

(d) greater efficiency in the use of educational resources. Cost savings through adjustments in teaching schedules and double shifting, for example, could contribute significantly to the financial feasibility of the expansion program.

(e) recruitment of a new category of primary school teachers with a lower initial standard of educational qualifications. For example, candidates with some secondary schooling but without a secondary school certificate could be given one year of professional training and hired at a lower salary grade of the civil service than the present teaching staff - still permitting opportunities for eventual upgrading of their qualifications and earning capacity, although with lower promotion rates than observed in the past.

(f) measures to improve the quality of primary education. These could more than compensate for the possible negative impact of a reduction in the level of teachers' certification. Such measures would include providing an adequate supply of text books and teachers' guides to all schools; strengthening the inspectorate, which would entail employing the presently certified teachers as supervisors of the newly-recruited instructors; and developing a more focused teacher training program.

4.2.16 As an alternative to recruiting teachers at a lower grade, the option has also been suggested by Government to institute a national service program, whereby secondary school graduates would undertake some period of teaching before pursuing other employment or study. Apart from the questionable practicality of such a system, it is unlikely that the quality of instruction would be as good as that provided by professional teachers who are formally trained, even with a lower level of certification than present staff. In the interest of improving educational quality, the Government has adopted in principle a curricular reform which would involve instruction in national languages and the introduction of agricultural practice in the schools. While the educational and social benefits of the reform (which is currently being implemented in a few schools on a pilot basis) have yet to be proven, it is likely to increase costs significantly for additional teacher training, preparation of learning materials, and provision of necessary farming supplies to the schools. It would be wise for the costs and educational results of the present experiment to be very carefully evaluated before the reform is generalized, as it may make the expansion of primary schooling even more difficult.

4.2.17 Although the capital investment needed to achieve a more rapid enrollment increase will undoubtedly require continued external assistance, the willingness of the villagers themselves to make substantial contributions in kind will be a major factor permitting further expansion of enrollments, as it has been in the past. Financing the increased recurrent costs of primary education is clearly the major challenge to be met, however. If the Government adopts a program to reduce costs and generate additional revenues for primary education as discussed here, there will be an especially strong case for donor support of recurrent costs, possibly on a declining basis, while adjustments to the budget and taxing structure take full effect.

D. The Issue of Absorption of Graduates

4.2.18 Until recently, the Government's inability to finance a more rapid rate of educational expansion raised no question as to how graduates would be absorbed by the economy. The sheer scale of the proposed increase in primary education does bring this issue to the fore. For most primary school leavers, the preferred destination will probably continue to be formal secondary schooling or modern sector employment. It is obvious, however, that if primary enrollments increase 8-10 percent annually and secondary enrollments about 6 percent, the already low rates of progression will further decline. Moreover, the modern sector is so small - representing only about 100,000 employees in 1980 1/ that it will not be able to absorb the primary school leavers (who already number 25,000 annually) under any conceivable assumption about economic growth. Therefore, the issue of how primary school graduates will be occupied and their contribution to the economy concerns the following more likely destinations.

(a) Agriculture. No matter what the rate of rural-urban migration is (and the reinforcing effect on it of access to education) most primary school graduates will remain in agriculture. Many studies have shown that farmers' education is a very important factor in determining agricultural productivity. For example, one such analysis across a wide range of countries revealed that, other things being equal, farmers having at least four years of primary schooling achieved a 7.4 percent increase in productivity over those who had none. 2/ Since most primary school leavers will remain on the farm, a logical strategy may be to gradually reorient the Young Farmer Training Centers to provide post-primary agricultural training to some of these youth.

1/ Estimate based on number of employees covered by the Social Security Fund in 1980 (70,000) and number of persons including military paid by the national budget (35,000).

2/ M.E. Lockheed, D.T. Jamison and L.J. Lau, "Farmer Education and Farm Efficiency: A Survey", Economic Development and Cultural Change, October 1980.

(b) Self-employment. Outside of agriculture, a large share of primary school leavers will become self-employed, particularly in the informal sector. The extraordinarily low level of educational attainment of small entrepreneurs in Upper Volta was documented as follows according to a 1976 study 1/:

Illiterate	48 %
Literate or Coranic Education	22 %
Primary Education	26 %
Post-Primary	4 %
Total	100 %

There is obviously much scope to improve the basic education of small businessmen in the country, which can be expected to have positive effects on their productivity as well.

(c) Household activities. Although women in Upper Volta work in agriculture and in the informal sector along with men, their dominant role is in the household. Primary education of women has been found in numerous studies to have a major impact on the nutritional and health status of the entire family, and in particular to contribute significantly to lowering infant mortality and fertility.2/ Educating women is therefore a real investment in the human capital of the next generation, as well as a means of raising the productivity of women in the labor force.

(d) Emigration. Concern is often expressed among Voltaics that expanding primary schooling will increase the incentives for emigration. Yet since Upper Volta already has one of the highest rates of emigration in the world along with one of the lowest rates of educational attainment, it would be unfortunate both for the individual and for the nation if this argument were used to deprive the benefits of education to the next generation of Voltaics. It is important to take account of the potential for higher income associated with education, for the emigrants and their families as well as for the workers who remain in the country. Moreover, the inflow of remittances is a major resource for the nation, which more than compensates the costs of the emigrant's schooling - in 1980, for example, the average remittances of each male worker abroad equaled CFAF 51,000, or over three times the government expenditure per

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1/ Cited in J. Hallak and F. Caillods, Education, Formation et Secteur Traditionnel, IIEP, 1981.

2/ E.g., see C.H Cochrane, D. O'Hara, and J. Leslie, "The Effects of Education on Health", World Bank Staff Working Paper No. 405, July 1980.

primary school student. 1/ Many of the emigrants also return, bringing their savings and acquired experience. In sum, the disadvantages to the country of losing some educated workers to emigration must be weighed against the improvement in economic prospects and in the quality of life enjoyed by all persons who are given access to education. In the long run, as the level of income and economic activity within Upper Volta expand--which will occur more rapidly with an educated population--the incentives for emigration may eventually decline.

4.2.19 The net social benefit from primary education, taking account of all possible destinations of graduates (including temporary unemployment) is captured in rate of return calculations, which have been estimated for a number of African countries as illustrated below.

Table 21: SOCIAL RATES OF RETURN TO PRIMARY EDUCATION
(in percentages)

Country	Primary Education Enrollment Rates in 1960	Primary Education Enrollment Rates in years studied	Social Rate of Return to Primary Education a/
Ethiopia	7	21 (1973)	20
Ghana	38	69 (1965)	18
Kenya	47	74 (1973)	22
Morocco	47	52 (1970)	51
Nigeria		32	23
Sierra Leone	23	34 (1970)	20

Source: Enrollment Rates from UNESCO Statistical Yearbook, various years. Rates of Return from G. Psacharopoulos, "Returns to Education: An Updated International Comparison", Comparative Education, October 1981.

Note: a/ Represents the implicit discount rate at which the present value of the social costs of education (direct expenditures by Government and by individuals, plus foregone earnings) equals the present value of the future benefits (measured as increased earnings capacity).

The results show quite clearly that the social rates of return to primary education are consistently high even at high rates of enrollment and in countries which have experienced a very rapid expansion in primary schooling.

1/ Estimate determined as follows: gross remittances in 1980 of CFAF 18 billion; 700,000 Upper-Volta born persons abroad (based on 1975 census), 56 percent of whom are working-age males (based on IBRD/OECD migration study cited above).

4.2.20 Recent estimates of the social rate of return to education in Upper Volta have been made by Bank staff, based on informal survey data of salaries in the private sector. 1/ According to this admittedly rough data, the rate of return of primary, secondary, and higher education exceeds 15 percent, and at the primary level the return on investment appears to be over 20 percent. Further analysis of returns to educational investment using more extensive survey data of private firms as well as of the non-wage sector will be the focus of Bank-sponsored research studies presently under preparation.

4.2.21 In conclusion, the increase in primary school graduates will not create a real problem of absorption for the economy over the long term. Some temporary unsettling effects will be experienced, however, as the country adjusts to the new influx of school leavers; these effects will be felt most strongly to the extent that the Government submits to pressures to expand secondary and higher education more rapidly, since it is at these levels where employment opportunities at home and in neighboring countries are least likely to keep pace with enrollments. The real issue is whether the short run disequilibrium in the labor force, which every other developing country at higher income levels is also experiencing or has experienced, is outweighed by the numerous social and economic advantages to acquiring a larger stock of educated human capital.

3. Development of the Health Sector 2/

A. The Present Health Situation

4.3.01 As indicated in the introduction, the health status of Upper Volta's population is among the worst in the world. Although infant and child mortality have been reduced in the last two decades (but probably not to the extent suggested by the demographic data, as noted in Section 3.1), 27 percent of the children still die during their first five years of life. The trend in adult mortality has apparently not changed during the last decade.

4.3.02 The primary causes of death and morbidity are malaria, and gastro-intestinal, infectious, and parasitic diseases. In addition, measles and meningitis are major causes of mortality in children. The impact of these diseases on rates of mortality and morbidity is greatly increased by mal-nutrition, both in children and adults, which has further implications for labor force productivity, and physical and mental growth. While malnutrition levels differ among regions and show significant annual variation, they are consistently higher among the most vulnerable groups--children, particularly those of weaning age, and pregnant and lactating women. Several surveys have identified 30-40 percent of pre-school children as chronically malnourished, and 3-22 percent as acutely malnourished.

1/ Estimates were made for 1970, 1975, and 1982.

2/ This chapter draws largely on IBRD, "Upper Volta Health and Nutrition Sector Review", November 12, 1982, Report No. 3926 - UV.

4.3.03 The high rates of death and disability are in part a consequence of the unavailability of potable water and poor sanitation--only about 25 percent of the population has access to safe water--as well as malnutrition, and the relative absence of health services in rural areas. Public obstetrical care for example, extends to only about one-fifth of rural deliveries. On average only 45 percent of the population lives within 10 kilometers of a health facility, beyond which its utilization sharply declines. Wide disparities exist between regions, and between rural and urban areas, in access to health care. One third of all health professionals work in the urban centers, which account for less than ten percent of the total population. The actual deployment of personnel in some categories is even worse because under existing civil service regulations, there are almost no limitations on staff transferring their assignments to urban facilities, which explained the placement of 91 percent of all midwives in and around the two main towns in 1981.

4.3.04 The traditional immunization program, operated by departmental mobile teams, has achieved a satisfactory coverage with BCG (tuberculosis) and yellow fever, in addition to the eradication of smallpox. But it has failed to prevent outbreaks of measles and to reduce both mortality and morbidity associated with measles. The Government's more recent emphasis on the new Expanded Program of Immunization (EPI), which focuses on coverage of young children in fixed health facilities, has succeeded only in the main towns which have access to health installations.

4.3.05 The recurrent expenditures of the Ministry of Health have averaged about 7 percent of the government budget for the past several years, amounting to CFAF 470 per capita (US$1.70) in 1981 (see Table 22). Substantial additional expenditures by the public sector, including the cost of medical care abroad, local government expenditures, and foreign aid, added to the share of private health expenditures which can be identified (for example, for drug purchases) brings the total known resources devoted to health to CFAF 2100 per capita (US$7.75) or 4.1 percent of GDP. Informal private contributions - through village construction of rural dispensaries and payment to traditional practitioners and illegal private clinics - are also considerable.

4.3.06 Major improvements in the health status of the population are not likely to occur in the short term. Such changes will require larger enrollments in primary education (especially increases in female literacy), greater access to safe water and sanitation, rising income in rural areas, and expanding food production--as well as a continuous extension of preventive health coverage and improvements in the quality of curative services. But it is clear that the significant level of funding devoted to the sector could have a much greater impact on the health status of the population if redirected to support a coherent health strategy which focuses on cost-effective approaches to the major health problems and mobilizes private resources to finance health care.

Table 22: EXPENDITURES ON HEALTH a/, 1981
(in millions of CFAF)

A.	Central Government	
	1. Ministry of Health	2890
	Recurrent	2890
	- personnel	(2540)
	- materials	(350)
	Capital	- b/
	2. Other health-related expenditures	1450
	- common expenses c/ (excluding medical care abroad)	(550)
	- medical care abroad	(480)
	- training abroad	(350)
	- contribution to international agencies	(70)
	Total	4340
B.	Local Government (Departments and Communes)	340
(A & B)	Total Public (Domestic)	4680
C.	Foreign Aid	5470
	- regional projects	(1560)
	- technical assistance	(1650)
	- other	(2260)
	of which: drugs and medical materials	(1220)
D.	Private	3150
	Drug Purchases	(2900) d/
	Social Security Fund	(200) e/
	Payment of Hospital and Doctor Fees	(50) e/
	Total Health Expenditures	13300
	per capita	2100
	US$ per capita	7.75

a/ Data from Ministry of Health, "Depenses de Sante en Haute-Volta selon l'Origine du Financement: Evolution, Structure, Analyse", April 1983.

b/ In 1981, extraordinary capital expenditure of CFAF 700 million was budgeted to begin construction of a military hospital and CFAF 639 million for medical school facilities at the University of Ouagadougou. These expenditures have been deferred indefinitely, however.

c/ Includes Ministry of Health's share of government expenditures on utilities, maintenance, stipends for local training, and salary raises.

d/ From customs data. Includes a factor of 30 percent of CIF cost for internal distribution.

e/ Estimates obtained from IBRD, "Upper Volta Health and Nutrition Sector Review", November 1982, Report No. 3926-UV.

B. Government Sectoral Objectives

4.3.07 In 1978 the Government of Upper Volta adopted the principle of Primary Health Care (PHC)--extending basic care through health auxiliaries--as the most appropriate approach to improving health levels in rural areas. During the last two years the MOH has designed major policy guidelines to place the PHC system within a comprehensive sectoral strategy. The principal objectives of this strategy are:

(a) infectious disease prevention through the EPI and malaria control;

(b) the provision of primary level care to the entire population by 1990 by installing two village health workers (VHW) in each village (for a total of 14,000 agents), with adequate supervision and referral;

(c) the establishment of a drug procurement and distribution system to insure quality, reasonable prices, and accessibility;

(d) decentralization of planning and operational functions;

(e) the introduction of a cost-recovery scheme;

(f) training of all general health personnel; and

(g) development of a planning capability within the MOH.

As a complement to these health objectives, the Government has also developed a program for the provision of 7,000 village wells and boreholes (one per village), of which some 4,000 have already received external financing. The Government has not formally adopted a population policy as part of its health strategy, but a National Population Council was recently established to help formulate such a policy and in-service training has been initiated for health staff in family planning.

4.3.08 The cornerstone of the primary health system as currently proposed is the Centre de Sante et Promotion Sociale (CSPS), an upgraded form of the present rural dispensary. Each CSPS would provide close and frequent supervision of 10-15 village teams, and would represent the first stage of the referral chain - the first place where patients would meet a health technician. The CSPS would also play the major role in the treatment of severe malnutrition cases.

4.3.09 The Government's health strategy contains almost all the elements essential to develop an effective and comprehensive system of basic health care. To date, however, few of the details of the strategy have been worked out. The chief constraints faced by the Government as it seeks to improve and expand health services are: (a) administrative, as there is a need both to decentralize MOH functions to the departments and to improve planning and

evaluation capacity at the center; (b) financial, necessitating the effective mobilization and reallocation of domestic resources as well as of foreign aid; and (c) manpower-related, requiring improved deployment of health personnel, regularized training opportunities, and provision of incentives and rewards, particularly for village health workers. In view of the severity of these constraints, achieving a balanced and effective health coverage of the population will require even stricter planning of priorities and more gradual implementation than is implied by the Government's strategy, which is, by international standards, already very modest and restrained.

