Overseas Development Institute

STRUCTURAL ADJUSTMENT AND SUSTAINABLE DEVELOPMENT IN CAMEROON

A World Wide Fund for Nature Study

Roger Tchoungui
Steve Gartlan
J.A. Mope Simo
Fondo Sikod
Augustin Youmbi
Michel Ndjatsana
James Winpenny

Working Paper 83

Results of ODI research presented in preliminary form for discussion and critical comment

ODI Working Papers

37: Judging Success: Evaluating NGO Income-Generating Projects, *Roger Riddell*, 1990, £3.50, ISBN 0 85003 133 8

38: ACP Export Diversification: Non-Traditional Exports from Zimbabwe, *Roger Riddell*, 1990, £3.50, ISBN 0 85003 134 6

39: Monetary Policy in Kenya, 1967–88, *Tony Killick and F.M. Mwega*, 1990, £3.50, ISBN 0 85003 135 4

40: ACP Export Diversification: Jamaica, Kenya and Ethiopia, *Christopher Stevens*, 1990, £3.50, ISBN 0 85003 136 2*

41: ACP Export Diversification: The Case of Mauritius, *Matthew McQueen*, 1990, £3.50, ISBN 0 85003 137 0

42: An Econometric Study of Selected Monetary Policy Issues in Kenya, *F.M. Mwega*, 1990, £3.50, ISBN 0 85003 142 7

43: Differences in Econometric Performance between Franc Zone and other Sub-Saharan African Countries, *Christopher E. Lane and Sheila Page*, 1991, £3.50, ISBN 085003 148 6

44: Monetary Policy Effectiveness in Indonesia, 1974–1980, *Christopher E. Lane, David C. Cole and Betty F. Slade*, 1991, £3.50, ISBN 0 85003 150 8

45: Monetary Control in Ghana: 1957–1988, *Nii Kwaku Sowa*, 1991, £3.50, ISBN 0 85003 152 4*

46: The IMF in the 1990s: Forward to the Past or Back to the Future, *Graham Bird*, 1991, £3.50, ISBN 0 85003 153 2*

47: What Can We Know About the Effects of IMF Programmes?, *Tony Killick, Moazzam Malik and Marcus Manuel*, 1991, £3.50, ISBN 0 85003 154 0*

48: Country Experiences with IMF Programmes in the 1980s, *Tony Killick with Moazzam Malik*, 1991, £3.50, ISBN 0 85003 155 9*

49: Evaluating the Impact of NGOs in Rural Poverty Alleviation: India Country Study, *Mark Robinson*, 1991, £5.00, ISBN 0 85003 157 5

50: Evaluating the Impact of NGOs in Rural Poverty Alleviation: Bangladesh Country Study, *Sarah White*, 1991, £8.70, ISBN 0 85003 158 3

51: Evaluating the Impact of NGOs in Rural Poverty Alleviation: Uganda Country Study, *John de Coninck*, 1991, £8.70, ISBN 0 85003 159 1

52: Evaluating the Impact of NGOs in Rural Poverty Alleviation: Zimbabwe Country Study, *Ann Muir*, 1991, £5.00, ISBN 0 85003 160 5

53: Environmental Change and Dryland Management in Machakos District, Kenya: Environmental Profile, *edited by Michael Mortimore*, 1991, £4.00, ISBN 0 85003 163 X

54: Environmental Change and Dryland Management in Machakos District, Kenya: Population Profile, *Mary Tiffen*, 1991, £4.00, ISBN 0 85003 164 8

55: Environmental Change and Dryland Management in Machakos District, Kenya: Production Profile, *edited by Mary Tiffen*, 1991, £4.00, ISBN 0 85003 166 4

56: Environmental Change and Dryland Management in Machakos District, Kenya: Conservation Profile, *F.N. Gichuki*, 1991, £4.00, ISBN 0 85003 167 2

57: Environmental Change and Dryland Management in Machakos District, Kenya: Technological Change, *edited by Michael Mortimore*, 1992, £4.00, ISBN 0 85003 174 5

58: Environmental Change and Dryland Management in Machakos District, Kenya: Land Use Profile, *R.S. Rostom and Michael Mortimore*, 1992, £4.00, ISBN 0 85003 175 3

59: Environmental Change and Dryland Management in Machakos District, Kenya: Farming and Income Systems, *edited by Mary Tiffen*, 1992, £4.00, ISBN 0 85003 176 1*

60: Explaining Africa's Post-Independence Development Experiences, *Tony Killick*, 1992, £4.00, ISBN 0 85003 177 X*

61: The Informal Financial Sector: How Does It Operate and Who Are the Customers?, *J.J. Thomas*, 1992, £4.00, ISBN 0 85003 178 8

Working Paper 83

STRUCTURAL ADJUSTMENT AND SUSTAINABLE DEVELOPMENT IN CAMEROON

A World Wide Fund for Nature Study

Roger Tchoungui
Steve Gartlan
J.A. Mope Simo
Fondo Sikod
Augustin Youmbi
Michel Ndjatsana
James Winpenny

August 1995

Overseas Development Institute
Regent's College
Inner Circle, Regent's Park
London NW1 4NS
UK

ISBN 0 85003 224 5

Typeset at ODI and printed by Chameleon Press Ltd, London.

Contents

Tables

Maps

Acronyms

AIDS	(Human) Acquired Immunodeficiency Syndrome
AIMS	Arabica Marketing Information System
API–DIMAKO	Integrated Pilot Management Project, Dimako
BEAC	Banque des Etats d'Afrique Centrale
BONIFICA	Consultancy company, Milan, Italy
CAPP	Centre for Agricultural Statistics and Planning
CDC	Cameroon Development Corporation
CENADEFOR	National Centre for Forest Development
CFA	Communauté Financière Africaine
CFDT	Compagnie Française des Fibres Textiles
CIDA	Canadian International Development Agency
CITES	Convention on International Trade in Endangered Species
DATE	Direction de l'Aménagement du Territoire et de l'Environnement (Directorate of Territorial Management and Environment)
DIAL	Développement de l'Investigation sur Ajustement à Longue Terme
ECOFAC	European Community Central African Forest Project
FOB	Free on board
FIMAC	Financing and Investment in Agricultural and Community Micro-projects
FONADER	National Fund for Rural Development
GATT	General Agreement on Tariffs and Trade
GCA	Global Coalition for Africa
GDP	Gross domestic product
GEF	Global Environmental Fund
GNP	Gross national product
HEVECAM	Hévéaculture du Cameroun (Cameroon Company for Rubber Production)
IDA	International Development Association
IMF	International Monetary Fund
ITTO	International Timber Trade Organisation
MAB	Man and the Biosphere Programme, UNESCO
KMFP	Kilum Mountain Forest Project
MIDENO	North-West Development Authority
MIDEVIV	Mission de Développement des Vivrières (Food Development Authority)
MINAGRI	Ministry of Agriculture
MINEF	Ministry of the Environment and Forests
MINPAT	Ministry of Planning and Regional Development

NATCOM	National Commission on the Environment
NEAP	National Environmental Action Plan
NGO	Non-governmental organisation
NPMB	National Produce Marketing Board
NWCA	North-West Co-operative Association
NWP	North-West Province
ONADEF	National Forests Development Office
ONAREF	National Office of Forest Regeneration
PRAMS	Programme for the Reform of the Agricultural Marketing Sector
PAFT	Action Plan for Tropical Forests
SAP	Structural adjustment programme
SFID	Société Forestière Industrielle de la Doumé
SNEC	Société Nationale des Eaux du Cameroun (Cameroon National Water Company)
SNH	Société Nationale d'Hydrocarbures (National Hydrocarbons Company)
SOCOODER	Société Coopérative pour le Développement Rural (Cooperative Society for Rural Development)
SOCOOPED	Société Coopérative pour la Production et le Développement (Cooperative Society for Production and Development)
SODECOTON	Société Nationale de Développement du Coton (National Cotton Development Authority)
SOFIBEL	Société Forestière et Industrielle de Belabo (Industrial Forestry Company of Belabo)
SONEL	Société Nationale d'Electricité (National Electricity Corporation)
TCA	Turnover tax (taxe sur le chiffre d'affaires)
TFAP	Tropical Forest Action Plan
UNVDA	Upper Nun Valley Development Authority
UNCED	United Nations Conference on the Environment and Development
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
VEWs	Village extension workers
ZAPI	Integrated Priority Action Zone

Introduction

The UNCED summit in Rio de Janeiro globalised the issue of the environment. Although environmental issues have long had a local importance, certain of them (toxic waste, depletion of the ozone layer, massive deforestation) have reached such dimensions that their solutions must interest and involve almost the whole of humanity.

Africa today is only slowly becoming concerned with environmental issues. Its economic difficulties are, in reality, of such dimensions that environmental preoccupations have not been in the forefront of people's minds and have been regarded as a luxury. When the survival of entire societies is in doubt through famine, endemic disease or economic crisis, environmental concerns have not monopolised attention.

Cameroon is in line with this thinking. Under a structural adjustment programme (SAP) for more than five years, its principal concern is with financial and economic performance. The reforms which have seemed necessary respond more to quantifiable economic questions of this order than to environmental concerns.

Environmental policy, such as it is, has developed relatively recently and is taking off against a background of pre-existing decisions taken for other purposes and often with negative environmental consequences. The aim of this report is to improve our understanding of the ways in which economic policies can affect people's behaviour towards the natural environment. It documents the principal economic adjustment measures taken in Cameroon since the late 1980s and traces their potential environmental impact in the agricultural and forestry sectors by presenting case studies – of four contrasting but representative regions of the country – North-West, Far North, East and South Provinces. In the final, forward-looking, section implications are drawn and recommendations made for the pursuit of sustainable development in agriculture and forestry.

Organisation of the study

The study was under the general direction of the team leader, Roger Tchoungui. Tchoungui headed the Cameroon technical team which had responsibility for establishing the National Economic Stabilisation and Economic Recovery Plan. He negotiated the details of this programme with the IMF and supervised its implementation until he left Government in November, 1992. Apart from leading and co-ordinating the study team, he was also responsible for the macroeconomic aspects of the current study. Specifically, he was responsible for assessment of the trends of the general economic decline and for identifying the specific programmes and actions of the SAP. He was also responsible for the modelling component and for the interpretation of the results of the model.

Steve Gartlan was responsible for the ecological and environmental aspects of the study. Gartlan is a forest ecologist specialising in conservation biology. He was

responsible for the collection and collation of information on the major environmental sectors of Cameroon and for identifying the specific pressures on each one. Much of the necessary environmental data had already been accumulated by WWF and IUCN and needed only to be updated for use in the current study. This provided, so to speak, the environmental background against which the effects of SAP and general economic decline were assessed.

The sociology of development and developmental economics aspects of the study were studied by J.A. Mope Simo. Mope Simo is a specialist in the gender analysis of agricultural and rural development and in environmental assessment. He also undertook one of the case studies, that on the Mount Kilum project. This project is taking place in an area of high population density which has been seriously affected by economic decline and also by reduction in fertiliser subsidies and market dislocation. Methods used included individual and group interviews and surveys.