C. An Outline of a Feasible Health Strategy

4.3.10 The primary objective to be addressed by health sector strategy is the reduction of mortality, especially in infants and children. The most important interventions to lower mortality would combine immunization against childhood diseases, malaria chemoprophylaxis, control of diarrheas through oral rehydration and elementary antiseptics, and improved nutrition. The second major objective is the reduction of morbidity in adults through elementary severity of complications from digestive and respiratory diseases, shorter the duration of temporary disablements and, hopefully, bring about some decline in adult mortality. Control of malaria, diarrhea, and malnutrition would equally alleviate adult morbidity.

4.3.11 A feasible program to serve these health objectives would require some revisions of the Government's program in terms of priorities and timing of the various interventions. In particular, consideration should be given to action in the following major areas.

Immunization

4.3.12 Developing an effective immunization capability is one of the most cost-effective means of controlling certain of the major causes of death and disability, and should therefore be a focus of attention in the near term. As fixed health facilities are established the EPI can gradually expand to cover infants and pregnant women against the diseases affecting this group. But before the EPI extends to all areas of the country and to respond to other dangers such as from yellow fever, tetanus, and menigitis which strike other age groups or occur with less regularity, mobile vaccination teams will have to be maintained in each department. These units must be well supplied with adequate vaccines, logistical support and, what is equally important, backed by a strong surveillance and evaluation capacity from the central ministry.

Nutrition

4.3.13 Food self-sufficiency is the Government's primary development objective, and is very important in addressing nutritional problems. Indeed, policies to remove some of the constraints to adequate production and efficient marketing are essential components of a nutrition strategy. However, national food self-sufficiency is not a complete solution. It would not erase shortfalls in nutritional intake caused by interregional and inter-family

differences in income and food production; nor is it a substitute for nutrition planning. Very little is known about the nature and the magnitude of the food deficit, the regional and seasonal variations, the extent and cause of poor nutritional practices, and other major determinants--information which would help to identify specific measures to combat malnutrition. A national nutrition survey would be an important first step in planning nutritional improvement. Ultimately, actions to be taken would include nutrition education, rehabilitation of severe malnutrition cases, and possibly the development of suplementary nutrients.

4.3.14 The remaining health priorities mentioned above - combatting malaria, diarrhea, and basic infections and injuries - pose two requirements: (a) access for all of the population to a limited number of essential drugs, which should be available (following the WHO recommendation) within an hour's walk and (b) a health referral system which reaches the village level through an auxiliary health worker. Achieving complete immunization coverage and providing malnutrition rehabilitation also require that a system of rural health installations be established. The major issues raised by the Government's proposed primary health care system concern the role of the health worker, the provision of drugs, the need for staff retraining, the priorities for implementation, and the financing plan.

Role of the Village Health Worker

4.3.15 The village health workers as currently envisioned by the Government would be volunteers providing health and nutrition education, assisting in normal deliveries, prescribing a limited number of drugs (including for diarrhea and malaria), and treating simple injuries. Yet experiences of primary health workers in other countries indicate that educational tasks are little valued by the village or by the health agents. It is clear from the existing schemes that some regular remuneration of the VHW is essential to ensure motivation, and that even under the best circumstances, turnover may be as high as 25 percent. Questions which will have to be resolved to create a viable VHW system concern the selection of applicants, their training and supervision, the definition of priority tasks, and the reward system.

Provision of Drugs

4.3.16 The government health strategy calls for a more efficient use of both public and private channels of delivery to ensure access to essential drugs. Regulations against private pharmaceutical practice have accordingly been relaxed, and private commercial pharmacies can be expected to meet most of the demand for drugs in towns and larger villages. Cooperative pharmacies run by villagers themselves, which already operate in some areas, also provide a practical alternative where communities are well organized. The Ministry of Health intends to focus on procuring and distributing drugs for use in the health installations and on operating a retail outlet in population centers where private pharmacies do not exist. Although the Ministry has been considering setting up a public entity to import and package drugs, the evidence from

other countries suggests caution, as the hoped-for cost savings are frequently not realized by such enterprises. Particular attention must be given to finding a satisfactory arrangement for providing the village volunteers with a supply of drugs on a cost-covering basis, which is essential to their credibility.

Retraining

4.3.17 Besides the availability of drugs, the key factor determining the utilization and effectiveness of the health referral system is the skill of the staff. Most of the rural staff have worked for many years without receiving adequate supervision and without technical tools for operation. Moreover, many of the personnel have very little background in supervision and preventive services which are to form the core of the primary health approach. A high priority should therefore be assigned to retraining, both to achieve the maximum impact from current staff and from limited training resources, and to ensure that newly trained personnel will receive appropriate support in carrying out the primary health objectives.

Priorities for Implementation

4.3.18 It is obvious from the sheer scale of the proposed primary health network that complete implementation in a decade is infeasible in terms of recurrent costs - which would increase almost three times over 1981 levels--as well as in terms of manpower and administrative requirements. A more appropriate objective in the medium term would be to establish village health workers only in the more populated villages - say, with more than 500 inhabitants. This criterion would encompass about two-fifths of the villages and reduce the total number of village agents to about 5,000 as an intermediate target. The network of referral installations could be scaled back accordingly, although a larger share of CSPS would probably have to be established to allow regional equity and achieve the density necessary for adequate supervision.

4.3.19 Such a network could be managed under the present structure of the MOH. Since intermediate level facilities (maternities and dispensaries) exist mainly near the larger villages and towns, the establishment of VHW in villages of 500 inhabitants would require very few new CSPS and medical centers (the next link in the referral chain) to be constructed. The output of nurses and other middle-level staff from training programs as presently planned would largely be sufficient to bring the system into operation by 1990. The training and supervision of the reduced number of village health workers would be feasible at the department level. The relatively large size of the villages would also facilitate both the recruitment of health agents and community financial support.

4.3.20 A safe and adequate water supply is of course a necessary long-run objective of any primary health strategy, but the emphasis should be put on quantity (providing a stable and readily accessible supply of water, which is the focus of the well development program--see para. 4.3.07) at this stage.

Ensuring the quality of drinking water would require a continuous public health education to be carried out by the primary health personnel and in schools. The Ministries of Health and Rural Development have set up a liaison committee to consider the involvement of health agents in water and sanitation improvements. Although such efforts are important in the long run, experience elsewhere suggests that they are likely to be held in low regard by health agents and by the rural population, and their health impact is consequently minor. Therefore, public education in water and sanitation should be considered a relatively low priority task for health workers in the near and medium term.

Recurrent Financing Issues

4.3.21 Even the reduced primary health program outlined here would approximately double the recurrent costs of the health sector by 1990 in real terms, implying an increase of some 7 percent per year. Whether costs can be kept within this limit will depend, however, on how the following issues are addressed.

4.3.22 First, it has been assumed in the Government's program that the village health workers will receive no recurrent funds from Government after their training but only from the communities they serve. However, considerable attention will have to be devoted to the problem of devising an effective system of remuneration for the village agents. Second, the degree of expansion in the already extremely limited services in the two national hospitals is an important issue affecting recurrent costs. Given the growing effective demand for medical services among individuals who can pay, restricting hospital expansion will only be feasible if private clinics and physicians' services are legalized. The current proscription of private practice has simply resulted in unregulated and untaxed activities and considerable pilferage of hospital supplies for private use. Third, to achieve the most efficient use of existing manpower resources, many of the mid-level staff (nurses and midwives) presently in service will need to be reallocated to the rural health installations and made available to train the increased numbers of lower level supervisory staff who are needed. This change in present personnel practices implies that requirements of rural service be developed and enforced. A fourth major issue is whether private drug purchases will be sufficiently liberalized to satisfy most of the private demand and defray the costs of many drugs distributed in public facilities, leaving Government (and foreign budget support) to cover a relatively small share. Finally, it will be important that expenditures for professional staff in training be kept to a reasonable limit. The numbers of high level staff (doctors and dentists) already in training abroad are sufficient to meet the minimum requirements of the public health system even before 1990. If a local medical school is established as the Government has proposed, the total public costs per trainee would be likely to rise considerably, even taking account of savings in foreign tuition and fees.

4.3.23 Even if these cost issues are addressed in such a way as to keep the recurrent expenditures of the PHC system under tight control, the degree of expansion achievable will depend on mobilization of additional financial resources for the sector. Table 25 illustrates that an extension of the PHC system to about 40 percent of villages by 1990 and 100 percent by the year 2000 would imply an increase in the budgetary allocation to health from about 9 percent to 13 percent. Although not unthinkable, such a share will be difficult to achieve and maintain in the near term, implying that support from donors will be needed to meet a share of the recurrent financing gap for an extended period.

4.3.24 It is especially important, therefore, that certain reforms in the allocation of domestic resources and in cost recovery be undertaken for the PHC network to be sustainable in the long run. First, if the present system of fees for services in hospitals was enforced and the proceeds returned to the hospitals to defray their operating costs, a significant additional source of funding could be realized - estimated at about CFAF 0.5 billion at present levels of service (as compared to CFAF 50 million in recorded receipts in 1981). Second, the public expenditure for medical evacuations abroad - which amounted to CFAF 0.5 billion in 1981 - poses an issue of equity as well as of resource allocation. If the growth of this expenditure were held to below the rate of increase of the overall budget, the difference would bring an additional resource to the primary health system. Finally, to the extent that the Government is able to implement its proposed Caisse Maladie, a limited health insurance scheme, the details of which have yet to be defined, further reductions of health costs borne by Government can be realized.

4.3.25 If the necessary adjustments to costs and cost recovery are not made, the growth of the primary health program would have to be correspondingly reduced, since a share of about 13 percent of the fiscal revenue devoted to health seems to be the upper limit of feasibility, especially given the concurrent increase in the share to primary education.1/ Total capital costs of the full PHC system would amount to CFAF 31.5 billion (US$115.9 million) in 1981 prices. 2/ If priority were given to the rehabilitation of existing facilities as proposed here, less than half of this cost would occur by 1990 (or about CFAF 1.5 billion--US$ 5.5 million--per year). The present levels of foreign assistance to the sector, even allowing for the share to regional

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1/ It should also be remembered that the projection of increased tax revenues presumes a significant increase in tax rates. See Section II.4.

2/ For rehabilitation, construction and equipping of CSPS, medical centers, and departmental hospitals. Costs are derived from MOH, "Requete du Gouvernement Voltaique pour la promotion de Soins de Sante Primaire dans le Departement du Centre", Ouagadougou, October 1980.

Table 23: ALTERNATIVE PROJECTIONS OF EXPANSION OF PRIMARY HEALTH CARE SYSTEM
(in billions of CFAF)

	Actual	Projections in Constant 1981 Prices a/	
	1981	1990	2000
Primary Health Care Financing			
National Budget Allocation b/	3.4	7.6	11.1
(as % Tax Revenues) g/	(8.7)	(12.6)	(13.0)
Local Government	0.3	0.4	0.5
Other Financing c/	1.2	1.2	1.2
Total Financing	4.9	9.2	12.8
Primary Health Care Recurrent Expenditures			
Personnel	2.5	4.4	6.2
Drugs & Medical Supplies d/	1.2	2.1	3.0
Other (Maintenance, Vehicle operation, etc.) e/	1.2	2.3	3.2
VHW Training	-	0.4	0.4
Total	4.9	9.2	12.8
No. of Health Personnel (Government-Employed)	3740	7260	10083
No. of VHW	30	5300	14000
% of PHC System Realized f/	-	38	100

Sources: Tables 11, 22, Appendix Table 4-7

Notes:

a/ This projection shows expenditures and financing requirements if PHC system is installed in villages over 500 inhabitants by 1990 and to all villages by 2000. See Appendix Table 4-7 for detailed assumptions and definitions.

b/ Allocation for Ministry of Health operating costs and health sector share of Common Expenses.

c/ In 1981, includes bilateral aid for drug imports and less than CFAF 100 million in hospital fees.

d/ Drugs and medical materials exclude the quantities purchased by private individuals or for which the Government will be reimbursed by individuals. Projection assumes that expenditures for drugs, materials, and other items will bear the same ratio to personnel expenditures as in 1981.

e/ Includes "Common Expenditures" and Ministry of Health materials budget, as well as local Government expenditures.

f/ Based on number of VHW in place as a share of total planned number (14,000) for full PHC system.

g/ Tax revenue from 1990-2000 assumed to increase 3.5 percent per annum.

programs which is not fungible, would be nearly sufficient to meet these capital costs. The major issue concerning foreign assistance to the health sector under the expansion program outlined above is the need for external support of recurrent costs, for example, on a declining basis, during the transitional period while the cost recovery measures and budgetary reallocations take effect.

Planning

4.3.26 If the primary health care strategy is to be implemented successfully, the Ministry of Health will need a vastly improved capability of planning and program evaluation. The creation of a department of health planning and analysis in the Ministry of Health is an essential first step. One of the priority tasks of this unit will be to assess the numerous primary health pilot schemes being carried out by various donors around the country, with particular attention to evaluating the roles and effectiveness of the agents and the experience with different approaches to drug provision at the village level. A second major function of the planning unit must be to refine the health strategy and pursuade the many donors to integrate their piece-meal assistance to the sector into a coordinated and coherent sectoral program. Finally, the planning team will have to take much of the responsibility for managing the devolution of detailed program planning and evaluation to the departmental health directorates which are to be reinforced under the PHC strategy.

Statistical Appendix

Figures

Annexes

STANDARD TABLE 1 : UPPER VOLTA
NATIONAL ACCOUNTS - SUMMARY

(IN BILLIONS OF CURRENT CFAF)

	1976	1977	1978	1979	1980	1981	1982
Gross Domestic Product (MP)	158.1	188.3	225.6	252.0	265.8	319.4	358.6
Resource Gap	36.9	54.0	60.1	67.6	72.6	79.7	82.8
Imports (G + NFS) /b/	60.7	81.5	89.1	104.9	114.1	122.9	132.7
Exports (G + NFS)	23.8	27.5	29.0	37.3	41.5	43.2	49.9
Total Expenditures	195.0	242.3	285.7	319.6	338.4	399.1	441.4
Consumption	154.8	201.3	239.7	273.6	286.9	345.1	389.4
Government	21.2	25.0	30.0	36.0	42.6	52.0	70.0
Private	133.6	176.3	209.7	237.6	244.3	293.1	319.4
Investment	40.2	41.0	46.0	46.0	51.5	54.0	52.0
Fixed Investment	34.0	35.9	39.2	41.1	46.3	48.0	46.0
Changes in Stocks	6.2	5.1	6.8	4.9	5.2	6.0	6.0
Domestic Savings	3.3	-13.0	-14.1	-21.6	-21.1	-25.7	-30.8
Net Factor Income	6.9	6.8	13.0	17.1	18.3	21.1	17.5
Current Transfers	3.9	4.9	2.3	4.7	5.1	6.3	5.8
Gross National Savings	14.1	-1.3	1.2	0.2	2.3	1.7	-7.5
Average Exchange Rate							
CFAF per US$ /a/	239.0	245.7	225.6	212.7	211.3	271.7	328.6
CFAF per SDR /a/	275.9	286.8	282.5	274.8	275.0	320.4	362.8

Sources: Ministere de l'Economie et du Plan, Institut National de la Statistique et de la Demographie, - Comptes Nationaux et Indicateurs Economiques de la Haute-Volta de 1970-1979 , June 1981. Figures for net factor income and current transfers and for all items in (1980-82) are based on IMF and IBRD estimates.

Notes: /a/ Period averages.
/b/ Goods + non-factor services

STANDARD TABLE 2 : UPPER VOLTA
NATIONAL ACCOUNTS SUMMARY

(IN MILLIONS OF US$ AT CONSTANT 1978 PRICES)

	1976	1977	1978	1979	1980	1981
Gross Domestic Product (MP)	893.1	891.1	999.0	1,105.5	930.2	1,087.6
Terms of Trade Effect	17.8	32.2	0.0	-5.0	-9.9	-16.7
Gross Domestic Income	970.4	988.1	1,000.0	1,038.5	991.0	1,076.6
Resource GAP	190.0	257.9	266.4	266.2	246.3	211.2
Imports (G, NFS) /a/	312.5	389.3	394.9	413.1	387.0	325.8
Capacity to Import	122.5	131.3	128.5	146.9	140.8	114.5
Exports (G, NFS)	85.8	90.5	128.5	140.8	138.1	114.9
Total Expenditures	1,192.7	1,257.7	1,266.2	1,315.1	1,249.4	1,321.7
Consumption	945.8	1,050.3	1,062.5	1,127.1	1,078.8	1,125.2
Government	140.2	130.4	133.0	144.5	147.3	155.6
Private	805.6	919.9	929.5	982.6	931.5	969.5
Investment	216.0	197.3	203.9	188.8	194.1	184.6
Fixed Investment	182.7	172.7	173.7	168.7	174.5	164.1
Changes in Stocks	33.3	24.5	30.1	20.1	19.6	20.5
Domestic Savings	26.0	-60.6	-62.5	-77.4	-52.1	-26.6
Net Factor Income	42.2	35.3	57.6	70.4	67.6	69.9
Current Transfers	23.9	25.4	10.2	19.3	18.8	20.9
National Savings	92.1	0.1	5.3	12.3	34.2	64.1
CFAF Deflators (1978 = 100)						
Gross Domestic Product	78.5	93.6	100.0	101.0	126.6	130.1
Imports (G, NFS)	86.1	92.8	100.0	112.6	130.6	167.2
Exports (G, NFS)	123.0	134.6	100.0	117.4	133.2	166.6
Total Expenditures	72.5	85.4	100.0	107.7	120.0	133.8
Government Consumption	67.0	85.0	100.0	110.4	121.8	133.9
Private Consumption	70.7	84.0	100.0	107.3	120.2	134.5
Fixed Investment	82.5	92.1	100.0	108.0	117.6	129.6
Changes in Stocks	82.5	92.1	100.0	108.0	117.6	129.6
Exchange Rate Index (US$ per CFAF)	94.4	91.8	100.0	106.1	106.8	83.0

Source: National Accounts data are from Ministry of Plan except for 1980 and 1981 which are IBRD estimates. Current prices CFAF data in Table 1 were converted to constant 1978 dollars using the CFAF deflators shown here and the 1978 exchange rate. The Government consumption deflator is composed from the general price index and low-income price index as derived by the Ministry of Plan. Both investment components are deflated by the International Inflation Index (IBRD, December 1981), adjusted to CFAF: US$ exchange rate.

Note: /a/ Goods + non-factor services

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UPPER VOLTA : STANDARD TABLE 3
BALANCE OF PAYMENTS

(IN MILLIONS OF CURRENT US$)

	1976	1977	1978	1979	1980	1981	1982
Exports	99.6	111.9	128.5	175.3	196.4	159.0	151.9
Merchandise FOB	82.9	94.8	107.7	132.6	151.4	122.2	119.9
Non-Factor Services	16.7	17.1	20.8	42.8	45.0	36.8	32.0
Imports	254.0	331.7	394.9	493.1	540.0	452.3	403.8
Merchandise FOB	167.4	220.2	256.6	312.1	347.8	301.8	275.1
Non-Factor Services	86.6	111.5	138.3	181.0	192.1	150.5	128.7
Resource Balance	-154.4	-219.8	-266.4	-317.8	-343.6	-293.3	-252.0
Factor Income	28.9	27.7	57.6	80.4	86.6	77.7	53.3
Factor Receipts /a/	59.8	59.4	78.0	95.9	109.8	107.1	84.0
Factor Payments	31.0	31.7	20.4	15.5	23.2	29.4	30.7
of which							
Medium & Long Term Interest /b/	1.7	1.6	2.7	4.7	6.6	6.3	6.4
Net Current Transfers /c/	16.3	19.9	10.2	22.1	24.1	23.2	17.7
Transfer Receipts	17.2	20.8	10.2	22.1	24.1	23.2	17.7
Transfer Payments	0.8	0.8	0.0	0.0	0.0	0.0	0.0
Current Balance	-109.2	-172.2	-198.5	-215.3	-232.8	-192.5	-181.1
Medium and Long Term Capital Inflow							
Direct Investment							
Official Grant Aid	72.8	86.3	133.0	158.4	161.4	128.8	109.6
Net Medium & Long Term Loans /b/	24.3	45.2	39.4	76.2	69.1	35.7	38.6
Disbursements	27.2	48.8	43.9	80.9	78.6	43.4	50.2
Repayments	2.9	3.7	4.4	4.7	9.5	7.7	11.6
Other M & LT (NET)							
Net Credits from IMF	0.0	0.0	0.0	2.4	2.4	1.8	0.0
Disbursements	-	-	-	-	-	-	-
Repayments	-	-	-	-	-	-	-
Net Short-term Capital Capital Flows NEI /d/	7.5	30.5	-9.3	-7.5	9.5	28.0	22.8
Change in Net Reserves	4.6	9.4	35.0	-14.1	-9.5	-1.8	10.0

(- Indicates Increase)

Sources: BCEAO, IMF and IBRD staff estimates. Figures for 1980-82 are provisional. Columns may not add up because of small rounding errors.

Notes: /a/ Mainly workers' remittances.
/b/ From IBRD Debt Reporting Service (DRS)
/c/ Mainly pensions from France. Figures are estimates.
/d/ Includes direct investment, short-term capital , errors and omissions, and discrepancy between DRS and BCEAO-reported debt.

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UPPER VOLTA : TABLE 2-1A
NATIONAL ACCOUNTS BY SECTOR

(IN BILLIONS OF CURRENT CFAF)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Crops	19.3	19.6	25.0	22.3	30.4	30.3	35.9	44.5	58.6	62.6	59.9	81.0	93.2
Livestock	8.6	9.9	9.2	9.8	10.6	13.0	15.4	16.1	18.9	22.5	25.2	28.0	29.3
Forestry, Fishing	5.7	5.8	6.2	6.3	7.4	7.2	7.5	8.0	9.6	9.8	10.9	12.3	13.0
Total Agricultural Sector	33.6	35.3	40.4	38.4	48.4	50.5	58.8	68.6	87.1	94.9	96.0	121.3	135.5
Mining, Manufacturing	10.4	11.4	13.2	14.1	16.5	18.0	20.4	22.5	25.2	29.3	31.2	34.8	38.8
(Traditional)	7.2	7.7	8.5	8.7	9.2	9.8	10.4	11.3	12.2	14.2	15.6	17.6	18.8
(Modern)	3.2	3.7	4.7	5.4	7.3	8.2	10.0	11.2	13.0	15.1	15.6	17.2	20.0
Electricity, Gas, Water	0.6	0.7	0.8	0.9	1.0	1.0	1.4	1.7	2.1	2.1	2.5	3.0	3.3
Construction	3.6	4.0	3.6	4.8	4.2	6.8	8.4	6.4	8.7	8.4	9.4	10.3	11.5
Total Industrial Sector	14.6	16.1	17.6	19.8	21.7	25.8	30.2	30.6	36.0	39.8	43.1	48.1	53.6
Commerce	11.8	11.9	12.4	12.2	14.8	15.2	16.8	25.7	32.1	36.7	36.0	43.4	50.1
Transport	6.0	6.1	6.8	6.6	8.9	9.4	10.5	12.7	12.8	16.1	16.7	20.7	23.0
Banking	4.9	5.0	5.1	5.4	5.4	6.0	5.8	6.0	6.8	8.4	9.2	10.6	12.4
Other Services	1.8	1.9	2.0	2.2	2.3	2.5	2.6	2.9	3.1	3.4	3.8	4.2	4.5
Public Administration	5.8	6.2	6.9	8.5	10.6	15.0	17.4	21.3	25.2	30.1	34.8	40.0	48.0
Total Services Sector	30.3	31.1	33.2	34.9	42.0	48.1	53.1	68.6	80.0	94.7	100.5	118.9	138.0
GDP at Factor Cost	78.5	82.5	91.2	93.1	112.1	124.4	142.1	167.8	203.1	229.4	239.6	288.3	327.1
Indirect Taxes	7.2	7.5	7.6	8.8	10.4	12.0	16.0	20.5	22.5	22.6	26.2	31.1	31.5
GDP at Market Prices	85.7	90.0	98.8	101.9	122.5	136.4	158.1	188.3	225.6	252.0	265.8	319.4	358.6

Source: Ministere de l'Economie et du Plan, Institut National de la Statistique et de la Demographie, COMPTES NATIONAUX ET INDICATEURS ECONOMIQUES DE LA HAUTE-VOLTA DE 1970 A 1979, June 1981. Figures for crops and livestock and estimates for all sectors in 1980 and 1981 are from IBRD staff. 1982 figures are provisional and based on sectoral growth rates estimated unofficially by Ministry of Plan staff.

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UPPER VOLTA: TABLE 2-1B
NATIONAL ACCOUNTS BY SECTOR

(IN BILLIONS OF CONSTANT CFAF) /a/

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Crops	19.3	19.5	19.0	16.7	21.3	22.1	23.3	20.9	22.7	23.3	19.8	24.9
Livestock	8.6	8.7	9.0	9.3	9.5	8.2	8.3	8.4	8.5	8.5	8.7	8.8
Forestry, Fishing	5.7	5.8	6.2	6.3	7.4	7.2	6.3	6.4	6.5	6.6	6.7	6.9
Total Agriculture Sector	33.6	34.0	34.2	32.3	38.2	37.5	37.9	35.7	37.7	38.4	35.2	40.6
Mining, Manufacturing	10.4	10.7	11.7	12.3	12.5	13.1	13.6	13.8	14.3	14.9	14.7	14.9
(Traditional)	7.2	7.3	7.4	7.6	7.7	7.8	7.9	8.1	8.2	8.4	8.5	8.7
(Modern)	3.2	3.4	4.3	4.7	4.8	5.3	5.7	5.7	6.1	6.5	6.2	6.2
Elect., Gas, Water	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9	1.0	1.0	1.1	1.2
Construction	3.6	3.8	3.5	4.4	3.1	4.7	5.6	3.5	4.0	3.9	3.9	3.9
Total Industrial Sector	14.6	15.1	15.9	17.4	16.4	18.6	20.1	18.2	19.3	19.8	19.7	20.0
Commerce	11.8	11.9	12.2	11.3	12.2	10.9	11.7	15.0	15.9	18.0	16.2	17.8
Transport	6.0	6.0	6.5	6.3	8.5	9.2	10.1	11.0	12.0	13.0	12.0	13.5
Banking	4.9	5.0	4.9	4.9	4.3	4.2	3.6	3.4	3.7	4.1	4.1	4.3
Other Services	1.8	1.8	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.1	2.1	2.1
Public Administration	5.8	5.9	6.8	7.8	8.4	9.4	11.8	11.4	11.5	12.4	13.0	13.6
Total Services Sector	30.3	30.6	32.3	32.2	35.3	35.7	39.2	42.8	45.2	49.6	47.4	51.3
GDP at Factor Cost	78.5	79.6	82.1	81.6	88.5	8	97.2	96.7	102.2	107.8	102.3	111.9
Indirect Taxes	7.2	7.2	6.8	7.7	8.2	8.8	10.9	11.8	11.3	10.6	11.2	12.1
GDP at Market Prices	85.7	86.8	88.9	89.3	96.7	99.6	108.1	108.5	113.5	118.5	113.6	124.1

/a/ Derivation of constant price deflators is explained in Annex 1.

6/24/83

UPPER VOLTA: TABLE 2-2A
NATIONAL ACCOUNTS - RESOURCES AND EXPENDITURES

(IN BILLIONS OF CURRENT CFAF)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Gross Domestic Product (MP)	85.7	90.0	98.8	101.9	122.5	136.4	158.1	188.3	225.6	252.0	265.8	319.4	358.6
Resource Gap	11.0	16.4	18.3	21.4	24.1	40.1	36.9	54.0	60.1	67.6	72.6	79.7	82.8
Imports (G + NFS) /a/	19.6	25.5	29.9	33.2	42.8	58.5	60.7	81.5	89.1	104.9	114.1	122.9	132.7
Exports (G + NFS)	8.6	9.1	11.6	11.8	18.7	18.4	23.8	27.5	29.0	37.3	41.5	43.2	49.9
Total Expenditures	96.7	106.4	117.1	123.3	146.6	176.5	195.0	242.3	285.7	319.6	338.4	399.1	441.4
Consumption	86.9	91.5	98.1	99.9	111.8	141.4	154.8	201.3	239.7	273.6	286.9	345.1	389.4
Government	7.9	8.5	9.5	10.9	13.4	23.2	21.2	25.0	30.0	36.0	42.6	52.0	70.0
Private	79.0	83.0	88.6	89.0	98.4	118.2	133.6	176.3	209.7	237.6	244.3	293.1	319.4
Investment	9.8	14.9	19.0	23.4	34.8	35.1	40.2	41.0	46.0	46.0	51.5	54.0	52.0
Fixed Investment	7.5	12.2	15.5	20.1	28.8	29.5	34.0	35.9	39.2	41.1	46.3	48.0	46.0
Changes in Stocks	2.3	2.7	3.5	3.3	6.0	5.6	6.2	5.1	6.8	4.9	5.2	6.0	6.0
Domestic Savings	-1.2	-1.5	0.7	2.0	10.7	-5.0	3.3	-13.0	-14.1	-21.6	-21.1	-25.7	-30.8
Net Factor Income	4.3	4.8	4.8	6.8	6.3	4.3	6.9	6.8	13.0	17.1	18.3	21.1	17.5
Current Transfers	2.1	3.2	2.6	3.5	3.2	5.2	3.9	4.9	2.3	4.7	5.1	6.3	5.8
Gross National Savings	5.2	6.5	8.1	12.3	20.2	4.5	14.1	-1.3	1.2	0.2	2.3	1.7	-7.5

Source: Ministere de l'Economie et du Plan, Institut National de la Statistique et de la Demographie, COMPTES NATIONAUX ET INDICATEURS ECONOMIQUES DE LA HAUTE-VOLTA DE 1970-1979. Figures for Net Factor Income and Current Transfers and for all items in 1980-82 are based on IMF and IBRD staff estimates.

Notes: /a/ Goods and non-factor services.