Agricultural aspects of SAP and of economic decline were studied by Fondo Sikod, who has a strong interest in natural resources and sustainable development. He was also responsible for carrying out the case study which assessed the effects of economic decline and structural adjustment on the farming systems of Far North Province. The methods to be used included interviews and surveys.

Augustin Youmbi is a specialist in environment issues. He was responsible for carrying out the case study on the impact of the SAP on cocoa growers in East Province. In this part of the country, cocoa farmers have been seriously affected by the drastic drop in prices of this commodity in the international market and also by the reduction in fertiliser subsidies. Methods used included interviews and surveys.

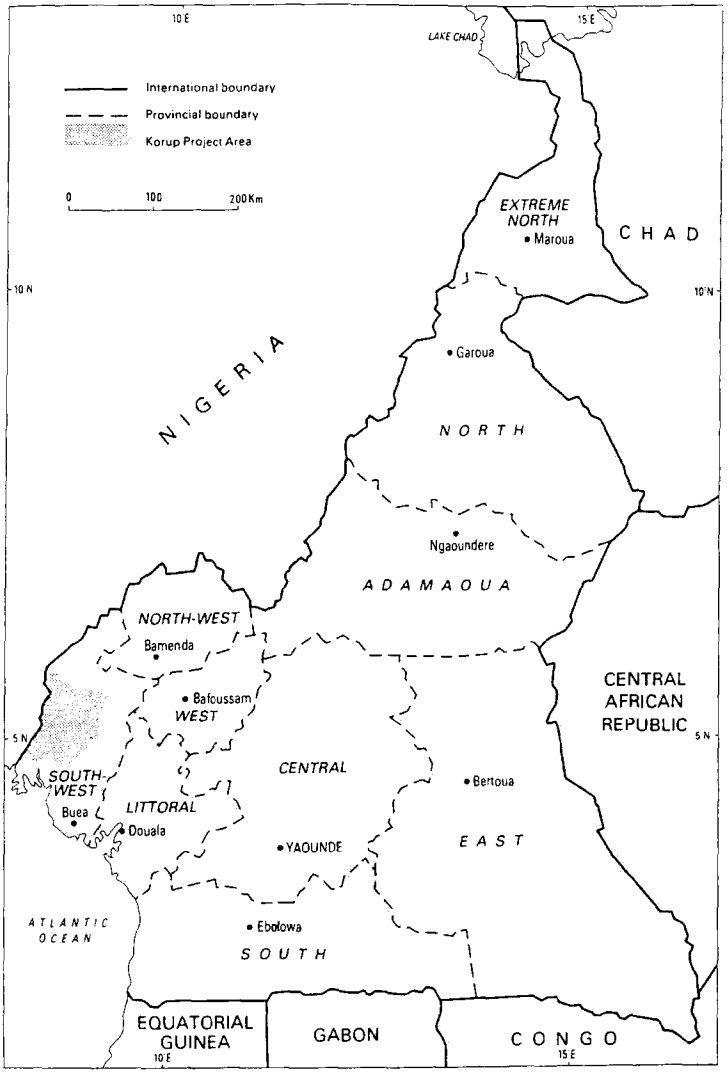
The forestry aspects of the study were handled by Michel Ndjatsana. Ndjatsana is a specialist in Cameroon forestry issues. Because of his long field experience, he was also responsible for the case study related to the effects of SAP on the Cameroon forestry sector, with particular reference to South Province. In view of the country's geographical situation and the rich diversity of its forest ecosystems, South Province is one of the regions where commercial logging activities are still very important. Much of the necessary forest data had already been collected in the province. In the current study, they were up-dated by interviews and surveys.

James Winpenny of the Overseas Development Institute, London, provided general guidance to the study, detailed comments on the text, and contributed most of section 4. Margaret Cornell extensively edited the text.

Acknowledgements

A number of people in Cameroon (upper and lower echelon administrators/civil servants, politicians, traditional authorities, local opinion leaders and informants in the case study localities) and officials of donor agencies provided advice and written material, which is gratefully acknowledged. Members of the WWF Advisory Committee should also be thanked for their comments and general guidance.

Map 1 **Administrative map of Cameroon**



Source: World Wide Fund for Nature.

1. The Environment of Cameroon

1.1 Physical features

1.1.1 Geography

The Republic of Cameroon is roughly triangular in shape with a base of some 700 km and a height of 1,200 km. It lies between latitudes 2° and 13° north and between longitudes 8° and 16° east in west Central Africa. It covers an area of 475,000 km^2, of which 8,536 km^2 are water, and has a 400 km coastline on the Gulf of Guinea. The human population in 1991 was estimated at 12 million, with an average growth rate during the 1980s of 3%; it is expected to grow to 21 million by the year 2010 (World Bank, 1994).

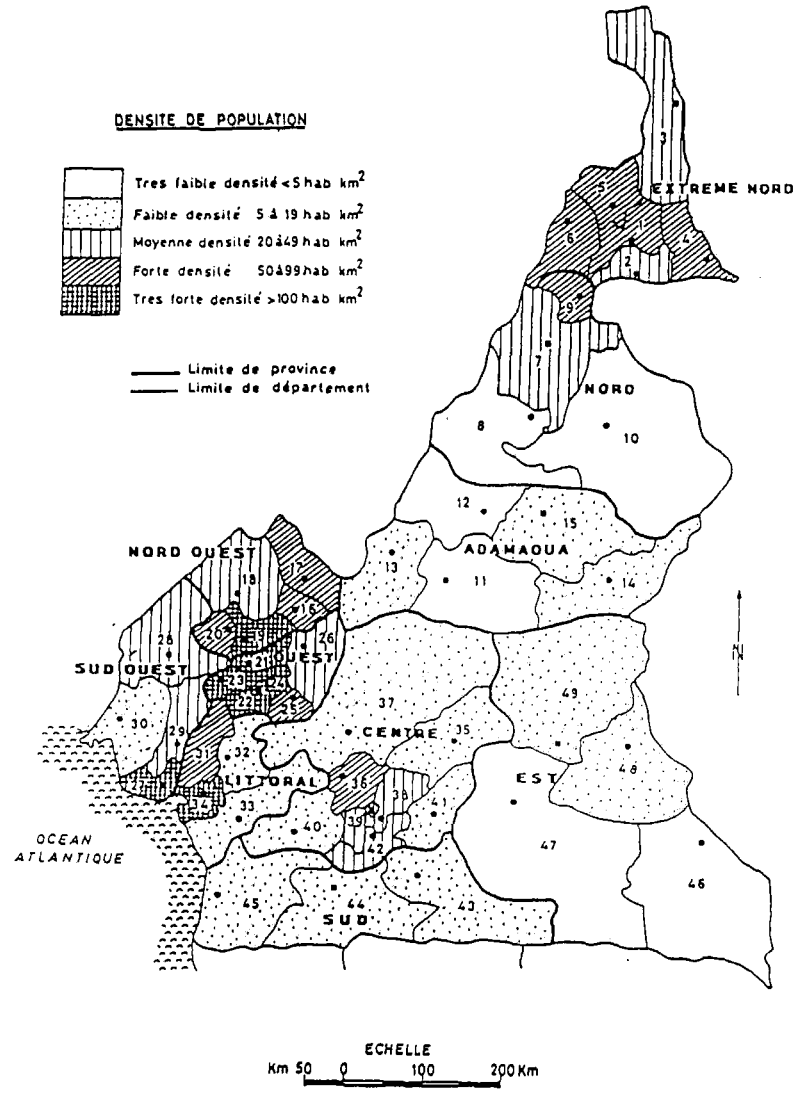
The geographical distribution of the population among provinces varies significantly, the national average density (1992) being 26/km^2. There are three high-population density zones: Far North (61.5/km^2), West and North-West (78 to 108/km^2) and Littoral Province (78.9/km^2). These are zones with favourable agricultural conditions: fertile soils, usually of volcanic origin, and with sufficient rainfall. However, land-use pressures may make it impossible to extend agricultural activity significantly in these areas and food for the expanding population may well have to be grown elsewhere.

Cameroon extends from Lake Chad south through Sahel and Sudan savanna into gallery and semi-deciduous forest, and then the dense, humid evergreen forest zone. These bands of vegetation run roughly parallel to the southern edge of the Sahara. Complicating this zonation is the orogenic structure: the uplifting of the basement complex into crystalline mountains and – a major feature of Cameroon – the overlaying of these by basalt and the creation of volcanic mountains. The parallel zones are broken by these elevation changes into altitudinally determined, distinct vegetational communities, submontane and montane forest and subalpine grassland on the highest peaks.

The climatic history has also played its part in determining the nature of ecological communities. Periods of climatic desiccation have led to the isolation of the montane massifs and to high levels of endemism on them. The coastal forests functioned as refuges during these periods and in consequence have high biodiversity as well as endemism. The wetlands of the Chad basin are also important. There is also an important marine and coastal habitat in Cameroon (Gartlan, 1991).

The country as a whole has exceptionally high biological diversity and high levels of endemism. Some 260 species of mammals, 848 species of birds, 542 species of fresh and brackish water fish (17% endemic) and 9,000 species of plants

Map 2 **Administrative units and population density**



have been recorded, of which at least 156 plant species are endemic, including 45 on Mount Cameroon. Plant and mammal endemism is highest in the moist evergreen forest belt along the coast and decreases as biomes become drier (ibid.).

The geographical distribution of many endemic forest species is very narrow compared with that of the drier biomes. The total distribution of the Drill, *Mandrillus leucophaeus*, a forest baboon, is 100 per 150 km^2, whereas the savanna baboon of Cameroon, *Papio anubis*, extends from Senegal east through northern Zaïre to Ethiopia, Kenya, Uganda and northern Tanzania. The biology of Cameroon is under-documented and it is certain that the figures given above are considerable underestimates. For example, in the Korup National Park alone (126,000 hectares in area) are found over 1,135 species of plants from 131 families, 330 species of birds with an additional 100 species from open habitats outside the park but within the project area, and 174 species of reptiles and amphibians (Thomas; Rodwald, *et al.*, 1994).

Biodiversity has more than simple biological significance; it can be extremely valuable in cash terms. Two examples will suffice from the Korup project area. In the early 1970s, it was discovered that in its native habitat, near Korup, the oil palm was pollinated by a weevil, *Enterolobius kamerunicus*. The multinational company, Unilever, having made the discovery, transported the weevil to the extensive oil palm plantations in Malaysia and Indonesia; the rise in production as a consequence was immediate and substantial. The value of this biodiversity transfer can be measured in many millions of dollars but none of it accrued to Cameroon. Currently, in the same region, it has been discovered that a chemical constituent of a liane discovered in Korup, *Ancistrocladus korupensis*, is an effective treatment for the AIDS virus *in vitro*. Tests are currently under way to see if it could be an effective treatment *in vivo* for humans. Even in the testing phase, it is a valuable commodity. If it proves clinically effective, it will become one of Africa's most important cash crops (Korup project, 1993).