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UPPER VOLTA: TABLE 2-2B
NATIONAL ACCOUNTS - RESOURCES AND EXPENDITURES

(IN BILLIONS OF CONSTANT CFAF) /a/

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Gross Domestic Product (MP)	85.7	86.8	88.9	89.3	96.7	99.6	108.1	108.5	113.5	118.5	113.6	124.1
Terms of Trade Effect	0.0	-0.4	-2.0	-1.6	0.1	-1.5	0.9	1.1	-3.8	-3.6	-3.8	-3.4
Gross Domestic Income	85.7	86.4	86.9	87.7	96.8	98.1	109.0	109.6	109.7	114.9	109.8	120.7
Resource GAP	11.0	15.1	15.3	16.8	15.0	21.7	17.5	23.7	24.5	24.5	22.7	19.4
Imports (g + nfs) /b/	19.6	23.4	25.0	26.0	26.7	31.6	28.8	35.8	36.4	38.0	35.6	30.0
Capacity to Import	8.6	8.3	9.7	9.2	11.7	9.9	11.3	12.1	11.8	13.5	13.0	10.5
Exports (g + nfs) /b/	8.6	8.7	11.7	10.8	11.6	11.4	10.4	11.0	15.6	17.1	16.8	14.0
Total Expenditures	96.7	101.5	102.2	104.5	111.8	119.8	126.5	133.3	134.2	139.4	132.5	140.1
Consumption	86.9	87.7	84.7	84.0	89.0	97.2	103.7	112.5	112.8	119.5	112.0	120.7
Government	7.9	8.1	9.4	10.0	10.6	14.5	14.4	13.4	13.7	14.8	15.9	17.7
Private	79.0	79.6	75.3	74.0	78.4	82.7	89.3	99.2	99.1	104.7	96.1	103.0
Investment	9.8	13.8	17.5	20.5	22.8	22.6	22.8	20.8	21.5	19.9	20.5	19.5
Fixed Investment	7.5	11.3	14.3	17.6	18.9	19.0	19.3	18.2	18.3	17.8	18.4	17.3
Changes in Stocks	2.3	2.5	3.2	2.9	3.9	3.6	3.5	2.6	3.2	2.1	2.1	2.2
Domestic Savings	-1.2	-1.3	2.2	3.7	7.8	0.9	5.3	-2.9	-3.0	-4.6	-2.2	0.0
Net Factor Income	4.3	4.6	4.2	5.8	4.8	2.9	4.5	3.7	6.1	7.5	7.2	7.4
Current Transfers	2.1	3.1	2.3	3.0	2.4	3.5	2.5	2.7	1.1	2.1	2.0	2.2
National Savings	5.2	6.4	8.7	12.5	15.0	7.3	12.3	3.5	4.2	4.9	7.0	9.6

/a/ Derivation of constant price deflators is explained in Annex 1.
/b/ Goods + non-factor services.

UPPER VOLTA: TABLE 2-3
SUMMARY MONETARY SURVEY, DEC. 1976 - DEC. 1982

(IN BILLIONS OF CFAF)

	1976	1977	1978	1979	1980	1981	1982
Assets							
Net Foreign Assets /a/	12.6	5.9	0.2	4.1	6.9	8.3	4.9
Central Bank	14.9	12.7	6.3	11.1	13.7	18.8	17.5
Deposit Banks	-2.3	-6.8	-6.1	-7.0	-6.8	-10.5	-12.6
Domestic Credit	25.4	38.0	50.0	51.9	53.0	61.2	70.6
Claims on Government	-7.0	-7.7	-4.8	-4.9	-6.9	-2.0	-2.1
Claims on Private Sector	32.4	45.7	54.8	56.8	59.9	63.2	72.7
of which:							
Financed by Central Bank	6.1	7.5	12.7	10.1	11.8	8.9	10.3
Liabilities							
Money and Quasi-Money	31.6	35.6	42.5	46.3	53.2	63.7	72.2
Currency outside Banks	12.9	14.8	13.5	17.4	19.9	24.8	27.0
Postal System Deposits	1.1	1.4	2.1	1.6	1.4	1.4	2.2
Demand Deposits	13.6	14.6	18.8	17.8	22.8	26.5	30.3
Time Deposits	4.0	4.8	8.1	9.5	9.1	11.0	12.7
Other /b/	6.4	8.3	7.7	9.7	6.7	5.8	3.3
of which: SDR Counterpart	1.2	1.3	1.3	1.7	2.1	3.0	3.2
Memorandum Item:							
Commercial Bank Reserves with Central Bank	0.2	0.9	1.7	2.5	1.7	1.5	-

Source: IMF, based on BCEAO's data.

Notes: /a/ Excludes Trust Fund. Note that Trust Fund, SDR Counterpart and Long Term Foreign Borrowing by Commercial Banks are included in BCEAO definition of Net Foreign Assets.
/b/ Mainly long-term foreign borrowing by commercial banks.

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UPPER VOLTA: TABLE 2-4
BALANCE OF PAYMENTS

(IN BILLIONS OF CFAF)

	1976	1977	1978	1979	1980	1981	1982
Exports	23.8	27.5	29.0	37.3	41.5	43.2	49.9
Merchandise FOB	19.8	23.3	24.3	28.2	32.0	33.2	39.4
Non-Factor Services	4.0	4.2	4.7	9.1	9.5	10.0	10.5
Imports	60.7	81.5	89.1	104.9	114.1	122.9	132.7
Merchandise FOB	40.0	54.1	57.9	66.4	73.5	82.0	90.4
Non-Factor Services	20.7	27.4	31.2	38.5	40.6	40.9	42.3
Resource Balance	-36.9	-54.0	-60.1	-67.6	-72.6	-79.7	-82.8
Net Factor Income	6.9	6.8	13.0	17.1	18.3	21.1	17.5
Factor Receipts /a/	14.3	14.6	17.6	20.4	23.2	29.1	27.6
Factor Payments	7.4	7.8	4.6	3.3	4.9	8.0	10.1
of which							
Medium & Long Term Interest /b/	0.4	0.4	0.6	1.0	1.4	1.7	2.1
Net Current Transfers /c/	3.9	4.9	2.3	4.7	5.1	6.3	5.8
Transfer Receipts	4.1	5.1	2.3	4.7	5.1	6.3	5.8
Transfer Payments	0.2	0.2	0.0	0.0	0.0	0.0	0.0
Current Balance	-26.1	-42.3	-44.8	-45.8	-49.2	-52.3	-59.5
Medium and Long Term Capital Inflow							
Official Grant Aid (Net)	17.4	21.2	30.0	33.7	34.1	35.0	36.0
Net Medium and Long Term Loans /b/	5.8	11.1	8.9	16.2	14.6	9.7	12.7
Disbursements	6.5	12.0	9.9	17.2	16.6	11.8	16.5
Repayments	0.7	0.9	1.0	1.0	2.0	2.1	3.8
Net Credits from IMF	0.0	0.0	0.0	0.5	0.5	0.5	0.0
Other Capital Net /d/	1.8	7.5	-2.1	-1.6	2.0	7.6	7.5
Change in Net Reserves	1.1	2.3	7.9	-3.0	-2.0	-0.5	3.3

Sources: BCEAO, IMF and IBRD staff estimates. Figures for 1980-1982 are provisional.

Notes:
/a/ Mainly workers' remittances.
/b/ From IBRD Debt Reporting Service (DRS).
/c/ Mainly pensions from France. Figures are estimates.
/d/ Includes direct investment, short-term capital, errors and omissions, and discrepancy between DRS and BCEAO-reported debt.

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UPPER VOLTA: TABLE 2-5
RECORDED IMPORTS (CIF)

(IN MILLIONS OF CFAF)

	1976	1977	1978	1979	1980	1981
			IN CURRENT PRICES			
Cereals /a/	1,686	3,264	4,069	3,816	4,131	4,340
Other Consumer Goods	7,048	9,295	10,705	11,104	12,741	18,169
Other Intermediate Goods	7,152	10,644	9,849	16,386	16,820	21,180
Capital Goods	15,837	24,219	21,702	25,374	31,943	33,520
Petroleum Products	2,700	3,935	4,750	7,236	9,980	14,235
Total Imports	34,423	51,357	51,075	63,916	75,615	91,444
			IN CONSTANT 1970 PRICES			
Cereals	807	1,703	1,990	1,850	1,718	1,287
Other Consumer Goods	3,723	4,779	5,100	4,611	4,669	5,250
Other Intermediate Goods	3,401	4,535	3,864	5,952	5,077	5,476
Capital Goods	7,531	10,319	8,514	9,217	10,463	8,666
Petroleum Products	856	1,248	1,372	1,541	1,688	1,636
Total Imports	16,318	22,584	20,840	23,171	23,615	22,315
Import Price Index (1970 = 100)	211	227	245	276	320	410

Sources: Imports in current prices as reported by Customs Office.
Imports in constant prices estimated by IBRD staff.

Notes: /a/ Excludes cereal products imported for flour mill and breweries.

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UPPER VOLTA: TABLE 2-6
RECORDED EXPORTS (FOB)

(IN MILLIONS OF CFAF)

	1976	1977	1978	1979	1980	1981
			IN CURRENT PRICES			
Livestock Products	1,861	4,514	4,140	5,239	5,426	4,810
Cotton Lint	5,785	5,400	3,002	5,341	8,369	8,174
Oilseed Products	3,532	2,383	1,432	2,549	2,434	3,298
Other Goods	1,512	1,317	1,026	3,109	2,837	3,784
Total Exports	12,690	13,614	9,600	16,238	19,066	20,066
			IN CONSTANT 1970 PRICES			
Livestock Products	870	2,139	2,995	3,384	3,350	2,513
Cotton Lint	2,250	1,665	1,157	1,979	2,720	2,125
Oilseed Products	1,858	1,194	701	1,199	909	1,080
Other Goods	576	445	314	881	725	763
Total Exports	5,554	5,443	5,167	7,443	7,704	6,481
Export Price Index (1970 =100)	228	250	186	218	247	310
Terms of Trade Index	108	110	75	79	77	76

SOURCE: Exports in current prices as reported by Customs Office.
Exports in constant prices estimated by IBRD staff.

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UPPER VOLTA: TABLE 2-7A
CENTRAL GOVERNMENT REVENUE

(IN MILLIONS OF CFAF)

	1976	1977	1978	1979	1980	1981	1982
				ACTUAL RECEIPTS			
Total Tax Revenue	18,492	24,495	27,160	27,891	34,379	39,234	43,402
Income and Profit Taxes	3,071	3,813	4,328	4,872	7,577	8,257	8,614
of which :							
Enterprises	650	1,079	1,091	1,197	1,735	1,780	2,037
Individuals	2,176	2,453	2,808	3,224	4,415	4,561	5,508
Indirect & Other Taxes /a/	15,421	20,682	22,832	23,019	26,802	30,977	34,788
of which :							
Turnover Tax	1,295	1,960	2,344	2,009	2,906	3,492	4,887
Excises	1,546	1,602	2,216	2,400	2,627	2,868	2,933
International Trade /b/	10,293	14,417	15,291	15,588	18,414	20,016	22,841
- Import Taxes	9,303	12,681	13,353	13,536	16,027	17,672	20,481
- Export Taxes	973	881	981	1,036	1,213	1,020	839
Nontax Revenue	2,473	3,360	2,704	3,300	4,100	5,056	5,831
Total Budget Revenue /c/	20,965	27,855	29,864	31,191	38,479	44,290	49,233
				ESTIMATED RECEIPTS			
Total Tax Revenue	19,210	20,810	26,528	30,360	35,270	37,125	40,256
Income and Profit Taxes	3,869	4,275	4,554	5,457	5,413	5,525	6,595
Indirect and Other Taxes /a/	15,342	16,535	21,974	24,903	29,857	31,600	33,661
Nontax Revenue	1,913	2,114	4,052	5,344	4,953	5,141	7,593
Total Budget Revenue /c/	21,123	22,924	30,580	35,704	40,223	42,266	47,849

Source: Ministry of Finance. Estimated figures are from revised budgets (1982 actuals are provisional).

Notes: /a/ Includes small share of direct taxes, e.g. property taxes.
/b/ Includes revenue from stamp duties and custom fines levied on both imports and exports.
/c/ Excludes foreign grants and loans.

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UPPER VOLTA: TABLE 2-7B
CENTRAL GOVERNMENT REVENUE

(IN PERCENTAGES)

	1976	1977	1978	1979	1980	1981	1982
				ACTUAL RECEIPTS			
Total Tax Revenue	88	88	91	89	89	89	88
Income and Profit Taxes	15	14	14	16	20	19	17
of which :							
Enterprises	3	4	4	4	5	4	4
Individuals	10	9	9	10	11	10	11
Indirect & Other Taxes /a/	74	74	76	74	70	70	71
of which :							
Turnover Tax	6	7	8	6	8	8	10
Excises	7	6		8	7	6	6
International Trade /b/	49	52	51	50	48	45	46
- Import Taxes	44	46	45	43	42	40	42
- Export Taxes	5	3	3	3	3	2	2
Nontax Revenue	12	12	9	11	11	11	12
Total Budget Revenue /c/	100	100	100	100	100	100	100
				ESTIMATED RECEIPTS			
Total Tax Revenue	91	91	87	85	88	88	84
Income and Profit Taxes	18	19	15	15	13	13	14
Indirect and Other Taxes /a/	73	72	72	70	74	75	70
Nontax Revenue	9	9	13	15	12	12	16
Total Budget Revenue /c/	100	100	100	100	100	100	100

Source: Ministry of Finance. Estimated figures are from revised budget (1982 actuals are provisional).

Notes: /a/ Includes small share of direct taxes, e.g. property taxes.
/b/ Includes revenue from stamp duties and custom fines levied on both imports and exports.
/c/ Excludes foreign grants and loans.

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UPPER VOLTA: TABLE 2-8A
ECONOMIC CLASSIFICATION OF BUDGET EXPENDITURE, 1976-82

(IN MILLIONS OF CFAF)

	1976		1977		1978		1979		1980		1981		1982	
	Actual	Auth.	Actual	Auth.	Actual	Auth.	Actual	Auth.	Actual	Auth.	Actual	Auth.	Actual	Auth.
Public Debt	203	474	219	543	230	671	688	1,243	1,139	1,665	2,537	2,389	3,296	3,734
Operating Expenditures	14,799	14,381	17,728	16,911	20,971	20,591	26,297	25,014	28,249	27,988	31,252	30,515	38,038	34,002
Personnel	11,867	11,132	14,370	13,212	17,023	16,190	20,107	19,696	22,313	20,349	24,868	23,094	29,970	25,638
Materials	2,932	3,249	3,358	3,699	3,948	4,401	6,190	5,318	5,936	7,639	6,384	7,421	8,068	8,364
Subsidies and Other Transfers	2,507	3,202	3,319	3,697	4,570	4,917	5,830	5,817	5,860	6,406	6,712	6,788	7,263	7,620
Total Current Expend. /a/	17,509	18,057	21,266	21,151	25,771	26,179	32,815	32,074	35,248	36,059	40,501	39,692	48,597	45,356
Equipment & Investment /b/	3,460	3,066	4,611	1,973	3,845	4,401	6,513	3,630	5,162	5,954	7,346	7,699	2,416	2,493
Total Expenditures	20,969	21,123	25,877	23,124	29,616	30,580	39,328	35,704	40,410	42,013	47,847	47,391	51,013	47,849

Source: Ministry of Finance, Borderau Sommaire, relevant years and Budget de l'Etat, 1982.
Authorized figures are revised budgets.
1982 actual figures are provisional.