The principal economic activity of the human population is agriculture which also serves subsistence purposes (along with hunting and trapping). While some export crops are derived from industrial plantations of parastatal and private organisations such as the Cameroon Development Corporation, SOCAPALM, HEVECAM, and Del Monte (rubber, palm oil, tea and bananas), the vast majority of cash crops are derived from individual smallholder farming. The products of the industrial plantations are also supplemented by the activities of smallholders who grow the crops on their smallholdings and sell the harvest to the processing plant or mill.

Most agricultural produce is grown on small plots; traditional family farms are approximately 2 ha in area. These occupy 90% of the cultivated areas and supply 90% of agricultural production and 80% of marketed products. The farming systems are predominantly based on slash-and-burn and bush-fire practices. Traditional farming methods are hampered by limited access to agricultural inputs and the use of simple equipment such as hoes, axes and cutlasses (*ibid.*).

The average farm family size is 5.7 people. The largest families are in North-West (7.2 persons) and West (6.8 persons) Provinces. Farm labour is family-based

with an average of 3.6 persons working at least 30 days a year on the farms (*ibid.*).

Most of the ethnic groups of the southern half of Cameroon are relatively recent immigrants (19th and 20th centuries). Here women were once the exclusive growers of food crops but, as the prices of traditional commodities have fallen, men have begun to grow the now more profitable food crops. In the north, men were the principal herders and farmers, with women farmers generally growing only such traditional crops as groundnuts or dry season vegetables. Women collect all the fuelwood in both areas. Only 15% of farm operators are female, yet the World Bank (1989) found that women produce 90% of the country's food crops.

One factor that has recently increased the availability of farm labour is the reduction in coffee and cocoa crops. Traditionally cash-crop cultivation was dominated by men, while women tended the food crops. As the world price of coffee and cocoa dropped and government price-supports came to an end, many men who had previously occupied themselves with these crops shifted into the production of food crops and have thus moderated the shortage of farm labour. Food production by women tended to use traditional methods with negligible use of fertilisers and pesticides. The cash crops grown by men were the areas where fertiliser, pesticides, fungicides and extension and marketing services were concentrated.

In recent years, following the decline in coffee and cocoa prices and delays in payment by the National Produce Marketing Board, many farmers have changed from these traditional cash crops to food (plantains, yams, cocoyams) which can be sold for immediate cash without going through the marketing board. Diversification of agricultural crops has been a government priority, but the principal impetus has been the economic pressure on farmers.

A disturbing feature for the future of agriculture is the prevailing high rural exodus, primarily of the young and physically able. The farmers who remain tend to be older and more conservative in their practices; this does not bode well for future food and cash crop production.

Currently, the increase in land dedicated to permanent (plantation) agriculture is about 8,000 ha per year. In contrast, between 75,000 and 95,000 ha are cleared each year for slash-and-burn farming. This activity is compatible with sustaining forest resources as long as the fallow periods are long enough to allow the forest to recover. Unfortunately, with increasing population pressure the fallow periods are being shortened. This results in soil depletion, erosion and environmental degradation.

1.1.2 Geophysical units

The country comprises five principal geophysical units. These are: (i) the littoral plain, (ii) the southern plateau, (iii) the Adamawa plateau, (iv) the western highlands, and (v) the northern plains.

i) *The littoral plain* is a relatively low-lying sedimentary region, divided into two

by Mount Cameroon and crossed by many swift-flowing rivers. It stretches from Rio del Rey, part of the delta formation that joins the Cross and Akpa Yafé rivers, close to the Nigerian frontier, south to Equatorial Guinea. The plain varies in width and is marked by estuaries, creeks, swamps, mangroves and sand bars. It covers about 50,000 km^2 or 10% of the national territory. There is another important area for mangrove at the mouth of the Mungo and Wouri Rivers. Elsewhere, offshore currents are strong and mangroves do not occur. Because of the heavy sediment load, coral formations offshore are rare. However, coral does occur with a characteristic fish fauna on basalt rocks in Limbe Bay.

The Cameroon coast has two components. The first is a rocky area where Mt Cameroon meets the sea; this is characterised by bays, capes, rocky islands and cliffs. The second is low-lying and divided into a northern and a southern sector by the rocky coast. The low-lying coast is characterised by mangroves (particularly in the north) and by creeks, sand bars, spits and lagoons.

The littoral plain has great agricultural potential because of favourable climate and soil conditions as well as easy access to transportation and marketing distribution networks. The northern part is characterised by industrial plantations (banana, tea, rubber, oil palm), food crop plantations (root crops, maize, cowpeas and pineapple) and vegetable gardens, while the southern part is characterised by rubber plantations.

The littoral plain is exceptionally important in biodiversity terms as its natural vegetation cover is the Atlantic coastal forest, one of the most diverse in Africa. However, it has also been much affected by the human population. The forests east of Douala are heavily degraded through cutting for firewood for sale in the town. Virtually all heavy industry in Cameroon – petroleum refining, paper pulp manufacturing, aluminium smelting and hydroelectric power generation – is located in the littoral plain. The economic capital, Douala, is located in the plain and over 90% of the country's foreign trade uses the port. There are extensive industrial plantations of rubber, oil palm and banana. The forests have been extensively logged because of their easy access to Douala, many of them several times since the colonial epoch. There are good transport connections by road, rail and air. There are important national parks and wildlife reserves, Korup, Campo, Douala-Edea and Lake Ossa. Mt Cameroon, of great biological importance, emerges from the plain.

Most of Cameroon's petroleum resources are offshore. But intense onshore exploration took place in the 1970s to try and locate further resources. This was largely unsuccessful; some gas was discovered, but only small oil deposits. However, there were major environmental consequences to this exploration, which was carried out by means of parallel clear-cut transects through the landscape along which seismic activity was measured through the medium of controlled explosions. These transects gave instant access to hunters and this exploratory activity was the major factor in the degradation of the Douala-Edea Wildlife Reserve.

The littoral plain comprises parts of three administrative provinces, South, Littoral and South-West. The westernmost division of South Province has a population density of 5–19 inhabitants per km^2. The Littoral Province has four

divisions, two with densities of 5–19/km^2, one with 50–99/km^2, and one with over 100/km^2. The three southern divisions of South-West Province lie on the littoral plain. One has a population density of 5–19/km^2, one has 20–49/km^2 and one has over 100 persons per km^2.

ii) *The southern plateau* is located inland, east of the sedimentary littoral plain and covers all of the south and south-east of Cameroon, a total area of some 165,000 km^2 (35% of the national territory). It is bounded to the north by the western highlands and the Adamawa plateau and extends to the eastern and southern frontiers of the country. In the west it descends sharply towards the littoral plain and most of the rivers tumble in rapids and waterfalls over this scarp; this affects their navigability and provides potential for hydroelectric power generation. Towards the east, the slope towards the Congo basin is more gentle. The landscape of the southern plateau is monotonous, essentially gently undulating hills of convex slopes. There are occasional inselbergs of massive migmatites and quartzites to be found particularly in the region of Yaoundé such as Mbam Minkom (1,295 metres). The western section of the plateau has an accidented relief and is composed essentially of gneiss, granite and schists. The eastern section is a peneplain with a more gentle topography. The northern section has alternating depressions and granitic massifs. The altitude of the plateau varies from 250 m to 900 m.

The main food crops are maize, cassava, tubers, plantains, and groundnuts and the main perennial cash crops include robusta coffee, cocoa, palm oil, citrus fruits, avocado and plantains. There are intensive agricultural activities in this area. It is an important source of cocoa and coffee grown by peasant farmers, as well as some tobacco. Sugar is grown as a plantation crop in the northern sector. There is no cattle rearing. Forest resources and cocoa and coffee have been the mainstay of the village economy. There is little industrialisation.

The southern plateau covers East and Centre Provinces and the two eastern divisions of South Province. East Province has four divisions, two of them with populations of under 5 inhabitants per km^2, two with densities of 5–19/km^2. Centre Province has eight divisions, four with densities of 5–19/km^2, three of 20–29/km^2, one of 50–99/km^2, and one with over 100 persons per km^2. The two eastern divisions of South Province have population densities of 5–19/km^2.

The southern plateau is covered with forest vegetation of Congolese and transitional types; it is the most important commercial forest resource in Cameroon. Most commercial forest activities are in the northern sector and it is here that human population pressures are greatest (Centre Province), with the capital Yaoundé also located here. The population density is highest in the west and north and lower in the east and south. The south-eastern part has a low human population density and still retains a complement of large mammals. The southern plateau is not well provided with protected areas; Dja Wildlife Reserve is the principal one.

iii) *The Adamawa plateau* is situated in the centre of the country and covers an area of 80,000 km^2 or 17% of the national territory. It lies between latitudes 6° and 8° north, and its elevation varies between 900 and 1,500 metres, with an average of 1,100 m. It is essentially a gigantic horst-like massif originating in Nigeria, crossing Cameroon and penetrating far into the Central African Republic. The

plateau comprises principally granitic rocks of Precambrian age. Particularly in the west and to a lesser degree in the east, the granite is covered by thick basaltic flows which have resulted from volcanic eruptions. The volcanic activity has caused some sizeable peaks, the major ones being Tchabal Gangha, Tchabal Mbabo, and the Mambila Mountains. These peaks have considerable biological importance. The southern edge of the plateau, although extensively dissected by the upper reaches of the Sanaga (Mbam, Djerem and Lom), is a sheer escarpment. Less steep escarpments characterise the northern and eastern edges. The Adamawa plateau is the source of most of the major rivers in the country.

The principal agricultural activity is cattle production. Food crop production is extensive and is primarily consumed by the local population.

The Adamawa plateau is relatively thinly populated. Three of the five administrative divisions have between 5 and 19 inhabitants per km^2 and the remaining two have less than 5. Much of the population comprises nomadic Fulani cattle grazers. There is a trade in cattle to the south; these are either walked on foot or transported by road or rail. There is little industrial activity, little agriculture and few major towns. The level of literacy is low. Human impacts on the plateau are among the least intense in Cameroon.

iv) *The western highlands*, like the Adamawa plateau, are old granite and gneiss of the basement complex which have been covered by recent basaltic rock. The western highlands are less extensive in area, covering about 50,000 km^2 (11% of the national territory), and possess higher peaks and a more accidented relief than the Adamawa plateau. Some of the mountain peaks are crystalline horsts such as Nlonako and Kupé and others are volcanic such as Mt Cameroon (4,070 m) and Mt Oku (3,008 m). The area is seismologically active (Mt Cameroon has erupted five times since 1909; Lake Nyos exploded on 21 August 1986 killing almost 2,000 people). Some of the crater lakes (Lakes Barombi, Mbo, Bemen) have great biological importance with high levels of endemism. Certain of them represent the smallest known places on earth where vertebrate radiation has taken place. The crater lake of Barobmi Mbo, less than 2 km in diameter, has one endemic catfish and 6 endemic cichlids. The montane massifs of the western highlands are also of great biological interest with high endemism of birds, tree frogs and spiders. The montane and sub-alpine communities which cover much of this area are unique in western Africa.

The soils of the western highlands tend to be ferralitic. Agriculture is intensive, combining cash and food crop production. The main crops are arabica coffee, tobacco, maize, beans, groundnuts, guinea corn, rice, cocoyams, cassava, yams, potatoes and plantains. Vegetables such as tomatoes, cabbage and potatoes do well here and are an important cash crop. Partly because of a strong traditional social structure, this area is characterised by very strong marketing co-operatives, more so than in any other part of the country. The marketing of agricultural products is an important source of income for the local farmers. There is little industrialisation.

The western highlands are covered by two administrative provinces, West and North-West. West Province has six divisions, one with a population density of 20 to 49/km^2, one of 50 to 99/km^2 and the rest with a density of over 100 inhabitants

per km^2. North-West Province has five divisions, one with a density of 20 to 49/km^2, three of 50 to 99/km^2, and one with over 100 persons per km^2. Despite their high biological importance, the western highlands are subject to some of the most intense degradation in the country. The human population density is exceptionally high, partly because of the fertile volcanic soils. It is an area of intense agricultural activity for both food and cash crops. Arabica coffee and commercial tea plantations occur here. The montane forest biome, which has little effective protection, has been virtually eliminated.

v) *The northern plains* can be divided into two parts which cover, in total, some 130,000 km^2 (27% of the national territory). The first of these, the Benoué depression, extends from the northern foothills of the Adamawa plateau, sloping gently north from an elevation of 600 to 200 m and below on the bed of the Benoué, with an average elevation of 300 to 350 m. The centre of this depression is formed by the valley of the Benoué river and its tributary the Kebi. North of the river valley, a slight rise in elevation, with some significant peaks such as Mt Tourou, the Rumsiki, the Peske Bori, and Mindif, part of the Mandara Mountain system, gives way to the second part, the Chad alluvial plain. Only a small area of this occurs in Cameroon, the majority being in Chad, Niger and Nigeria. The elevations here are 300 to 320 m and the land is almost flat with slight slopes northwards towards Lake Chad and east towards the River Logone which drains into Lake Chad. This is an inland drainage area. About one third of it is marshy and is usually flooded between July and October to a depth of 80–120 cm.

Farming, livestock and fishing are the main activities of the northern plains. Agricultural activities are primarily oriented towards the production of cash crops (cotton, rice, yam, groundnuts, millet, sorghum) and food crops, as well as extensive cattle production. Commercial rice-growing has been tried in Far North Province at Semry, on Lake Maga, although the damming of the Logone River which created the lake has had deleterious effects on the annual flooding cycle of the Lake Chad basin, including Waza National Park. Cotton production is the base of the industry of the area, both for thread and cloth production and for seed oil.

The northern plains have considerable biological importance. The six savanna national parks all occur in this zone and there is considerable potential for tourist development. However, human impacts are considerable and probably non-sustainable in parts. Far North Province has a very dense agricultural population, rivalling that of the western highlands. There are extensive transhumance herds which degrade grazing land and invade the national parks. The monoculture of cotton is ecologically destructive.

Resettlement projects to alleviate pressure in Far North by moving people south threaten the national parks of Benoué and Boubanjidah and Faro. Two of these projects (Nord-est Benoué and Ouest Benoué) are being promoted and funded by the European Union. Bush fires and firewood collection for the populations of the towns of Garoua and Maroua are ecologically destructive. The northern plains face some of the most intense environmental pressures in Cameroon. While most of country's national parks lie in these two domains, none of them is integrated into

the local communities. If this is not done, and if local communities do not begin to derive real economic advantage from the presence of these protected areas, they will certainly be destroyed.

1.1.3 Hydrology

There are five major drainage basins in Cameroon. They are: the Chad, the Niger, Atlantic, Congo and Cross basins.

The country's principal watershed is the western highlands and the Adamawa plateau. North of the highlands, the rivers flow north into Lake Chad and north-west into the Niger basin. South of the highlands they flow west into the Cross basin, south-west into the Atlantic basin and south-east into the Congo basin. The largest and most important drainage basin is the Atlantic. This is drained by the very important Sanaga River, which is 918 km in length and rises in the southern foothills of the Adamawa plateau; the water catchment of the Sanaga covers about 25% of the surface area of the country. It is an exceptionally important biogeographical barrier, particularly in the southern reaches where it traverses the dense, humid evergreen forest. The Cross River drainage is the smallest, but is biologically important as the fauna contain a substantial Nile-Sudanian component, indicating a former hydrographic link between the Upper Cross River, the Niger and the Nile. The drainage basins possess different fish faunas which are important biogeographical indicators.

1.2 Meteorology

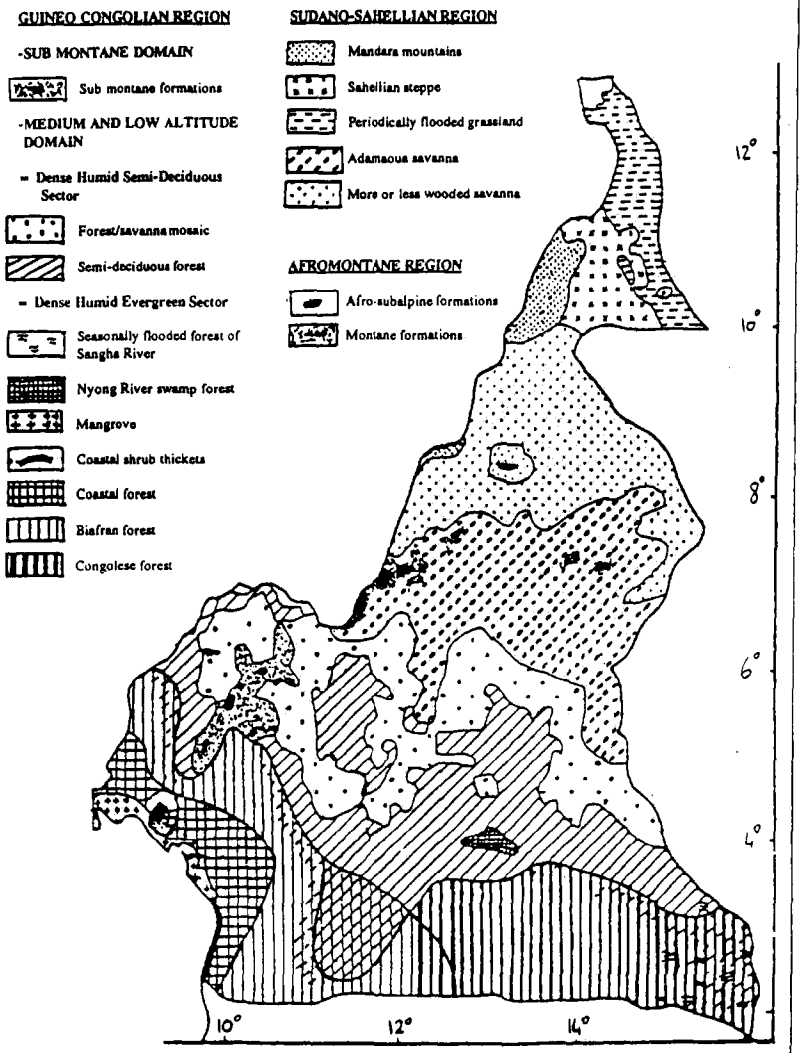
1.2.1 Rainfall

In general terms, the seasonal distribution of rainfall within the tropics is a function of latitude; at the equator rain falls at all seasons. In the equatorial zone extending from about 3° to 10° north and south there are two wet and two dry seasons (equatorial climate), while still further from the equator there is a single wet and a single dry season (tropical climate). This simple pattern is somewhat masked in Cameroon, where it is possible to recognise an equatorial type of climate which has four seasons per year (a long and a short dry season and a long and a short rainy season). The details are given below.

i) Equatorial climate (four seasons):

a) maritime type, southern coastal region (Campo)
b) pseudo-tropical type (two seasons only), northern coastal region (Douala)
c) pseudo-tropical montane subtype (two seasons only), western highlands (Dschang)
d) southern forest type (Yaoundé)

Map 3 Major Vegetation Types of Cameroon



(BASED ON LETOUZEY, 1968 AND 1985)

e) type with an extended dry season, central savannas (Bertoua)

ii) Tropical climate (two seasons):

a) montane type, Adamawa plateau region (Ngaoundéré)
b) Sudanian type, Benoué Valley region (Garoua)
c) Sahelian type, north Cameroon (Maroua)

In general rainfall decreases towards the north and interior of the country. Most of the littoral plain and the western highlands have an anomalous climate with only a single dry and a single wet season. Most of the littoral plain has over 4,000 mm of precipitation annually and at Debundsha, at the foot of Mt Cameroon, it regularly exceeds 10,000 mm. Mountains receive more rainfall than lowlands at similar latitudes and this can permit the existence of montane forest islands surrounded by relatively dry savanna. Ecologically and agriculturally, total rainfall seems to be less important that its distribution.

1.2.2 Insolation

The rate of insolation, an important ecological factor, is much greater in the north of the country where the climate is hotter than in the south. There are only 1,000 hours of sunshine annually at Douala (an average of 2.8 per day) compared with 1,841 at Yaoundé (5 per day) and 2,969 at Garoua (8 per day). The reduced insolation in the littoral plain is caused by cloudy skies, high relative humidity and the dust of the harmattan in the dry season.

1.3 Biogeography and ecology

Three major terrestrial biogeographical regions can be distinguished in Cameroon as well as a coastal marine region. The three are the Sudanian region, the Afro-Montane region and the Guineo-Congolian region.

1.3.1 The Sudanian region

This extends from Lake Chad south to an oblique line extending from 6° 30' in the west to 5° in the east of the country. The region comprises two major domains, the Sahel and the Sudanian domain.

i) *The Sahel domain* includes two distinct vegetational communities: thorny grasslands with *Acacia spp.*, *Balanites aegyptica*, *Tamarindus indica*, *Calotropis procera*, *Ziziphus spp.*, and a community of periodically flooded grasslands of the Longone-Chari and the Lake Chad flood plains with *Echinochloa pyramidalis*, *Hyparrhenia rufa*, *Oryza longistaminata* and *Pennisetum ramosum*. Both these vegetational communities occur in the Waza National Park. The rainfall in this domain is about 1,000 mm in the south diminishing to less than 350 mm in the north. The dry season is severe and lasts for 6–8 months. Typical mammals of this domain include the giraffe, *Giraffa camelopardalis*, the Patas monkey, *Erythrocebus patas*, the cheetah, *Acinonyx jubatus*, Grimm's duiker, *Sylvicapra grimmia*, and the Roan antelope, *Hippotragus equinus*.