Notes: /a/ Titles I - III of National Budget.
/b/ Title IV of National Budget.

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UPPER VOLTA: TABLE 2-8B
ECONOMIC CLASSIFICATION OF BUDGET EXPENDITURE, 1976-82

(AS SHARES OF TOTAL)

	1976		1977		1978		1979		1980		1981		1982	
	Actual	Auth.	Actual	Auth.	Actual	Auth.	Actual	Auth.	Actual	Auth.	Actual	Auth.	Actual	Auth.
Public Debt	1	2	1	2	1	2	2	3	3	4	5	5	6	8
Operating Expenditures	71	68	69	73	71	67	67	70	70	67	65	64	75	71
Personnel	57	53	56	57	57	53	51	55	55	48	52	49	59	54
Materials	14	15	13	16	13	14	16	15	15	18	13	16	16	17
Subsidies and Other Transfers	12	15	13	16	15	16	15	16	15	15	14	14	14	16
Total Current Expend. /a/	83	85	82	91	87	86	83	90	87	86	85	84	95	95
Equipment & Investment /b/	17	15	18	9	13	14	17	10	13	14	15	16	5	5
Total Expenditures	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Source: Ministry of Finance, Borderau Sommaire, relevant years and Budget de l'Etat, 1982.
Authorized figures are revised budgets.
1982 actual figures are provisional.

Notes: /a/ Titles I - III of National Budget.
/b/ Title IV of National Budget.

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UPPER VOLTA: TABLE 2-9A
SECTORAL BREAKDOWN OF CURRENT BUDGET EXPENDITURE
1976-82
ACTUAL AND BUDGET AUTHORIZATIONS

(IN MILLIONS OF CFAF)

	1976	1977	1978	1979	1980	1981	1982
				ACTUAL EXPENDITURES			
General Services & Admin.	2,874	3,657	4,472	5,500	6,536	6,944	6,799
Defense	4,667	5,627	7,305	6,814	7,470	9,216	10,800
Education	3,395	4,026	5,354	6,618	6,818	7,899	9,816
- General Services /g/	2,537	2,802	3,349	4,581	4,631	5,335	-
- Stipends & Subsidies	858	1,224	2,005	2,037	2,187	2,564	-
Social Services /a/	2,297	2,484	2,955	3,886	5,129	5,854	6,674
Of which:							
Health /b/	1,256	1,304	1,595	1,988	2,522	2,890	3,596
Pensions	729	813	910	1,251	1,630	1,836	-
Economic Services	1,780	2,601	2,499	2,985	3,401	3,508	4,158
Of which:							
Rural Development /c/	1,254	1,035	1,299	1,630	1,891	2,057	-
Commerce, Industry, Mining	108	132	145	179	172	178	-
Public Works, Transport/d/	306	973	745	777	830	678	-
Unallocable and Other Purposes /e/	2,496	2,871	3,186	7,012	5,894	7,080	10,350
Total Current Expenditure /f/	17,509	21,266	25,771	32,815	35,248	40,501	48,597
				AUTHORIZED EXPENDITURES			
Defense	4,324	4,530	5,227	6,800	7,469	8,742	8,691
Education							
- General Services /g/	2,373	2,843	3,453	3,813	3,786	4,568	4,556
- Stipends & Subsidies	1,285	1,389	2,157	2,648	3,017	3,060	3,669
Health /b/	1,121	1,543	1,821	1,812	1,983	2,752	2,728
Rural Development /c/	1,222	1,196	1,373	1,452	1,634	1,932	1,923
Commerce, Industry Mining	111	135	162	171	173	187	185
Public Works, Transport /d/	330	699	850	808	851	711	706
Total Current Budget /f/	18,057	21,151	26,179	32,074	36,059	39,456	45,356

Source : Ministry of Finance, Bordereau Sommaire, 1976-81 and Budget de l'Etat, 1982. Actual expenditures in 1982 are provisional.

Notes: /a/ Includes Pensions.
/b/ Represents Ministry of Health operating budget (excludes other health-related social affairs).
Figures obtained from Ministry of Health, Direction des Etudes et de la Planification.
/c/ In 1976, includes expenditures for planning, environment and touris as well as rural development.
/d/ Includes budgetary allocations for operation of RAN and Air Volta.
/e/ Includes public debt, provision for salary increases and public interventions.
/f/ Corresponds to Titles I - III of national budget.
/g/ Ministry of National Education and Ministry of Higher Education operating expenditures.

Note that authorized expenditures given in Bordereau Sommaire sometimes differ from those reported in final edition of budget (cf. Education subsidies and stipends in 1981 - figure is 20 percent higher than in final budget).

UPPER VOLTA: TABLE 2-9B
SECTORAL SHARES OF CURRENT BUDGET EXPENDITURES,
1976-82
ACTUAL AND BUDGET AUTHORIZATIONS

(IN PERCENTAGES)

	1976	1977	1978	1979	1980	1981	1982
				ACTUAL EXPENDITURES			
General Services and Admin.	16	17	17	17	19	17	14
Defense	27	26	28	21	21	23	22
Education	19	19	21	20	19	20	20
- General Services /g/	14	13	13	14	13	13	-
- Stipends & Subsidies	5	6	8	6	6	6	-
Social Services /a/	13	12	11	12	15	14	14
Of which:							
Health /b/	7	6	6	6	7	7	7
Pensions	4	4	4	4	5	5	-
Economic Services	10	12	10	9	10	9	9
Of: Rural Development /c/	7	5	5	5	5	5	-
Commerce, Industry, Mining	1	1	1	1	0	0	-
Public Works, Transport/d/	2	5	3	2	2	2	-
Unallocable and Other Purposes /e/	14	14	12	21	17	17	21
Total Current Expenditure /f/	100	100	100	100	100	100	100
				AUTHORIZED EXPENDITURES			
Defense	24	21	20	21	21	22	19
Education	0	0	0	0	0	0	0
- General Services /g/	13	13	13	12	10	12	10
- Stipends & Subsidies	7	7	8	8	8	8	8
Health /b/	6	7	7	6	5	7	6
Rural Development /c/	7	6	5	5	4	5	4
Commerce, Industry Mining	1	1	1	1	0	0	0
Public Works, Transport /d/	2	3	3	3	2	2	2
Total Current Budget /f/	100	100	100	100	91	100	100

Source : Ministry of Finance, Bordereau Sommaire, 1976-81 and Budget de l'Etat, 1982. Actual expenditures in 1982 are provisional.

Notes: /a/ Includes Pensions.
/b/ Represents Ministry of Health operating budget (excludes other health-related social affairs).
Figures obtained from Ministry of Health, Direction des Etudes et de la Planification.
/c/ In 1976, includes expenditures for planning, environment and tourism as well as rural development.
/d/ Includes budgetary allocations for operation of RAN and Air Volta.
/e/ Includes public debt, provision for salary increases and public interventions.
/f/ Corresponds to Titles I - III of national budget.
/g/ Ministry of National Education and Ministry of Higher Education operating expenditures.

Note that authorized expenditures given in Bordereau Sommaire sometimes differ from those reported in final edition of budget (cf. Education subsidies and stipends in 1981 - figure is 20 percent higher than in final budget).

UPPER VOLTA TABLE 2-10
EVOLUTION OF FOREIGN ASSISTANCE COMMITMENTS /1/
(1972-1980)

(IN MILLIONS OF CFAF)

ITEM		1972	1973	1974	1975	1976	1977	1978	1979	1980	TOTAL	% OF TOTAL
TOTAL MULTILATERAL AID	109	6,250	6,491	9,411	11,555	17,568	11,942	14,399	19,336	22,490	119,442	43
OF WHICH:												
FED	100	2,556	2,994	4,861	968	5,869	3,070	2,705	2,891	11,447	37,361	14
WORLD BANK GROUP	101	1,250	2,338	2,000	4,125	7,350	2,536	2,684	3,080	4,935	30,298	11
UNITED NATIONS	102	1,897	739	1,467	2,258	634	465	2,543	1,200	1,482	12,685	5
FAD	103	-	-	103	1,152	1,152	1,500	1,664	3,763	-	9,334	3
BOAD	104	-	-	-	-	-	1,341	768	372	1,000	3,481	1
OPEC	105	-	-	-	-	563	523	1,188	330	-	2,606	1
BAD	106	512	-	-	512	-	-	-	1,500	-	2,524	1
BADEA	107	-	-	-	-	1,125	-	-	-	-	1,125	0
NGO	108	33	420	980	1,190	875	2,100	2,500	3,200	3,500	14,800	5
TOTAL BILATERAL AID	115	5,878	6,916	11,456	15,136	13,389	25,899	21,112	23,954	33,084	156,824	57
OF WHICH:												
FRANCE	110	5,094	5,228	5,655	4,168	6,975	7,185	8,413	11,463	16,640	70,821	26
WEST GERMANY	111	221	172	3,294	5,311	2,196	2,087	4,806	5,142	6,433	29,662	11
NETHERLANDS	112	-	-	-	2,125	2,641	3,150	4,909	4,252	4,822	21,899	8
CANADA	113	291	69	778	1,521	699	10,560	105	10	1,015	15,048	6
USAID	114	12	212	1,084	1,191	405	1,133	2,145	1,534	3,679	11,395	4
TOTAL AID	116	12,128	13,407	20,867	26,691	30,957	37,841	35,511	43,290	55,574	276,266	100
LOANS	117	3,602	6,035	5,409	12,825	15,478	9,030	11,172	18,063	20,735	-	-
GRANTS	118	8,526	7,372	15,458	13,866	15,479	28,811	24,339	25,227	34,839	-	-
% GRANT	119	70	55	74	52	50	76	69	58	63	-	-
AID DEFLATOR (1970=100) /2/	120	108	114	153	156	177	197	214	231	257	-	-
TOTAL AID IN 1970 PRICES	121	11,219	11,771	13,683	17,165	17,539	19,199	16,594	18,732	21,666	-	-
AVERAGE ANNUAL GROWTH, 1972-80												
IN CURRENT PRICES	122	-	-	-	-	-	-	-	-	21	-	-
IN CONSTANT PRICES	123	-	-	-	-	-	-	-	-	9	-	-
TOTAL AID IN CURRENT US$M	124	48	60	87	125	130	154	157	204	263	-	-

NOTES: /1/ Excluding food aid and regional projects.
/2/ International Inflation Index (IBRD), adjusted to changes in CFAF:US$ exchange rate.

FED - Fonds Europeen de Developpement (EEC)
FAD - Fonds Africain de Developpement
BOAD - Banque Ouest-Africaine de Developpement
BAD - Banque Africaine de Developpement
BADEA - Banque Arabe pour le Developpement Economique en Afrique
NGO - Non-governmental organizations.

SOURCE: European Development Fund, "Apercu de l'aide publique exterieure accordee a la Haute-Volta", relevant years.

DATA SET: UPV/PF

UPPER VOLTA: TABLE 3-1
EVOLUTION OF AGRICULTURAL PRODUCTION, 1970-82 /c/

(IN THOUSANDS OF TONS)

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Millet	378.0	397.0	400.0	253.0	370.0	350.0	406.0	350.0	404.0	431.0	330.0	-	-
Sorghum /a/	563.0	576.0	512.0	481.0	705.0	650.0	717.0	610.0	621.0	610.0	559.0	1,114.0	1,250.0
Maize	55.0	55.0	59.0	58.0	62.0	62.0	46.0	50.0	101.0	105.0	98.0	132.0	141.0
Rice (Paddy)	34.0	36.0	30.0	31.0	36.0	40.0	41.0	23.0	32.0	47.0	29.0	29.0	39.0
Cowpeas	15.5	41.0	37.0	13.9	42.2	50.7	44.4	50.3	51.8	52.6	53.5	-	-
Shelled Groundnuts	68.0	66.0	60.0	63.0	65.0	80.0	87.0	85.0	70.0	70.0	53.0	78.0	105.0
Sheanuts	13.4	15.8	44.5	10.4	50.2	48.6	32.4	56.7	42.4	27.3	60.0	29.0	
Sesame	6.3	4.0	5.6	5.2	8.0	8.0	7.0	6.0	7.0	5.4	7.1	8.0	8.0
Cotton /b/	23.5	28.1	32.6	26.7	30.6	50.7	55.3	38.0	60.0	75.1	56.0	74.9	65.0

Source: Data on millet, sorghum, maize, paddy, groundnuts and sesame for 1970-79 are FAO estimates as found in IBRD, Agricultural Issues Study, October 1982, Report No. 3296-UV, Table 1-2.
Cotton figures from 1970-79 are as reported by SOFITEX.
Figures for cowpeas and sheanuts in 1970-79 and for all crops in 1980 are taken from Ministry of Economy and Plan, COMPTES NATIONAUX ET INDICATEURS ECONOMIQUES DE LA HAUTE-VOLTA DE 1970 A 1979, June 1981, Table 17. 1981 and 1982 data for all crops are from Ministry of Rural Development.

Notes: /a/ Output in 1981 and 1982 includes millet.
/b/ SOFITEX reports total output of some 64,000 tons in 1980.
/c/ Data for 1970 refer to 1970/71 crop year, and so on.

08/04/83

Table 4-1

Assumptions for Population Projections of Upper Volta: DeJure Population 1975-2010

	1975-80	1980-85	1985-90	1990-95	1995-2000	2000-05	2005-10
Mortality (Identical for All Projections)							
Male e^o	42.9	44.7	46.5	48.3	50.1	52.0	53.8
Female e^o	46.6	45.7	47.8	50.1	52.4	54.8	57.1
Male IMR	166	158	149	141	132	124	117
Female IMR	156	148	139	131	122	113	105
Fertility							
1. Constant Fertility: TFR	6.55	6.55	6.55	6.55	6.55	6.55	6.55
2. Declining Fertility: TFR	6.55	6.55	6.55	6.55	6.09	5.58	5.00

Migration

A. No net migration

B. Constant rate of net emigration at 1970-75 rate (numbers 1970-75 = 33,000 per year: age distribution modelled on reported emigrants and absentees in 1975).

C. Constant numbers of net emigrants at 1970-75 total emigrant numbers = 70,000 per year;age distribution as for B.

Sex Ratio at Birth = 103.

Coale-Demeny model life table family = South.

e^o -life expectancy

IMR -Infant Mortality Rate (number of deaths below age 1 per 1000 live births).

TFR -Total Fertility Rate (hypothetical number of children born per woman based on age-specific fertility rates).