The Sahel domain includes very densely populated areas. Four of the six administrative divisions of Far North Province have populations of between 50 and 99 persons per km^2 and the remainder between 20 and 49. Much of the thorny grassland biome has been cleared for agriculture. The periodically flooded grasslands biome has been affected by droughts (1973–4 and 1982–3) which reduced the surface area of Lake Chad to a tenth of its former size. These droughts caused desertification of the domain. There has also been dam construction (Lake Maga), whose principal aim has been the cultivation of rice, but which has interfered with the annual flooding cycle and caused ecological changes.

Animal populations outside the protected areas have been much reduced, and in many cases totally eliminated. Populations of some animals inside the protected areas have also been much reduced (topi, Roan antelope, Defassa waterbuck, Bohor reedbuck, warthog and red-fronted gazelle). The population of Kob has declined from 30,000 to less than 2,000. The elephant population within Waza, on the other hand, has increased and perhaps doubled since 1968. This is because of immigration into the park as protection from poachers. But these animals do not remain in the park and, with the increased human population density, it is to be expected that human–elephant conflicts will become an increasingly common pattern in Far North Province.

The freshwater swamps, rivers and waterways of this domain are particularly important for migrating birds and are generally under-protected. At least 110 species of Palaearctic migrants have been recorded in Cameroon, many in the wetlands of the Sahel. These wetlands, including Waza, are important for Palaearctic raptors (16 species), waders (30 species) and at least 32 species of passerines.

Deforestation for firewood is an increasing problem. The town of Maroua, where the annual consumption of firewood is about 37,000 tons, is surrounded by an ever-increasing circle of deforestation. No farmer grows fuelwood on plantations, because it is still cheaper to buy it in the market. Natural vegetation is retreating around villages and villagers must travel longer distances to find wood. Agricultural by-products are being used for fuel instead of for fertiliser, fruit trees are being excessively pruned for fuel and fuelwood prices are still increasing. Violent ethnic conflicts (between Shuwa Arabs and Kotokos) have been an increasing feature of this area. Conflicts between pastoralists and cultivators are

common. The widespread cultivation of the destructive cotton monoculture causes land degradation and soil erosion.

ii) *The Sudanian domain* extends from 10° as far south as the 800 metre contour on the southern slopes of the Adamawa Plateau. The northern sections are strongly anthropogenic and are characterised by *Combretum spp.* and *Terminalia spp.* Where not degraded, the wooded savannas are characterised by *Boswellia odorata, Sclerocarya birrea* and *Prosopsis africana.* The central portion is characterised by the existence of sometimes densely wooded savannas with *Anogeissus leiocarpus, Isoberlinia doka, Monotes kerstingii, Parinari curatellifolia, Kigelia aethiopica* and *Uapaca togensis.* In the southern part, the Adamawa plateau, typical vegetation includes *Daniella olivera* and *Lophira lanceolata.* A grass flora occurs that is particularly rich in *Andropogonaceae.*

The Sudanian domain is largely coincident with North and Adamawa Provinces. Only one division, Mayo-Louti (adjacent to Far North Province) has a high human population density of between 50 and 99 inhabitants per km^2. One division (Bénoué) has a medium population density (20 to 49/km^2), three have low population density (5 to 19/km^2) and four have very low human population density (below 5 inhabitants per km^2).

The flora and fauna of this domain are protected by three national parks, Faro, Bénoué and Boubanjidah. The rainfall of the domain is between 1,000 and 1,500 mm per year and the dry season extends from 3 to 6 months. Typical mammals include the last remaining population of the Western Black Rhinoceros (*Diceros bicornis longipes*), the hippopotamus, *Hippopotamus amphibius*, and the Giant or Lord Derby's eland, *Taurotragus derbianus.*

The vegetation of the Sudanian domain, like that of the Sahelian, is fairly impoverished with low levels of endemism. Faunally the area is rich in mammals and birds and some of these are endangered (such as the Black Rhinoceros). In terms of biodiversity the conservation of this region has relatively low priority, but in the national context the priorities are high. The human population pressure is fairly low, but is increasing. Resettlement projects which have moved people from the overcrowded north to this zone are causing land-use conflicts. The project Nord-Est Bénoué has resettled people around the artificial Lake Lagdo, which provides hydroelectric power to the towns of Garoua and Maroua, and has encouraged proliferation of the ecologically destructive crop of cotton.

In the northern sections of the domain, fuelwood collecting for the town of Garoua is a problem. Increasing growth of transhumance herds also causes problems for the national parks, with immigration and transfer of disease (rinderpest, swine fever) from cattle to the wild animals. Elimination of tsetse fly would permit even more rapid proliferation of the national cattle herd and would increase pressures on the wild animal population. Safari hunting is an important economic activity in this domain and should be retained.

1.3.2 The Afro-Montane region

This can be subdivided into two with a mean altitude of 2,800 m separating the subalpine and afro-montane domains. Typical mammals (often endemic) of this region are shrews and mice such as *Silvisorex granti*, *Praomys hartwigi* and the guenon, *Cercopithecus preussi*. There are high levels of endemism in the avifauna and the herpetofauna.

i) *The subalpine domain* is not well-developed in Cameroon, occurring only on Mt Cameroon and Mt Oku. The higher slopes of Mt Cameroon, an active volcano, are covered with volcanic ash and basaltic lava. Only above 3,200 m are compact herbaceous subalpine carpets found. These are little affected by the grassland fires which have strong effects at lower elevations. Below the subalpine grasslands are areas of Ericaceous thicket.

No wildlife reserve or national park protects this domain but it is not particularly threatened and is probably adequately protected. However, it will be partially protected if proposals made by the Mt Kilum project are implemented and by the Bambuko Forest Reserve on Mt Cameroon. The faunal and floral affinities are with other montane regions and with Europe and Southern Africa. There is very little human pressure on these areas and little prospect of its increase.

ii) *The montane domain* is found between approximately 1,800 m and 2,800 m attitude. Biodiversity is generally low but endemism may be high, particularly for birds and amphibians. The montane forest has virtually disappeared from Cameroon, and is one of the most endangered ecosystems of the country. Physically it is easily distinguished from the submontane forest and from those of middle and lower elevations. The trees are low (15–25 m), the crowns are evergreen and the leaves coriaceous. The understore is open and lichens and mosses are common. The forest is florally simple with five tree species predominating.

The montane forest domain is subject to some of the most intensive land-uses in Cameroon and conflicts will remain and probably increase in intensity. There are no national parks or wildlife reserves in the domain but the Mt Kilum and Ijim projects are developing proposals to conserve the principal surviving remnants. Montane forest is also found on Mt Cameroon, Mt Kupé, Mt Menengouba and Mt Nlonako. Intact areas also remain in the Rumpi Hills, Bakossi Mountains and Tchabal Mbabo. It is important that some of these remnants are protected.

1.3.3 The Guineo-Congolian region

This includes the fringing savannas and dense humid forests of various types including submontane forests (800–1,200 m to 1,800–2,000 m). It can be divided into two major domains, submontane and medium and low altitude forest. The second of these domains is particularly diverse.

i) *The submontane forest domain* is found on Mt Cameroon, the Rumpi Hills and the highland massif that extends in a south-south-west to north-north-easterly

direction from Mts Kupé and Nlonako to Nkambé, with outliers towards the north-west and towards Banganté and Ndikinimèki in the south-east. It occurs also in a few elevated areas south of Mamfe, such as Nta Ali, and towards Mundemba and Korup. Northwards, this domain is found again along the frontier from the headwaters of the Noun as far as Tchabal Mbabo, here and there on the Adamawa plateau and from the Poli and Alantika Mountains as far north as the Mandara Mountains. The submontane forest domain is represented in small parts of the Korup National Park, and also in parts of Santchou Wildlife Reserve and Mbi Crater. Outside the national parks and wildlife reserves, submontane forests can be found at Nta Ali and Rumpi Hills Forest Reserves, at Mts Kupé, Menengouba, Nlonako, Cameroon and Tchabal Mbabo. Many of the crater lakes in Cameroon fall in this domain.

The domain is characterised by a degree of floral uniformity and an abundance of *Guttiferae*. It covers about 3,775 km^2 or about 1% of the national territory. There is a high proportion of fertile volcanic and other soils, and agricultural potential is fairly high. Some areas are densely settled with population pressures exceeding 100 persons per km^2; and the potential for land-use conflicts is high. Typical mammals tend to be those of the adjacent medium and low altitude forests; the level of endemism of avifauna and herpetofauna is lower than in the adjacent montane forests.

ii) *The medium and low altitude forest domain* comprises forest, savanna and mangrove. Two sectors can be distinguished, the dense humid semi-deciduous sector and the dense humid evergreen sector.

a) *The dense humid semi-deciduous sector*. Forests here are relatively less diverse with less endemism than the dense humid evergreen sector. They are, however, relatively rich in commercial timber species, particularly Ayous (*Triplochiton scleroxylon*). The sector is under heavy hunting pressure. Because of fires, commercial logging and agriculture, the forests have often become fragmented, and the central and eastern parts of the sector are severely damaged. In the south-east the main threats are logging and poaching.

In this sector there are no national parks, though the Mbam and Djerem (3,530 km^2) national park is proposed. One wildlife reserve, Kimbi River, is located in this sector.

b) *The dense humid evergreen sector*. This sector boasts a very high biological diversity and high levels of endemism. The sector can be divided into an evergreen Atlantic zone along the coast which (coincident with the littoral plain) is the most endangered (and most diverse), and an evergreen Cameroon–Congolese zone (coincident with the southern plateau) which is seriously threatened by plans for intensified logging.

The Atlantic zone probably has the highest level of biodiversity in Africa, with high levels of endemism. Most of the forests have already been degraded or destroyed, however, with most large mammals eliminated.

In the Cameroon–Congolese zone there is also high endemism and biodiversity, although lower than in the Atlantic zone. The zone's forests are at present the least disturbed in the country, mainly because of the low human population pressure.

The entire zone has to be regarded as seriously threatened, however, because of advanced plans for land-use planning and intensified logging, including transformation of forest land to agriculture.

In the dense humid evergreen sectors one national park, Korup, and six wildlife reserves, Campo, Dja, Douala-Edea, Lake Ossa, Nanga Eboko and Sanaga, are located. Outside the protected area system the domain is represented by Takamanda Forest Reserve, Nyong and Sanaga swamp forests and the proposed three protected areas of Boumba Bek, Lake Lobéké and Nki. The current situation of the protected areas of this domain is lamentable.

Mangroves are also located in this sector. In general they have low biodiversity. They are threatened by pollution (oil, sewage, fertiliser, pesticides, construction, cutting and firewood). No national parks cover mangroves. One wildlife reserve, Douala-Edea, protects a section of mangroves on the northern bank of the Sanaga River; however, there is a proposal to degazette this northern portion of the reserve. Outside the protected area system, another significant area of mangroves is found at Rio del Rey, south of Korup.

1.3.4 The marine region

Unlike the situation on land, species distribution in the marine ecosystems tends to be widespread and endemism is low. The marine systems of Cameroon are poorly known but they are of significant economic importance. They include coral formations on the rocky part of the coast.