Table 4-2

Projections of Total Population and Population Growth Rates, 1980-2010

(Population in millions, growth rate percent)

Projection	1980	1985	1990	1995	2000	2005	2010
Population							
A:1	6.334	7.244	8.366	9.728	11.384	13.392	15.841
A:2	6.334	7.244	8.366	9.728	11.238	12.886	14.654
B:1	6.161	6.824	7.627	8.586	9.741	11.119	12.771
B:2	6.161	6.824	7.627	8.586	9.614	10.691	11.791
C:1	5.986	6.444	7.038	7.795	8.754	9.945	11.423
C:2	5.986	6.444	7.038	7.795	8.638	9.552	10.521
Growth Rate *							
A:1	2.53	2.69	2.88	3.02	3.15	3.25	3.36
A:2	2.53	2.69	2.88	3.02	2.89	2.74	2.57
B:1	1.93	2.05	2.22	2.37	2.52	2.65	2.77
B:2	1.93	2.05	2.22	2.37	2.26	2.12	1.96
C:1	1.29	1.47	1.76	2.04	2.32	2.55	2.77
C:2	1.29	1.47	1.76	2.04	2.05	2.01	1.93

* Net of emigration

Table 4-3

Projections of School-Age and MCH Populations, 1980-2010

(Population in Millions)

	1980	1995	2010
Primary School Age Population			
A:1	1.10	1.54	2.58
A:2	1.10	1.54	2.30
B:1	1.08	1.39	2.16
B:2	1.08	1.39	1.92
C:1	1.07	1.27	1.95
C:2	1.07	1.27	1.73
Secondary School Age Population			
A:1	0.96	1.43	2.37
A:2	0.96	1.43	2.34
B:1	0.94	1.31	1.98
B:2	0.94	1.31	1.95
C:1	0.91	1.22	1.78
C:2	0.91	1.22	1.76
MCH Population			
A:1	2.54	3.96	6.42
A:2	2.54	3.96	5.72
B:1	2.47	3.52	5.25
B:2	2.47	3.52	4.68
C:1	2.40	3.21	4.73
C:2	2.40	3.21	4.21

Values for the years 2000 and 2005 are not shown, because the projection program package used by the Bank contains a bug in the interpolation procedure used for estimating non-standard age groups (such as primary and secondary school age populations) from a series of standard 5 year age groups, which produces the anomaly of more children in the group when fertility has been declining than when it has been constant, for the cohorts immediately following the initiation of fertility decline.

Primary School age population - ages 7-12.
Secondary school age population - ages 13-19.
MCH population - women of child-bearing age and children under 5.

Table 4-4

Projection of Working Age Population and Labor Force, 1980-2010

(Population in Millions)

	1980	1995	2010		1980	1995	2010
Male Working Age Population				Male Labor Force			
A	1.57	2.45	4.09	A	1.46	2.36	3.80
B	1.49	2.11	3.02	B	1.39	1.96	2.81
C	1.42	1.85	2.64	C	1.32	1.72	2.46
Female Working Age Population				Female Labor Force			
A	1.64	2.56	4.03	A	1.53	2.38	3.75
B	1.60	2.30	3.31	B	1.49	2.14	3.08
C	1.55	2.11	2.96	C	1.44	1.96	2.75
Total Working Age Population				Total Labor Force			
A	3.21	5.10	8.12	A	2.99	4.74	7.55
B	3.09	4.41	6.33	B	2.87	4.10	5.89
C	2.97	3.96	5.60	C	2.76	3.68	5.21
Sex Ratio of Working Age Population				Sex Ratio of Labor Force			
A	96	99	101	A	96	99	101
B	93	92	91	B	93	92	91
C	92	88	89	C	92	88	89

Working Age Population - ages 15-64.

Table 4-5 Upper Volta: Evolution of School Enrollments
1970/71-1980/81

Years	Primary Level			Secondary Level										Higher Level			Total 2/ General
				General			Teacher Training 6/		Teacher Training 7/		Technical 1/			Local		Abroad	
	Total	Private	Girls	Total	Private	Girls	Total	Girls	Total	Girls	Total	Private	Girls	Total	Girls	Total	
1970/71	105 706	3 784	38 491	8 800	3 179	2 002	191	28	146	9	1 712	1 147	754	251	42	710	116 806
1971/72	112 463	4 665	41 527	8 997	3 730	2 297	194	42	151	3	1 851	1 201	800	314	50	894	123 970
1972/73	118 162	5 250	43 831	10 119	4 048	2 711	219	121	144	9	1 650 3/	965 3/	726 3/	336	52	1 145	130 630 3/
1973/74	125 503	6 462	46 778	11 953	5 081	3 483	230	60	132	9	2 116	1 424	821	373	70	1 415	140 307
1974/75	133 660	8 731	49 736	12 682	5 364	3 723	249	59	133	13	2 654	1 752	996	523	107	1 434	149 901
1975/76	141 999	10 227	52 516	13 189	5 921	3 882	250 4/	60 4/	143	19	3 023	2 165	1 262	677	154	...	159 281
1976/77	149 999	11 393	54 997	14 911	7 204	4 504	241	58	114	17	3 122	2 383	1 337	986	209	...	169 390
1977/78	160 528	13 176	59 066	16 128	7 863	5 022	250	57	-	-	3 119	2 114	1 369	1 222	262	...	181 247
1978/79	170 791	13 432	62 967	17 401	8 585	5 532	238	56	-	-	2 955 5/	1 980 5/	1 331 5/	1 286	258	...	192 671 5/
1979/80	185 658	14 885	68 745	20 529	11 057	7 147	257	59	-	-	4 392	3 291	1 917	1 226	274	1 705	212 062
1980/81	202 327	17 568	74 686	23 422	11 920		...	...	-	-	4 654	3 464	2 045	1 644	354	...	...

... = Not available - = None

Source: Statistiques scolaires 1970/71-1980/81. Ministry of National Eucation and Culture; Ministry of Higher Education and Scientific Research.

1/ Professional training under ministries other than the Ministry of National Education not included.

2/ Students in foreign universities not included.

3/ Enrollment in two private centers not included.

4/ Estimates.

5/ Three centers of training for girls not included.

6/ "Instituteurs Adjoints" - Assistant Teachers

7/ "Instituteurs"

Table 4-6: UPPER VOLTA EDUCATION UNIT COSTS, 1981

Primary Level		
Instruction costs (CFAF m)	2,958	
- Personnel	(2,924)	
- Materials	(34)	
Enrollment 1/ 1980/81	184,759	
Instruction costs per students (CFAF)	16,010	
- As % of GDP per capita	32	
- In US$ 4/	59	
Secondary Level	**General Secondary**	**Technical**
Instruction costs (CFAF m)	755	125
- Personnel	(737)	(110)
- Materials	(18)	(15)
Enrollment 1/ 1980/81	10,055 2/	1,190
Instruction costs per students (CFAF)	75,087	105,042
Stipends per student 3/	39,840	39,840
Total unit costs	114,927	144,882
- As % of GDP per capita	228	287
- In US$ 4/	423	533
Public expenditures per student in private secondary schools (stipends and subsidies)	-------- 26,462 --------	

Source: Budget de l'Etat, 1981 final edition. Costs of administration not included.

Note:

1/ Public school enrollments only.

2/ Estimated from 1979/80 general secondary enrollment, assuming that total enrollment increased at average annual rates of previous four years (12 percent) and that public enrollment increased likewise by 6 percent.

3/ Total expenditure on stipends divided by total public enrollment.

4/ At US$1.00 = CFAF 271.7.

Table 4-7: PROJECTION OF PERSONNEL COSTS OF PRIMARY HEALTH CARE SYSTEM (in Millions of CFAF)

	Actual 1981 d/ (End Year)	In Constant 1981 Prices: PHC System as Currently Proposed at Full Operation a/ b/	In Constant 1981 Prices: Modified PHC System a/ c/
Number of Personnel e/			
Level A	188	287	207
B	981	2,230	1,590
C	1,185	2,610	1,845
D	321	1,527	1,105
Temporary	1,066	3,429	2,512
Total Government Employed	3,741	10,083	7,259
Non-Government Employed	30	14,000	5,300
Total Personnel Costs to Government			
At Unit Costs (CFAF/Year) f/			
A - 1,450,000	270	416	300
B - 925,000	910	2,063	1,471
C - 615,000	730	1,605	1,135
D - 510,000	165	780	564
Temporary - 375,000	400	1,286	942
Total	2,475	6,150	4,412
Average salary and allowances (CFAF/Year)	662,000	610,000	610,000

a/ Assumptions regarding personnel requirements are based upon staffing norms provided in MOH, Document de Programmation Sanitaire Nationale (1980-90), Avant-Projet. For a full explanation of how these staffing projections are calculated, see IBRD Health and Nutrition Sector Review, Report No. 3926-UV, (November 1982, Tables 19-22. Staffing of mobile units, departmental health directorates, urban facilities and central administration are included.

b/ Full PHC system as currently proposed includes 7000 village health posts, 560 CSPS, 75 medical centers, 11 departmental hospitals, and 2 national hospitals plus one military hospital.

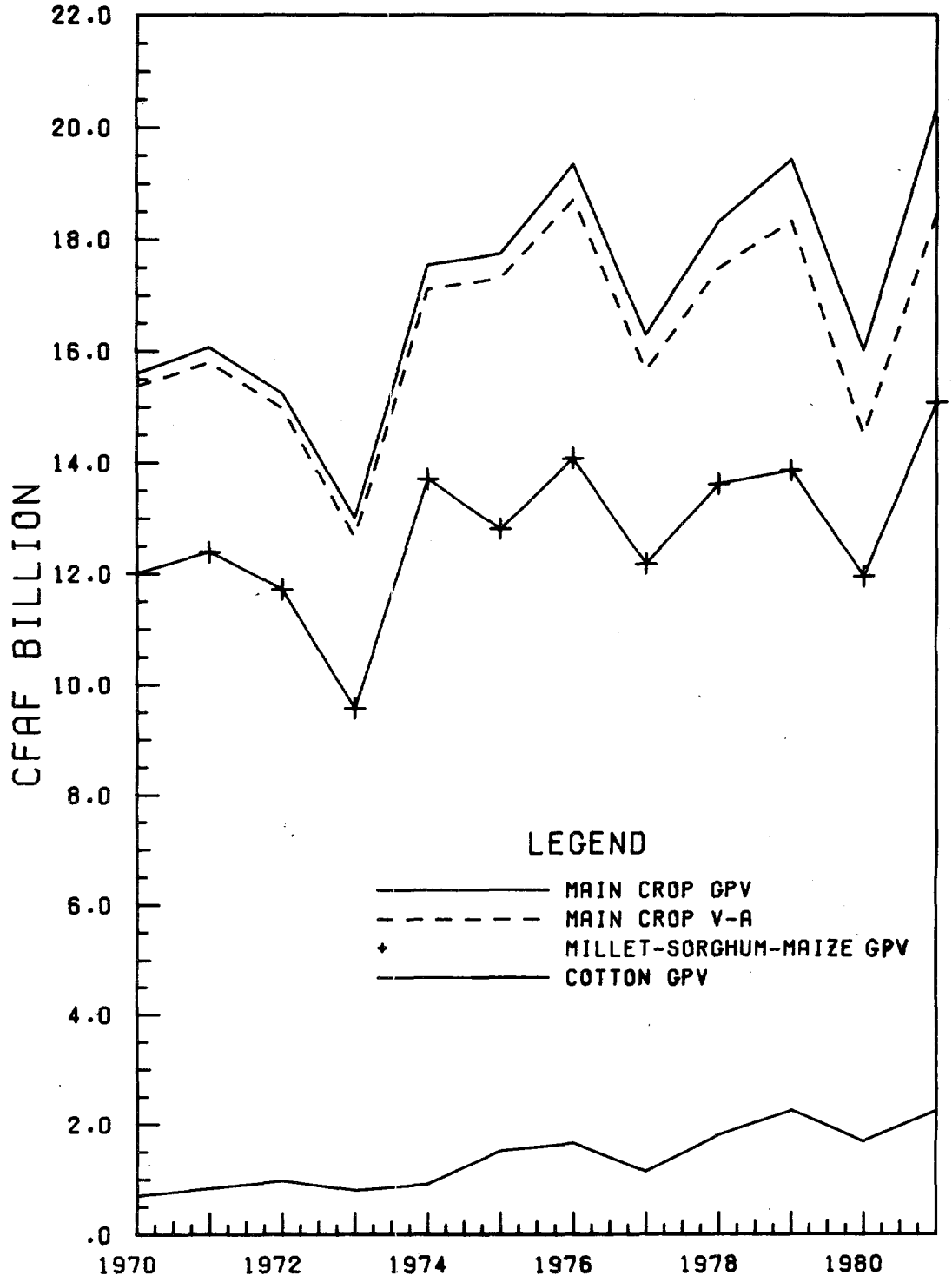
c/ Modified PHC network includes 2650 village health posts (one per village of 500 or more inhabitants), 400 CSPS, 30 medical centers, 5 departmental hospitals plus one military hospital, and 2 national hospitals.

d/ Includes staff receiving specialist training and on full salary. Expatriates are excluded.

e/ Health personnel include: A level - physicians, dentists, pharmacists; B level - State nurses, health assistants, midwives, social aids, and technicians; C level - auxiliary nurses and specialists; D level - mobile health agents, auxiliary midwives; Temporary - mainly laborers, orderlies and chauffeurs; non-Government employed - village health workers and village midwives. Administrative (clerical) staff are included at all levels.

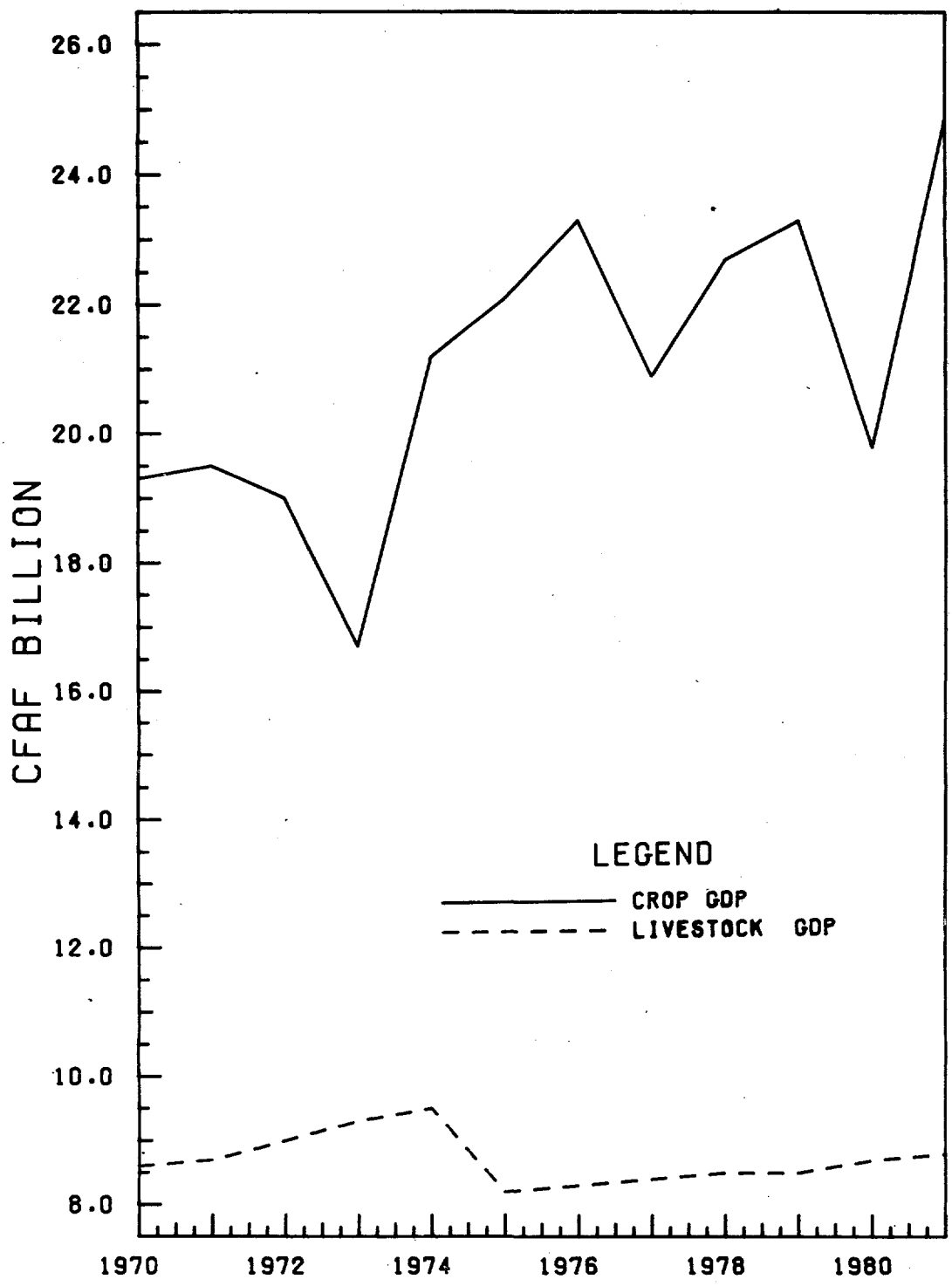
f/ Unit costs based on 1981 average salary scales and average salary of temporary employees as reported in 1981 Avant Projet de Budget. Salaries are net of pension contribution and inclusive of housing allowance.

FIGURE 1: PRODUCTION VALUE OF MAIN CROPS, 1970-81 IN 1970 PRICES
GROSS PRODUCTION VALUE (GPV) AND VALUE-ADDED



MAIN CROPS = MILLET, SORGHUM, MAIZE,
COTTON, PADDY, GROUNDNUTS, SESAME
GPV = GROSS OUTPUT X 1970 PRICE.

FIGURE 2: AGRICULTURAL GDP IN 1970 PRICES



NOTES ON THE DERIVATION OF SECTORAL GDP IN CONSTANT PRICES

1. The estimates of real GDP from 1970-1979 reveal some anomalies which tend to suggest that values of output in nominal prices may have been underestimated in the following sectors:

a) modern manufacturing in constant prices shows a growth of 8 percent, whereas the industrial production index implies an annual increase in excess of 20 percent; 1/

b) in the electricity sector, the increase in value-added in current terms is roughly identical to the index of net electrical output; 2/

c) the current value of transport grew only slightly faster than the consumption of diesel fuel, which might roughly be considered a proxy for transport services; 3/

d) the construction sector, which was deflated using an average of local price indices combined with a measure of international inflation, shows an extremely low growth rate which is hard to explain in view of the trends in output of other sectors. Since the resulting construction deflator was only one percent above the overall GDP deflator in 1979, the low growth suggests that the construction estimate in current prices may be too conservative.

2. Public administration was also deflated by local price indices, resulting in a constant growth rate of 9.8 percent over the 1970-79 period. This increase is plausible given that total Government employment grew about 7 percent annually during the decade.

3 A listing of the actual deflators used and their sources is given on the attached table.

1/ Ministere de l'Economie et du Plan, "Comptes Nationaux et Indicateurs Economiques de la Haute-Volta de 1970 a 1979", June 1981, Table 31.

2/ IBID., Table 36, 3/ IBID, Table 37.

UPPER VOLTA: ANNEX I
GDP DEFLATORS AND THEIR DERIVATION

(1970 = 100)

	1976	1977	1978	1979	1980	1981
Agriculture /a/	154.1	212.9	258.1	268.7	302.5	325.3
Livestock /a/	185.5	191.7	222.4	264.7	289.7	318.2
Forestry, Fishing /b/	119.0	125.0	147.7	148.5	162.7	178.3
Mining, Manufacturing (Implicit)	150.0	163.0	176.2	196.6	212.2	233.6
Traditional /b/	131.6	139.5	148.8	169.0	183.5	202.3
Modern /c/	175.4	196.5	213.1	232.3	251.6	277.4
Electricity, Gas, Water /d/	155.6	188.9	210.0	210.0	227.3	250.0
Construction /e/	150.0	182.9	217.5	215.4	241.0	264.1
Commerce /f/	143.6	171.3	201.9	204.1	221.6	243.8
Transport /g/	104.0	115.5	106.7	123.8	139.2	153.3
Banking /h/	161.1	176.5	183.8	204.9	224.4	246.5
Other Services /b/	130.0	145.0	147.6	161.9	181.0	200.0
Public Administration /i/	147.5	186.8	219.1	242.7	267.7	294.1
GDP Factor Prices (Implicit)	146.2	173.5	198.7	212.8	234.2	257.6
Indirect Taxes	146.2	173.5	198.7	212.8	234.2	257.6
GDP Market Prices (implicit)	174.2	207.9	222.0	224.3	281.2	289.0
Total Expenditures (Implicit)	154.2	181.7	212.8	229.2	255.5	284.8
Government Consumption /i/	147.3	186.7	219.7	242.6	267.7	294.1
Private Consumption (Implicit)	149.6	177.8	211.6	227.0	254.3	284.6
Total Investment /c/	176.5	197.1	214.0	231.1	251.6	277.4

NOTES:

/a/ Derived from valuation of component commodities at 1970 prices, as given in Ministry of Economy and Plan (MEP), COMPTES NATIONAUX ET INDICATEURS ECONOMIQUES, June 1981.

/b/ Constant output assumed to increase at rate of net population growth (1.7 percent).

/c/ International Inflation Index (IFI) as estimated by IBRD (December, 1981) adjusted to change in CFAF : US$ exchange rate. Changes in deflator for 1980 and 1981 are based on informal estimates provided to mission by Ministry of Economy and Plan, Institut National de la Statistique et de la Demographie.

/d/ Assumed to increase 6 percent annually in real terms (or about half of electricity production index as reported in MEP, op. cit., Table 36).

/e/ Deflator composed as one-half IFI, one-half consumer price index for single wage-earner (equivalent to increase in SMIG), MEP, op. cit., Table 49).

/f/ Composed as one-half consumer price index for single wage-earner, one-half European consumer price index (MEP, op. cit., Table 49).

/g/ Assumed to increase 9 percent annually (real consumption of diesel fuel increased 11 percent per annum (MEP, op. cit., Table 37)).

/h/ European consumer price index.

/i/ Composed as 60 percent of General Price Index (MEP, op. cit., Table 49), 40 percent consumer price index for single wage-earner.

07/25/83

NOTES ON THE ESTIMATION OF TAX EFFORT

The subsistence income (or the absolute poverty level) can be estimated on the basis of a low quality but calorically adequate diet of course grains (e.g. sorghum). Assuming that an individual at the poverty line spends three quarters of his income on food, the subsistence level in 1980 prices can be calculated as CFAF 21,110--probably a very conservative estimate (Table 1). Gross national product per capita in the same year is estimated as CFAF 41,900 (Table 2). Therefore, surplus income in 1980 amounted to CFAF 20,800. Taxation per capita, including social security contributions and local government levies, totalled CFAF 6,380 (Table 3), resulting in a ratio of taxes to surplus income of 31 percent. The estimated distribution of this surplus income among the population is indicated in Table 4.

Table 1: CALCULATION OF POVERTY LEVEL INCOME PER CAPITA, 1980
(in CFAF)

Annual cost of staple food 1/	13,200
Other food 2/	2,640
All other basic expenditure 3/	5,270
Total	21,110

Notes and Sources:

1/ In 1980, the import parity prices for locally produced grains (sorghum, millet, maize) lay between FCFA 64 and 79 per kilo. The market producer price in rural areas of the central plateau region was about CFAF 55-58/kg, on average. (Upper Volta, Agricultural Issues Study, Sept. 10, 1981, Report No. 3296-UV, p. 209). The price used in the Table is CFAF 60, taken as an approximation of the retail price to rural consumers. On average, about 2,300 calories are needed per capita per day. (FAO/WHO Energy and Protein Requirements, WHO Technical Report Series No. 522, FAO Nutrition Meetings Report No. 52, Geneva, 1973). The FAO standards have been verified for the Voltaic population on the basis of sex and age distribution and body weight (IBRD, Upper Volta Health Sector Review, 1982, in draft). Average calories per kilo of grain are about 3,500. Taking the common assumption that about 80% of calories are obtained from grain, and allowing for 10% waste, average annual grain consumption per capita would be about 220 kilos at CFAF 13,200.

2/ Other foods: greens, oils, pulses, meat, vegetables. Expenditures assumed to be 20 percent of grain costs.

3/ All other expenditures estimated at one-third of food costs: clothing, shelter, transport, and so forth.

Note that this is a conservative estimate of subsistence income for the country as a whole, since urban consumers in 1980 paid market prices of about CFAF 70/kg for sorghum; and even low income urban residents consume some rice or bread, which is easier to prepare than coarse grains. The cash expenditures for other necessities such as water and fuel are also proportionately higher in urban than in rural areas.

Table 2: CALCULATION OF GNP PER CAPITA, 1980

	(CFAF billions)
GDP at market prices	265.8
less indirect taxes	26.2
GDP at factor cost	239.6
plus net factor payments from abroad	+ 18.3
GNP at factor cost 1/	257.9
	(CFAF)
GNP per capita 2/	41,900

Notes and Sources:

1/ See Tables 2-1A and 2-4.

2/ Based on a resident population of 6.16 million.

Table 3: TOTAL TAXES AND TAXES PER CAPITA, 1980

	(CFAF million)
Tax revenue of central Government 1/	34,400
Social Security contributions 2/	3,981
Local government taxes 3/	900
	39,281
Taxes per capita (CFAF)	6,380

Sources:

1/ Table 2-7

2/ IMF: Upper Volta Recent Economic Developments, SM/81/224, p. 67.

3/ Gokgur, Nilgun, unpublished statistics for departmental and communal receipts. Half of these receipts are assumed to be taxes.

Table 4: ESTIMATED SIZE DISTRIBUTION OF INCOME, 1980 1/

Income Quintile	Percentage Share 2/	Billions of CFAF	CFAF per Capita	Surplus Per Capita 3/
1	8	20.6	16,720	-4,390
2	11	28.4	23,050	1,940
3	13	33.5	27,200	6,090
4	18	46.4	37,700	16,590
5	50	129.0	104,700	83,590
Total/Average	100	257.9	41,900	20,790

Notes and Sources:

1/ Total income defined as GNP at factor cost (as derived in Table 2 of this Annex).

2/ The percentage share of income is a typical size distribution of income for low income countries as listed in IBRD, World Development Report, 1981, p. 182. Two African countries are listed with the percentage share of household income by quintiles as follows:

Malawi (1967-68)	10.4	11.1	13.1	14.8	50.6
Tanzania (1969)	5.8	10.2	13.9	19.7	50.4

3/ Based on the poverty level income defined in Table 1 of this Annex.

TRENDS IN PERSONNEL EXPENDITURES IN THE NATIONAL BUDGET

1. The factors determining the growth of personnel expenditures clearly have the major impact on budgetary trends and therefore deserve special note. Table 1 indicates that the increase in total personnel costs has been due about equally to the growth in salaries and in employment. Both staffing and unit personnel costs increased more rapidly after 1975 than before,1/ as would be expected with the growth in government and donor activity after the drought period, and with the expansion of defense personnel after 1975. The increase in average and official salaries remained well below the rate of inflation from 1975-82, however, with the former declining about 4% per year in real terms.

2. What is striking from the table is the implicit increase in average wages in relation to the official scale - whereas the mean salary represented roughly the midpoint of the civil service scale in 1970 and 1975, by 1981-82, the mean is situated at the high end of the official scale (at about B1). This shift could reflect several factors: regular wage increases for promotions may have proceeded faster than the re-indexing of salary scales; a large share of temporary staff over the last few years has been integrated into the civil service at higher pay; and the majority of primary school teachers were upgraded from category C2 to B2 in 1978, with subsequent readjustments upward for other education personnel. Table 2 shows that in 1981, among the ministries with the largest shares of employment, education accounted for 14.7% of total staff but 19.2% of personnel expenditures; and the mean salary of the education ministry, at CFAF 916,600 per year, was 30% above the overall average.

1/ The increase to 1982 will be greater than that shown on the table if actual personnel expenditures exceed the budgeted amount, which is very likely.

Table 1: TRENDS IN PERSONNEL AND PERSONNEL COSTS IN THE NATIONAL BUDGET, 1970-82

	1970	1975	1981	1982	
Total Personnel Expenditures a/					
(CFAF m)	5,451	9,659	25,086	25,638	
% Defense	17	17	34	31	
% Other Sectors	83	69	66	69	
Total Personnel Paid In National Budget c/	16,265	21,612	35,739	34,648	
Excluding Defense b/	13,500	14,912	23,588	23,907	
Average Annual Salary	335,137	446,928	701,922	739,956	
					Average Annual Increase % (1970-82)
Index of Personnel Expenditure	100	177.2	460.2	470.3	13.8
Index of Average Salary	100	133.4	209.4	220.8	6.8
Index of Total Personnel	100	132.9	219.7	213.0	6.5
Official Salary Levels (CFAF/yr) d/					
D2	201,756	288,240	343,668	399,108	
Index	100.0	142.9	170.3	197.8	5.8
C2	302,640	399,000	443,460	509,964	
Index	100.0	131.8	146.5	168.5	4.4
B2	443,868	554,316	598,668	654,096	
Index	100.0	124.9	134.9	147.4	3.3
A2	605,280	731,712	776,052	853,656	
Index	100.0	120.9	128.2	141.0	2.9
Price Indices					
Low Income Consumer e/	100.0	135.6	270.2	302.6	9.7
GDP deflator	100.0	137.0	257.6 f/	288.2 f/	9.2

Notes:

a/ Figure for 1970 taken from Ministere du Plan, Institut National de la Statistique et de la Demographie, Comptes Nationaux et Indicateurs Economiques, June 1981, Table 8. Other years taken from Ministry of Finance accounts of actual expenditures, and Budget de l'Etat, 1982.

b/ Total personnel (excluding defense) for 1970 and 1975 obtained from ONPE, Report of Seminaire National sur l'Emploi et la Formation, "Situation de l'Emploi dans le Secteur Publique au 31/12/1975," p.1. Other years obtained from CENATRIN, Centre National de traitement de l'Information, "Statistiques sur les Agents de l'Etat". Figures include civil servants and temporaries paid by national budget. Expatriates are excluded.

c/ Number of defense personnel derived from shares of defense ministry in total personnel expenditures.

d/ Salaries are entry level for each category, net of pension and inclusive of housing allowance. Figure in second column is for 1976 and third column shows rates set in 1979.

e/ IMF estimate for increase in 1981. 12% increase assumed in 1982.

f/ IBRD Staff estimates for 1980-82 increase.

Table 2: DISTRIBUTION OF PERSONNEL AND PERSONNEL EXPENDITURES IN NATIONAL BUDGET, 1981

Ministry	#Staff	%	Personnel Budget (CFAF million)	%	Average Salary (CFAF 1000/yr.)	%
National Education	5265	14.7	4826	19.2	916.6	130.6
Interior	4195	11.7	2312	9.2	551.1	78.5
Rural Development	2459	6.9	1925	7.7	782.8	111.5
Public Health	3621	10.1	2542	10.1	702.0	100.0
Total	35739	100	25086	100	701.9	100.0

Source: Table 1, Staff by Ministry obtained from Direction du Budget.

A COMPARISON OF IBRD AND INSD POPULATION PROJECTIONS

1. In this annex we briefly consider the set of population projections for the period 1975-2000 produced by the INSD in 1981, 1/ and compare them with those presented in the demography and projections section of this report.