1.4 Land use

1.4.1 Population and land use

The Cameroon population is composed of about 240 different ethnic groups which are part of the Bantu, Semi-Bantu, Fulbé and Sudanese groups. Generally the Bantu and Semi-Bantu live in the forested southern half of the country and are mostly Christian or animist. The Fulbé and Sudanese ethnic groups, who live predominantly in the northern grasslands of the country, are mostly Muslim or animist. Subsistence and cash farming is the principal land use in all areas.

Farming relies heavily on hand labour. The 1984 census reports that 85% of the farms use only hand labour, 12% use cattle to cultivate the land, 2% use tractors and 1% use donkeys. Non-human power is concentrated in the northern provinces. The total dependence on hand labour decreases as farm size increases but even on the larger farms (larger than 1 hectare of cultivated area) over 60% of the farmers depend on hand power only.

Traditional farming methods rely on the clearing of vegetation using machetes

and fire. Many large trees, especially useful species and hardwood, are often left during clearing operations. Some may be killed by burning trash around the base, combined with ring-barking. During the first season after clearing, even on poor soils, crop yields are high because of the nutrient-rich ash left by burning. Taller, deeper-rooting and/or less nutrient crops are planted in subsequent years to cope with declining soil fertility and increasing weed competition. Some trees may be planted before the plot is left to fallow, usually after 2–3 years.

Traditionally land has been left to fallow for 10 to 25 years before being cleared again, depending on soil type and availability. This cycle has usually been long enough to permit the soil to recover sufficient fertility to produce acceptable farm yields in the next phase of the cycle. Currently, the fallow periods are being significantly decreased, with consequent soil degradation and decrease in productivity.

1.4.2 Land tenure

Until colonial times, the use of land and natural resources was regulated by customary law. In 1896 the German colonial administration declared all 'unoccupied' land to be Crown land. The French and British colonial administrations inherited and maintained this situation. Colonial policies with regard to land ownership have survived virtually intact into the present government statutes. The country's land falls into three primary legal categories: State property, private property, and national lands. National lands are further subdivided into: (i) lands occupied with houses, farms and plantations and grazing lands, manifesting human presence and development, and (ii) lands free of any effective occupation.

Those who develop land (*mise en valeur probante*) in accordance with (i) above may apply for land certificates to register the land as private property. This effectively encourages farmers to develop unoccupied (forested) land in order to gain title to it. In order to establish title to land, it is necessary to pursue a lengthy and bureaucratic procedure for the issue of a land certificate. In practice, few people in rural communities obtain such certificates although the better-educated and more affluent élite often do so. In such areas, land is often still allocated by traditional authorities who also arbitrate in the settlement of land disputes.

There are possibilities for confusion in this system, e.g. 'occupation' in the case of grazing systems for example, and the confounding of traditionally allocated land and officially recognised land. The fact that State lands were allocated over areas where there are traditional land claims, and that all land basically rests with the government, does not permit a rational and sustained land-use policy and leads to frequent land-use conflicts.

Without tenure of either trees or land, farmers take a short-term view. They are unlikely to plant trees or conserve if the rewards of these practices are not to be theirs. This is particularly true in labour-intensive investments such as terracing or gulley plugging. A detailed land and tree tenure plan for Cameroon is urgently

necessary. Only through security of tenure can sustainable practices be encouraged.

1.4.3 Protected area system

Cameroon law recognises the following categories of protected area: strict nature reserve, national park, sanctuary, wildlife reserve, zoological garden, and botanical garden. No strict nature reserves or sanctuaries have ever been created; there are sub-standard zoos in Limbe and in Yaoundé, and there is a botanical garden in Limbe. Forest reserves (production and protection forests) are State property and part of them (the protection forests) should comprise part of the protected area system. However, most are apparently destined for production forests and it is logical not to include them in the protected area system.

The percentage of protection to production forest intended by the government (Gartlan, 1989) is small and probably will not exceed 1% of the area under production forest. The total number of forest reserves is approximately 125 and they vary greatly in size from a few hectares to over 300,000 (Deng-Deng). The total area covered by the reserves is approximately 18,600 km^2.

The protected area system of Cameroon includes seven national parks and nine wildlife reserves, covering 4.3% of the total land area. Six of the seven parks are in the savanna zone with only Korup National Park in the dense forest zone. Two of the savanna parks (Kalamaloué and Mozogo-Gokoro) are small (45 and 14 km^2 respectively). Waza National Park (1,700 km^2) comprises mainly Sahel savanna with *Acacia*, *Balanites*, *Anogeissus*, *Tamarindus*, *Mitragyna*, *Ficus spp.* and *Dum* palms. The ecology of Faro (3,300 km^2), Benoué (1,800 km^2) and Boubanjidah (2,140 km^2) is broadly similar to Sudan savanna with *Isoberlinia*, *Monotes*, *Burkea*, *Daniellia*, *Uapaca*, *Combretum*, *Terminalia*, *Anogeissus*, *Kigelia*, *Khaya*, *Diopsyros*, *Afzelia* and *Lophira*. Korup National Park (1,260 km^2) lies in the dense evergreen Biafran coastal forest which is particularly high in biodiversity. The total area covered by the national park system is 10,319 km^2.

Seven of the nine wildlife reserves are in the dense forest zone. Of the remaining two, Kimbi River (54 km^2) is located in montane grassland with riverine forest along water courses, and Mbi Crater (1.3 km^2) is in montane grassland with marsh formations in the old volcanic crater. On the lips of the crater is remnant montane forest with *Piptadeniastrum*, *Schefflera*, *Ficus* and *Paulyscias*. All are very poorly served in terms of budgets and protection.

Four of the reserves in the dense forest zone, Campo (2,700 km^2), Douala-Edea (1,600 km^2), Lake Ossa (40 km^2) and Sanaga lie in the high biodiversity coastal Atlantic forest zone. These four reserves are in very poor shape. The Sanaga Reserve, established in colonial times to protect the hippopotamus population of the lower reaches of the Sanaga River, has more or less disappeared along with the hippos. A long-term logging concession (25 years) has been granted in the Campo Reserve and much of its important biodiversity destroyed. Douala-Edea is under-protected, and there is a proposal for partial degazetting of part of the northern sector. Illegal human habitation on the shores of Lake Tissongo has been

regularised by the administration, thus compromising its future. Seismic exploration for petroleum caused severe degradation to this reserve. The forests around Lake Ossa have been severely degraded but it still contains populations of the manatee, *Trichechus senegalensis*.

The Nanga-Eboko Wildlife Reserve (160 km^2), on the northern limits of the semi-deciduous forest/savanna transition zone, has been hunted out and serves no current wildlife purpose. The Santchou Wildlife Reserve (70 km^2) lies in forest transitional between lowland and montane. It has been severely affected by incursions for agricultural land and settlement and up to 50% of its area may have been lost. The vast area of the Congolese forest is protected by the Dja Wildlife Reserve (5,260 km^2). This forest is subject to severe pressures but these are being addressed by a project funded by the European Union (ECOFAC) whose aim is conservation of the forest through sustainable development activities of the people in the vicinity of the reserve. The total area covered by the wildlife reserve system is 9,890 km^2.

1.5 Impacts on the environment

1.5.1 Soil erosion

Soil erosion is a serious and increasing problem in the intensively farmed areas of West, North-West and North Provinces. Much of the problem derives from the fact that increased need for farming land has forced people to work steeper and steeper slopes. In the western highlands these new lands are used principally for the farming of roots and tubers on the steep, highly erodible slopes. Appropriate terracing practices need to be introduced to minimise run-off. In the northern provinces the planting of cotton tends to lead to degraded soils as the ground surface is left open to wind after the crop is harvested. The problem of soil erosion needs to be addressed at the national level.

1.5.2 Siltation of waterways

A consequence of soil erosion is siltation of waterways. The soil which is washed off from the agricultural fields is carried down by streams and rivers. Eventually, much of this sediment reaches the sea where it is deposited as mud or clay. The most serious result of this process is the silting of dams which have been constructed to help control river flows (Bamendjim, Mbakaua) and which provide direct power for hydroelectricity (Edéa, Song-Lolou). In all cases the effective life of the dam may be reduced by between one-third and one-half.

1.5.3 Pollution

Because of the low levels of industrialisation, industrial pollution is not yet a serious problem in Cameroon. Industrial wastes are discharged into waterways or the sea, or piled in dumps. The discharge of these wastes is uncontrolled and the legislative system which regulates industry is ineffective in this matter. There is no doubt that industrial pollution will become a problem and that a legislative framework for dealing with it needs to be in place. There is a need for an environmental monitoring agency which will provide the government with information on pollution, its sources and intensity.

1.5.4 Fertiliser and pesticide use

A large percentage of Cameroonian farmers (45%) use fertilisers, pesticides or fungicides on their crops, and in particular the export crops. There is much waste and mismanagement and many farmers do not understand the practical implications of these inputs. It is likely that increased food and cash crop needs will require further chemical inputs, and it is important that this industry is controlled and that farmers are educated in the use of these items.

1.5.4 Deforestation

Deforestation in the sense of clear-cutting of forest does not occur in Cameroon, except where forest is being cleared for plantation agriculture or other development needs. Most logging activity is extremely selective, not because of environmental concerns or legislative constraints, but because of economic considerations. The high costs of transport and labour make it uneconomic to transport all but the highest quality and most valuable wood from the south-east of the country. The amount extracted per hectare can be as low as 2 or 3 cubic metres (compared with 10–20 times as much in South-East Asia).

Ecologically this practice is by no means always desirable. In the tropical forest canopy, the crowns of trees tend to be joined with a network of lianes. It is also impossible to fell a forest giant without damaging adjacent trees; as much as 30 to 50% of the remaining trees can be destroyed or fatally damaged and the soil can become so impacted as to impede regeneration. In other areas closer to Douala, such as the littoral, logging is less selective and forests have already been logged several times since the colonial period. Logging in the coastal forests is likely to do more ecological damage as the forests in this area are old growth and rich in *Caesalpiniaceae*. The semi-evergreen forests of the Congolese sector show many characteristics normally associated with second-growth forest and as a consequence may be more tolerant of logging activities.

While logging, including selective logging, damages the biodiversity of a forest,

the sink and ecological service functions of the remaining vegetation may not be much reduced. For example, industrial plantations still maintain a foliage which processes carbon dioxide in exactly the same way as intact forest. Secondary forest performs similar functions, and will protect against soil erosion just as well as intact forest.

Logging provides access to forest areas by people. Farmers will tend to invade and the forest is transformed into farms and agricultural land. Even if this does not occur, access for hunters is provided. This is biologically important. Forests are dynamic and co-evolved systems. The trees have evolved not just by themselves but along with the organisms which, among other things, disperse their seeds. If these agents are eliminated, then the species structure of the forest in question will begin to change; this is a process of ecological succession.

A forest without its seed-dispersing duikers, elephants and hornbills, may look the same as one with them, but it is a forest which will certainly change its composition and become less diverse. It is important here to remember that many forests in Cameroon's Littoral and South-West Provinces had elephants in pre-colonial times; elephant slaughter started in the German era. Those forests from which the elephants have gone will now be in this process of ecological change.

When forested land has been cleared, as for farms, or along roadsides, a characteristic secondary vegetation occurs. This includes the shrubby, weedy species *Anthocleista*, *Musanga cecropioides*, *Harungana madagascarenis*, *Vernonia* spp., and *Alchornea cordifolia*. If the ground becomes too degraded, or if openings in the forest are too large, the aggressive pantropical weed *Ochrolema* invades. This persistent weed stops the process of ecological succession and slows forest regeneration.

1.5.6 Hunting and trapping

Hunting and trapping are common subsistence and economic activities. Subsistence hunting usually takes place near the farm of the hunter. It is often carried out with dogs and the instrument used is the 'dane gun' or 'fusil de traite' – domestically manufactured shotguns which are dangerous, often inflicting wounds on the hunters themselves. This type of hunting takes place at night, with the aid of acetylene lamps which cause reflections in the eyes of the quarry animals and make them easy targets while they are dazzled, and it is quite illegal, although universal. Commercial hunting is carried out in a similar way, but in this case the guns may be more modern and are sometimes military weapons owned by gendarmes or the military. This again is illegal.

One of the principal results of the economic crisis in the capital city, Yaoundé, is that young men who have lost their jobs are returning to the villages and, having no other work available, are becoming hunters. Activities which exploit natural resources have also increased in number. Applications for licences to trade in parrots, *Psittacus erythracus*, doubled in number in 1993–4. It is certain that the legal CITES quota of 16,000 birds is far exceeded by illegal and irregular exports. Trading in other bird species and in reptiles, amphibians, primates, tropical fish and

frogs as well as in the dried skins of snakes and lizards is a potentially very lucrative activity. These trends have been exacerbated by economic decline and by the structural adjustment measures which have weakened controls. Exploitation of items such as the bark of *Prunus africanus* which is used in the West for the treatment of prostatitis has decimated the montane forests of the north-west. Once a cash value is put on biodiversity, it is very difficult to control its exploitation.

1.5.7 Uncontrolled urbanisation

Projections indicate an urban population of 13.8 million by 2,010 compared with 5.2 million at present. There is little doubt that the rapid, unplanned and uncontrolled urbanisation process could lead to significant decreases in quality-of-life indicators. Infant mortality could increase, as could the incidence of poverty diseases such as cholera, malaria, diarrhoea and AIDS. Numbers of inhabitants per room could rise, and together with crime, especially violent crime. The percentage of dwellings with access to electricity and piped water, and of children attending primary and especially secondary education, could decrease. Malnutrition could increase and life expectancy decrease (especially if the AIDS pandemic expands significantly in Cameroon).

Towns which would be affected by this rapid unplanned urbanisation include Douala, Yaoundé, Garoua, Maroua, Bamenda and Bafoussam.

1.6 Institutional context

1.6.1 Institutional aspects

The institutional framework in Cameroon is the product of a political structure which is centralist, hierarchical and geared to the collection and distribution of rents. The government structure perceives the natural resource base as a source of immediate and diverse revenue opportunities rather than as an entity to be managed over the long term on the basis of the interdependence of the various elements. The resulting policies are revenue- and control-based, disintegrated and do not provide the basis for rational management. The institutions characteristically include many competing offices and agencies.

However, in April 1992, a Presidential Decree (No. 92/069) revised the administrative structure of the government and approved the creation of a Ministry of the Environment and Forests (MINEF). Its mandate is to develop a comprehensive national strategic plan aiming to protect the environment and to conserve the natural resources of the country. This plan is intended to reflect the multi-disciplinary and multi-sectoral nature of environmental concerns and to respond to the specific physical conditions of each province. Rather than focusing on the exploitation of the environment and natural resources, emphasis is to be put

on the protection and conservation of the ecosystem to ensure long-term economic and social benefits. In theory, therefore, there is a shift away from the short-term income-generating view.

At the top level of the hierarchy presides the Minister who is assisted by one Inspector-General and two technical advisers. The parastatal ONADEF (Office Nationale de Développement des Forêts) reports directly to the Minister. At the second level is the Secretary-General's office which oversees five services.

The Forestry Department (Direction des Forêts) is one of four Directorates in the portfolio of MINEF. The department is under-financed, under-staffed and ill-equipped, and is generally unable to enforce forestry law. Forest guards on field patrols usually have to rely on logging companies for transport to visit concessions. Morale is very low in the department, a situation exacerbated by the fact that forest guards are generally unpopular with the public. The department has no effective education programme for the public or indeed for its staff. Bribery and corruption are rife.

The National Centre for Forest Development (CENADEFOR) was set up in 1981 with Canadian technical and financial assistance to carry out forest reconnaissance and inventories, draw up forest management plans and promote timber utilisation. In 1982 the National Reforestation Office (ONAREF) was set up to carry out forest regeneration and management, reforestation, protection and erosion-control projects. In 1990, as part of the structural adjustment programme the two offices were merged to form ONADEF. Collaboration between them has frequently been hampered by unsatisfactory apportionment of funding, personnel and other resources, inappropriate or ill-defined division of responsibilities and inadequate co-ordination.

Because of under investment in the forestry sector on the part of the national government, forestry has been a major focus for investment by aid agencies, usually with disappointing results. The functions of the Forestry Department are to: (i) manage and protect the State and communal forests; (ii) develop and control implementation, regeneration, reforestation, inventory, forestry planning programmes and forest exploitation; (iii) collaborate with professional forest associations, and (iv) co-ordinate the Tropical Forest Action Plan.

The management functions of the Forestry Department operate at the provincial and divisional levels. Supervision of forest reserves and the control of logging operations are carried out through its offices and controlled by the Provincial Conservator of Forests; forest reserves have no designated staff. Control of logging operations operates from the divisional offices. The current situation is virtually inoperative, however, since most government administrative vehicles were sold in 1986, and the field services of most ministries (and particularly the forest and wildlife services) have been very hard-hit. South Province, for example, which has extensive logging, has not a single vehicle for control use. Payment of salaries to field staff is often late and the combination of these factors has resulted in the virtual absence of control in a rapidly growing industry. There is no need for this to happen. In November 1993, taxes owed by logging companies to the government in this province alone amounted to almost CFAF 750 million. If collected, they

could provide vehicles, salaries and incentives for field staff and would result in the generation of even more income.

The functions of the Department of Wildlife and Protected Areas are: (i) to manage and protect the national parks and wildlife reserves, (ii) to manage and control hunting throughout the republic, (iii) to regulate and control the wildlife trade, and (iv) to survey, define and develop new national parks and protected areas. The Department of Wildlife and Protected Areas also has provincial and divisional staff, but the protected areas themselves have a specific staff, who are conservators supported by a staff of game guards. In general the budgets for the national parks are higher than those for the wildlife reserves, and (particularly in the case of Korup National Park) they have more guards. Nevertheless, in exactly the same way as with the Forestry Department, the failure to provide administrative vehicles or running costs and the poor salaries have resulted in decreasing efficiency and plummeting morale. Protection of the national parks is minimal and is virtually non-existent in the case of the wildlife reserves.

These conditions have contributed significantly to the degraded and deteriorating situation of the protected area system. Certain wildlife reserves no longer exist, others are rapidly being degraded; none of them, with the possible exceptions of Korup and Dja, are integrated into the local community structure. The outlook is bleak, unless a commitment is made to the long-term survival of these areas. Following devaluation of the CFA franc, the development of tourism as an industry is a distinct possibility in the protected area system, but serious investment will have to be made prior to this. However, progress in this direction has been extremely slow.

1.6.2 Environmental legislation

In Cameroon, concern and information about the environment and environmental matters were virtually non-existent a decade ago. It could confidently be said that the government lacked an environmental policy; there was little evidence of such concerns in the published 5-year development plans prior to 1986. However, in the 6th plan (1986–91) the need for the development of a national policy on the environment and rational management of the national territory through appropriate legislation was foreseen. These concerns have increased dramatically over the past five years. Part of the reason for this is a change in the world's attitude towards the environment, which began with the UN Conference on the Human Environment held in Stockholm in June 1972, at which Cameroon participated. Five years later, a National Committee of Man and the Biosphere (MAB) was established. (Ironically, it was one of the first victims of the structural adjustment process.) In 1984 a Directorate of Territorial Management and the Environment (DATE) was established within the Ministry of Planning. This situation prevailed until April 1992, when the Ministry of the Environment and Forests was created.

Following international interest in tropical forests and biodiversity and with the support of the World Bank, Cameroon developed a Tropical Forest Action Plan (TFAP) in 1988. This was the product of a process conducted by the UN Food and

Agricultural Organisation in conjunction with the Government of Cameroon. The Plan called for high-level political support for the conservation, protection and sustainable management of forests and the related natural resource base. However, the Cameroon TFAP was prepared primarily by forest technicians focusing on forest exploitation.

The TFAP met with mixed reviews both locally and internationally and it has had almost no impact on the forest industry or on the forest situation in Cameroon. There has been virtually no progress towards sustainability. Nevertheless, for the first time in Cameroon, it presented detailed recommendations for rational management over the long term. It also established issues of popular participation in forest management and conservation of the natural resource base (soils, watersheds, wildlife) and protection of critical zones of biodiversity. However, this has not been an effective programme in Cameroon, in part because the technical analysis of the situation, which exposed some of the more serious problems and diagnosed the causes, was not properly reflected in the technical projects which were proposed as part of the project.

Cameroon is also a member of the International Timber Trade Organisation (ITTO) and is a signatory to its convention which commits its member states to achieve sustainability in the logging industry by the year 2000. Such a commitment has far-reaching implications and will require a significant reform of current practices and the development of a permanent forest sector.

The 1972 Stockholm conference was followed twenty years later by the Earth Summit (UNCED) in Rio de Janeiro, Brazil. The Government of Cameroon had just established its own Ministry of Environment and Forests and the new Minister participated in this conference. The preparation for UNCED was instrumental in Cameroon in developing national capacity for environmental planning. A national commission (NATCOM) was set up to prepare the national report on the environment for the Earth Summit. A draft report under the sponsorship of UNDP and the Government of Canada was prepared and discussed at a national seminar held in December 1991, following which the Cameroon National Report for Rio was finalised. This provided an up-to-date review of the environmental situation in Cameroon based on the available data. Thereafter, a mission was organised which, in consultation with an interministerial working group and a national consultant, outlined some elements of a national environmental policy and preliminary draft terms of reference for a full-fledged multi-disciplinary mission. Following this effort, the Minister of the Environment took with him to Rio a preliminary report containing the elements of an environmental policy.