2. The base population for the INSD projections is also the 1975 de jure census population, but adjusted for misreporting of age. Two hypotheses on fertility, two on mortality, and three on migration were formulated. The first fertility assumption is of no change from an estimated TFR of 6.7 in 1975 (the PES figure adjusted slightly upwards), the second of a linear decline to 5.7 in 2000. The first mortality assumption is of no change from the estimated level in 1975 (an e^o of 38, much lower than our estimate of around 43); the second of a linear decline, expressed as a 10 percent decline in qxs (probability of dying between two given ages) for all ages under 15, and a 5 percent decline in qxs for ages 15 and over; unfortunately no resulting summary mortality indicator, such as e^o, is given. The first migration assumption is of no net migration; the second of constant number of net emigrants at 67,000 per year, (which is their estimate for 1969-1975), entailing a continuing decline in net emigration rates; the third of a small constant number of net emigrants at 17,000 per year, again entailing a continuing decline in net emigration rates, only at a lower level. The age distribution for emigrants was taken from the reported emigrants in the 1975 census, and for immigrants (the two being separately specified and combined to produce the net emigrants given above) from return migrants enumerated in the same census.

3. Comparison of these assumptions with ours is not entirely straightforward. The fertility hypotheses present no problem and the 2000 level of TFR is in fact very similar to that given in our projections. Their specification of mortality decline is awkward however, and cannot easily be compared with ours; we, of course, do not include an assumption of constant mortality, which does seem unduly pessimistic. Our basic mortality levels are also widely different. As regards migration, the assumption of no net migration is common to both sets, while our assumption C of a constant net annual outflow of 70,000 is comparable with their second hypothesis of a constant net annual outflow of 67,000 (though arrived at rather differently). They, however have no counterpart to our B assumption of constant rates of emigration, since both theirs assume declining rates. This seems a lacuna in their set of hypotheses, since it is probably the safest and most conservative asumption. Their reason for adding their third hypothesis, which is the same as the second except at a lower level, is not entirely clear. Given the economic prospects of Upper Volta and Ivory Coast as well as possible immigration policies in Ivory Coast, the more likely alternatives are either that Voltaic emigration will continue at least at its present level or that Ivory Coast will decide for political

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1/ L. Demers. "Perspectives de Population Haute-Volta et Départements: 1975/2000; Méthodologie et Résultats"; Dossier Technique No.9, Institut National de la Statistique et de la Démographie, Direction de la Recherche Démographique: Ouagadougou, October 1981.

reasons to halt or curtail it very severely indeed. Inclusion of a hypothesis of rising rates of net emigration appears a better choice; indeed, it was considered for our set and rejected only through desire to limit output to a manageable level.

4. The INSD projections, twelve altogether in number, produce a range of national population totals for the year 2000 that runs from 7.2 million to 10.3 million, compared with our range of 8.6 to 11.4 million. To simplify comparison with our results we shall select only those combinations of hypotheses that more or less coincide with ours. These are shown below.

Population (in Millions) in 2000

Assumption (IBRD or INSD nearest equivalent)	IBRD	INSD	Ratio IBRD: INSD
A:1	11.384	10.290	1.11
A:2	11.238	9.581	1.17
C:1	8.754	8.053	1.09
C:2	8.683	7.436	1.16
Ratio of A:2/A:1	0.987	0.931	--
Ratio of C:2/C:1	0.987	0.923	--

5. It can be seen that the Bank projection produces a substantially larger population than the INSD projection in all cases. With stable fertility the difference is 9-11 percent, and with declining fertility 16-17 percent, in the year 2000. The variation between the results of the two fertility assumptions reflects the higher percentage reduction of fertility by the year 2000 achieved by fertility decline in the INSD projection namely 7-8 percent versus one percent.

6. The summary presentation of INSD results makes it difficult to isolate the exact mechanisms causing these differences. Broadly speaking, however, the higher Bank projected population must be mainly due to the much lower base level of mortality used in the Bank projection, while the greater effect of fertility decline in the INSD projection must result from the decline being assumed to occur throughout the projection period rather than concentrated only within the last 5 years.

7. In both cases we believe our hypotheses to be preferable. While the evidence on adult mortality is tenuous, we regard the view that there has been no change since 1960-61 as ill-founded and unduly pessimistic; moreover, we believe that the re-analysis of the 1960-61 mortality data indicates lower levels than previously assumed. As regards the timing of fertility decline, it seems optimistic to assume that a decline has been underway since 1975, given that fertility apparently rose between 1960 and 1975, with considerable potential for further rises still remaining, and that there is as yet no organized provision of fertility control facilities nor any known strong public desire to limit fertility. The Bank hypothesis of no change until 1995 appears safer in such circumstances.

8. Hence, while admitting that population projection is always hazardous, we consider that the INSD would do well to treat its current estimates of future population size and growth very much as minimums.

9. There is, unfortunately, no INSD analogue of our prefered B:2 projection (declining fertility and constant net emigration rates); of the INSD set, the No. 11, which is an analogue to our C:2 (declining fertility and 67,000 net emigrants per year) appears to be the most attractive.

10. During the Government-sponsored seminar on Population Growth and Development held in Ouagadougou in April, 1983, an alternative and cruder population projection was cited in one of the government papers and was proposed to the economic mission during discussion of the present report. 1/ This projection was based only on linear extrapolation of the growth rate from estimated natural increase in 1960 (from the Enquete Démographique of 1960/61) and the recorded 1960/75 inter-enumeration growth rate of the administrative population; the resulting growth rate of 1.06% for 1975 was then assumed to hold throughout the period 1975-2000. This procedure is of doubtful validity for the following reasons:

a) The comparability of the 1.8% rate of natural increase for 1960 and the inter-enumeration population growth rate for 1960-75 depends on full reporting of emigrants, together with their descendants abroad, in both enumerations. This is certainly not the case. Note also that there is no guarantee even that the completeness of reporting of emigrants was the same in 1960/61 and 1975; a decrease in coverage is quite likely, since emigration of whole families, who would leave no household to report them, is thought to have increased over time.

1/ "Croissance Globale de la Population", M. Dakuyo, Institut National de la Statistique et de la Demographie, Séance No. 2, April 1983.

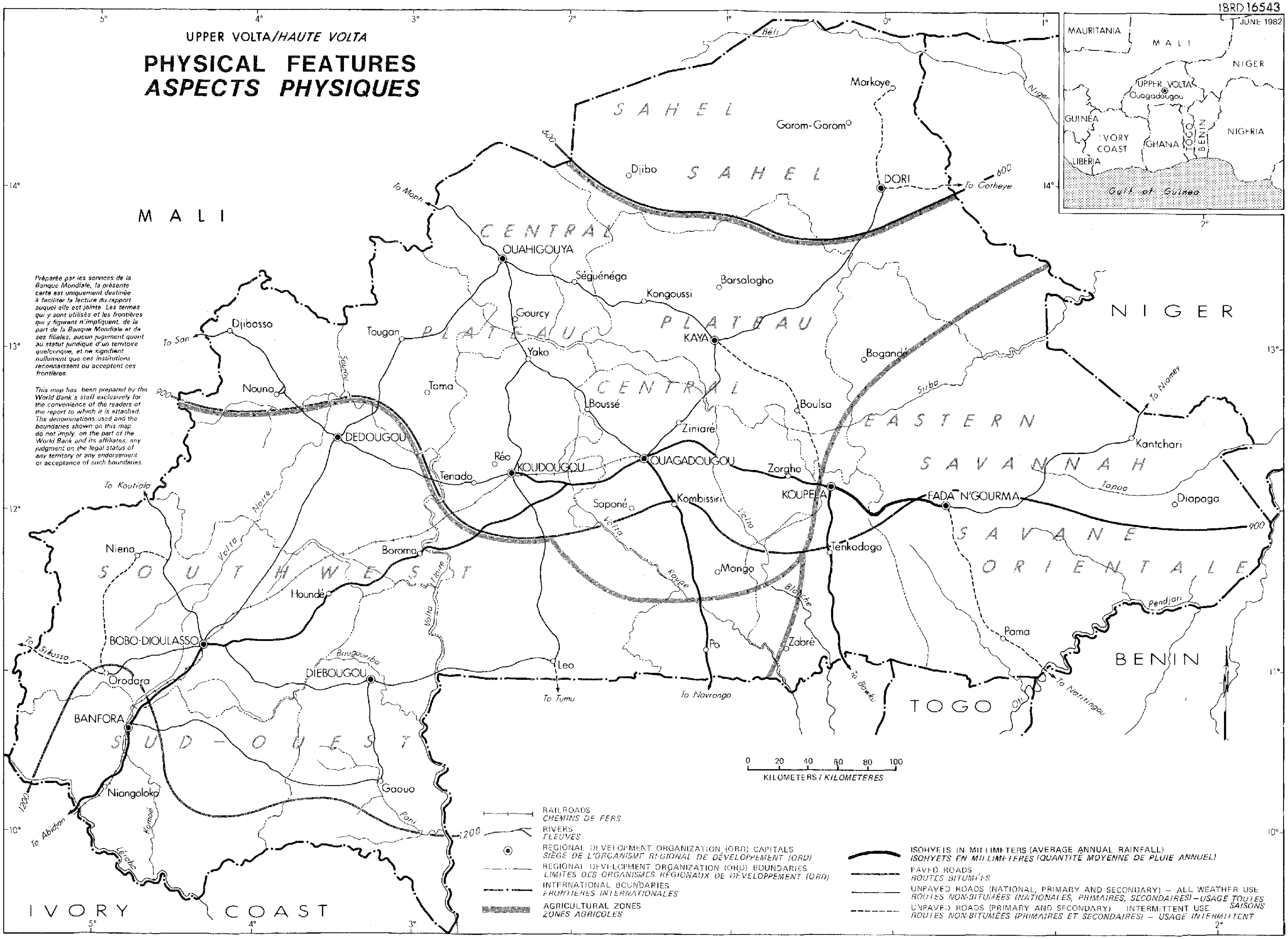
b) An inter-enumeration growth rate is only an accurate measure of population growth (net or not net of migration as the case may be) if the completeness of enumeration was the same in both counts. In this case this is very doubtful. We have already referred to the problem with emigrants. In addition, the comparability of population counts from a sample survey and a full census is always uncertain, since it is common for sample surveys, whose primary focus is not an exhaustive enumeration, to undercount the total population compared to censuses. Note also that since the 1960 count was on a sample basis, the possible effect of sampling error must be taken into consideration; using the confidence limits given in the 1960/61 report (Volume 1, page 26), the 1960-75 growth rate could lie anywhere between 1.87% and 2.41%.

There is, in fact, one very specific reason for doubting the validity of the reported inter-enumeration growth rate for the "administrative" population. The rates for males and females are very different, with males growing at 2.2% and females at 1.8%; the female deficit is confined to the ages over 20 years, where growth rates and survivorship ratios between the 1960 and 1975 recorded populations are both so low that on average they imply a life expectancy of well below 30 years. This gap cannot be explained by excess female adult mortality, since the excess required would be at least 5 years less life expectancy for females than for males, which is far too large to be plausible. Some part of the differential could be attributed to female emigrants (supposed to have been increasing in numbers) being underreported to a greater extent than males. However, the male and female growth rates for the de facto population (i.e. those actually present at the time of enumeration) still show a substantial gap (approximately 1.9% for males versus 1.5% for females), indicating some added problem with the count of Upper Volta residents in one or other of the enumerations.

In view of all these uncertainties, the recorded 1960-70 growth rate can hardly be considered a reliable basis for the measurement even of population growth net of migration.

c) The assumption that the rate of natural increase will remain constant over the next 20 years is not likely. Fertility has apparently been rising (due to reductions in sterility levels among some low-fertility groups), and mortality declining, over the past 20 years or so. There is no reason to suppose that these trends will cease in the near future, and therefore that the rate of natural increase will not continue to rise.

11. Hence, the population projection put forward by Government in 1983 cannot be compared in usefulness with the earlier set by INSD which is constructed in accordance with normal projection methodology. The Government would be advised to rely either on the set of INSD projections discussed above, or on the IBRD projection, choosing from within the set the projection whose assumptions appear most reasonable, rather than base economic planning on a single, very crudely extrapolated estimate of population growth.


IBRD 16543
JUNE 1982
UPPER VOLTA/HAUTE VOLTA
PHYSICAL FEATURES
ASPECTS PHYSIQUES
MALI
NIGER
BENIN
TOGO
IVORY COAST
SAHEL
CENTRAL PLATEAU
EASTERN SAVANNAH
SAVANE ORIENTALE
SOUTHWEST
SUD-OUEST
OUAHIGOUYA
DORI
KAYA
DEDOUGOU
KOUDOUGOU
OUAGADOUGOU
KOUPELA
FADA N'GOURMA
BOBO-DIOULASSO
DIEBOUGOU
BANFORA
Djibo
Gorom-Gorom
Markoye
Séguénéga
Kongoussi
Barsalogho
Gourcy
Yako
Tougan
Toma
Djibasso
Nouna
Bogandé
Boulsa
Boussé
Ziniare
Réo
Tenado
Zorgho
Saponé
Kombissiri
Tenkodogo
Kantchari
Diapaga
Boromo
Mango
Houndé
Niena
Po
Zabré
Pama
Leo
Orodara
Gaoua
Niangoloko
To Mopti
To San
To Koutiala
To Sikasso
To Abidjan
To Tumu
To Navrongo
To Bawku
To Natitingou
To Niamey
To Gotheye
Niger
Béli
Sourou
Noire
Volta
Rouge
Blanche
Sirba
Tapoa
Pendjari
Bougouriba
Poni
Komoé
Léraba
Oti
600
900
1200
0 20 40 60 80 100
KILOMETERS / KILOMETERES
MAURITANIA
MALI
NIGER
UPPER VOLTA
Ouagadougou
GUINEA
IVORY COAST
GHANA
TOGO
BENIN
NIGERIA
LIBERIA
Gulf of Guinea
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RAILROADS
CHEMINS DE FERS
RIVERS
FLEUVES
REGIONAL DEVELOPMENT ORGANIZATION (ORD) CAPITALS
SIÈGE DE L'ORGANISME RÉGIONAL DE DÉVELOPPEMENT (ORD)
REGIONAL DEVELOPMENT ORGANIZATION (ORD) BOUNDARIES
LIMITES DES ORGANISMES RÉGIONAUX DE DÉVELOPPEMENT (ORD)
INTERNATIONAL BOUNDARIES
FRONTIÈRES INTERNATIONALES
AGRICULTURAL ZONES
ZONES AGRICOLES
ISOHYETS IN MILLIMETERS (AVERAGE ANNUAL RAINFALL)
ISOHYETS EN MILLIMETERES (QUANTITÉ MOYENNE DE PLUIE ANNUEL)
PAVED ROADS
ROUTES BITUMÉES
UNPAVED ROADS (NATIONAL, PRIMARY AND SECONDARY) — ALL WEATHER USE
ROUTES NON-BITUMÉES (NATIONALES, PRIMAIRES, SECONDAIRES) — USAGE TOUTES SAISONS
UNPAVED ROADS (PRIMARY AND SECONDARY) — INTERMITTENT USE
ROUTES NON-BITUMÉES (PRIMAIRES ET SECONDAIRES) — USAGE INTERMITTENT