After UNCED, the impetus for environmental change became stronger and there was an increasing awareness of the importance of involving non-governmental organisations in these areas. A UNDP multi-disciplinary mission in which the various UN agencies and interested bilateral donors participated in drawing up a potential environmental plan and policy for Cameroon took place between 7 September and 9 October 1992. This initiative led to an on-going process for the development of a National Environmental Action Plan (NEAP), involving meetings between government and interested parties including NGOs. These were held on

a regional basis to ensure that the different environmental problems affecting the different ecological zones and ecosystems were properly represented. A roundtable held on 14 October 1993 included a statement from the Minister of Planning that environmental concerns would be specifically included in future government planning projects.

Rationalisation and reform of the forestry sector was proposed as part of the World Bank's structural adjustment programme (a hybrid project with the Global Environmental Fund). The reforms proposed were far-reaching and fundamental, including the provision of new forestry and wildlife legislation, fiscal reform and reform in the system and character of allocating logging concessions.

The proposed legislation was submitted to the National Assembly in December 1993 and was debated, amended, passed and signed by the President as law No. 94/01 of 20 January 1994. The decrees for implementing this law, which will define its modalities of operation, are still being drawn up. Amendments to the draft law made by the National Assembly have seriously weakened it.

There are three crucial issues. One is the attribution of concessions (transparency and accountability). Proposals for the public auction of concessions on the basis of the standing crop were defeated. These would have permitted companies to bid for concessions knowing what was in the concession and what was expected of them as loggers; their performance would have been measured against predetermined criteria.

The second issue concerns the size and duration of concessions. The draft legislation proposed areas of at least 500,000 hectares which were to be granted for a minimum of 25 years, the intention being that these large concessions would become permanent and that the period of the concession would allow realistic amortisation of investment costs. Such terms would have induced concessionaires to use their concessions sustainably. However, the National Assembly reduced the limits to 200,000 ha (the present limit) and 12 years respectively. These will not permit a sustainable, tax-efficient operation.

The National Assembly also introduced into the legislation an Office National de Bois to be a parastatal marketing board for wood; this goes against all the economic goals which the World Bank has been seeking to achieve. The introduction of a new Forest Law was a condition of the SAP and it is possible that the World Bank may insist on fresh legislation. The French Government was also offering debt relief to Cameroon in return for serious management plans in the forest sector: this proposal is also now on hold.

As part of the process of political liberalisation, there has been a marked increase in the 1990s of indigenous NGOs with environmental concerns as a strong component of their programmes, even if their principal focus is on development. They provide strong allies in the development of a sound environmental policy which will be effective at the grassroots level.

Another important influence in the development of Cameroon's environmental awareness has been the rapid growth of the human population (which has doubled in the past two decades). The growing population requires increased land for the cultivation of food and cash crops. This has resulted in increased pressures on

already cultivated land where fallow periods are often further reduced to below sustainable levels. Marginal lands, such as those on steep slopes, are forced into cultivation with increased risk of soil erosion and increased water shortages (from the deforestation of water catchments). The direct effects on human populations of environmental degradation are a potent source of environmental awareness and even activism. Those who suffer often become vociferous advocates of conservation measures. Severe droughts in 1973–4 and 1982–3 strengthened this grassroots environmental awareness.

Worldwide concern about the environment, and its consequences such as media coverage, have had an important effect in Cameroon. There is a growing awareness of the connection between poverty and environmental degradation and an increasing tendency for people to become concerned about their own environmental milieu. While it would not be correct to claim that environmental concerns are now a major priority of the government, it could be said that particular development strategies and plans often take the environmental consequences into consideration. The environment is becoming a more commonplace item in debate.

2. Adjustment and the Economy

2.1 Economic development – an overview

For most of the time, Cameroon's economic growth between 1960 and 1985 was based on development of the agricultural sector. Beginning in 1978 the exploitation of petroleum and natural gas required the government to maintain a stable economic environment whilst ensuring that the growth of the petroleum sector did not lead to a rapid increase in domestic consumption.

Up to 1985/6 (despite the drought in 1982/3 of which the effects on the agricultural sector were felt for two years) economic growth was steady, buoyed by the development of the petroleum industry. However, in 1985/6 there was a drop in petroleum revenue due to the simultaneous reduction in prices and exploitable sites. At the same time, a decline in the terms of trade for crop exports also slowed down the economy's growth. The situation was aggravated by the fact that most of the income from exports was expressed in US dollars, of which the price against the CFA franc dropped by about 40% after June 1985.

Accompanying the slowing down of the economy, serious deficits arose in public finance and the balance of payments. The budgetary deficit was funded by a drawing down of State deposits in the banking sector, facilitated by BEAC financing, a build-up of internal arrears and an increase in foreign indebtedness. The balance-of-payments deficit was funded by recourse to external borrowing, the repatriation of external bank assets and the build-up of a debit balance with the French Treasury. GDP fell in 1986/7, due to a fall in the export earnings of agricultural products and oil. The deflationary effects of the worsening terms of trade were offset by an increase in the budget deficit which rose to CFAF 413.2 billion in 1986/7 (or 8.7% of estimated GDP) compared with CFAF 103.9 bn in 1985/6 (or 2.3% of GDP). The Cameroon Government has been trying to trim the budget deficit since 1987/8.

The first measures to tackle the budget deficit were announced in the Finance Law of 1987/8, promulgated in June 1987, which aimed to reduce government costs and cut public expenditure. Unfortunately, the persistent weakness in the markets for raw materials, and its effects on public revenue, frustrated attempts to halt the deterioration of the economic and financial situation, which was manifested in a build-up of outstanding government debt and a lack of liquidity in the payment system. The government therefore decided to undertake a series of reform programmes: in September 1988, November 1991 and March 1994 with the IMF, and in 1989 and 1994 with the World Bank.

In view of the increase in the nominal value of the CFA franc, the measures taken were too late and too weak. The currency increased in value by about 30% in real terms from 1984/5 (July–June) to 1991/2. The problems caused by this

appreciation were aggravated by a sharp drop in the terms of trade. As the tradeable goods sector suffered a cost-price squeeze public revenue fell, domestic arrears built up quickly, and the banking system found itself with worsening solvency problems. Over this 7-year period, real GDP fell by 30%, and real income per capita was halved. The current external deficit averaged 6% of GDP. Foreign debt tripled to more than 60% of GDP, and the debt–service ratio rose strongly to over 42%. On many occasions Cameroon found itself in arrears on its foreign payments.

Whilst there can be no doubt about recent economic trends, extreme caution is needed in interpreting the precise level of many macroeconomic variables. The machinery for the collection of statistical data has diminished over the last seven years and is only just building up again. No data on national income have been published since 1985/6, no data on the balance of payments since 1987/8 and no price index since 1990/91. There have been breaks in the monetary series due to the reorganisation of the banks and because data provided by the banks have not been audited. Data on disbursement and redemption of the foreign debt are reliable in general, which is not the case for the data on interest due or interest paid. Apart from the central administration, no financial statements exist on the dealings of the non-financial public sector.

A devaluation of the CFA franc took place in January 1994. Otherwise, the principal fiscal and structural measures agreed with the IMF have not been implemented on schedule. Delays in the execution of the programme resulted in a shortfall in non-oil-based government revenues, preventing compliance with other programme indicators. A revised programme was worked out in June 1994 with the IMF, but at the time of writing no official agreement had been reached.

2.2 Design of the structural adjustment programme

Through the medium of SAPs formulated by the Bretton Woods institutions, and notably by the IMF, a general framework has been established for the Cameroon economy, covering problem areas and policies to be implemented. These policies, the 'macroeconomic model' of which is both the outcome and its expression in figures, form the core of the different agreements on adjustment action to be taken by the government, and cover two main areas: stabilisation of the public finances and stimulation of the economy.

There are three approaches to implementing these policies: action on supply; action on demand; and actions on both simultaneously. Taking into account the relatively slow response of production mechanisms, and the fact that the government initially opted for a rapid adjustment, priority has been given to action on demand, although the programmes chosen will eventually incorporate important measures regulating domestic supply. The economic model chosen, therefore, is essentially a demand model. In addition, the crisis has been exacerbated by external factors quite beyond the control of government policies which can at most only limit the damage caused.

In view of the above, the measures taken to stabilise the economy were based on the following: recognition of the external constraints; and finding the appropriate level of domestic demand, bearing in mind the aim of reducing the budget deficit, the current level of demand not satisfied by domestic supply, and the threshold of investment likely not to undermine economic recovery. Moreover, the economy has been divided into three sectors, each with its own separate balance within the general balance of the external current account. They are: the private sector excluding petroleum, the petroleum sector, and the government sector. It is worth pointing out that the best thing would have been to isolate State enterprises as a whole from the private sector, in view of the important rehabilitation schemes affecting a number of them. The information available at the outset did not, however, allow for such separation which will only be possible as research currently being carried out is made public.

The method used began by determining the balance of the current account after identifying the expected level of exports. These exports include traditional exports estimated on the basis of discussions with the technical services concerned, as well as new exports identified by diverse information provided about the different policies and measures for stimulating supply. Given the level of exports, the current account was defined by the country's ability to service its foreign debt on the one hand, and the availability of medium-term finance on the other. These two factors determine the net variation in the country's debt which, with new direct investment and reinvested profits, constitute the financing of the balance on the current account.

From the balance on the current account, and the level of exports, import capacity can be deduced, from which must be deducted priority payments (such as transfers, interest payments and other capital items). The resulting import capacity measures the actual level of imports of goods and services.

At this point domestic demand not satisfied by domestic supply has to be considered. It has been noted that the propensity to import (measured by the relationship of disposable import capacity to net domestic demand) varied from 26% to 23% in previous years – a trend which reflects the increased substitution of local for imported goods. This tendency has been maintained by implementing a policy of progressively limiting imports to a non-reducible nucleus consisting mainly of capital goods. For the period of the first SAP, the propensity to import decreased slightly from 23% to 21.5%.

A given level of imports and a given propensity to import correspond to a level of non-oil monetary demand to which must be added: investment from the oil industry assessed exogenously (from interviews with operators in the industry); and non-monetary consumption, i.e. own consumption, assessed from the national accounts and a presumed growth of about 3% throughout the period. In the final demand figure obtained in this way, final consumption depends on exogenous investment and government expenditure. But only government expenditure has been considered as a policy variable. So revenue (and therefore taxation) is adjusted to achieve the current account objective.

When final demand and external balance have been determined, GDP can be

calculated.

The fundamental structure of all macroeconomic programmes is based on financial analysis, the aim of which is to ensure that the effects of the proposed policy are compatible with the results or the desired objectives in terms of the balance of payments, public finance, etc. But creating an analytical framework appropriate for setting up a programme raises numerous difficulties pertaining to the uncertain theoretical and empirical relationship between instruments and objectives of economic policy, and to the fact that this relationship can vary according to current institutional characteristics.

The analysis can be further complicated by the problems posed by an evaluation of the period during which the measures adopted will take effect, the impact of anticipating the behaviour of economic agents and the interdependent relationship between the measures constituting the complex economic policy programmes. In addition, the application of economic programmes in a developing country characterised by rudimentary or informal financial markets, a productive structure which is not very diversified, a large public sector, and a heavy use of regulatory mechanisms unrelated to market forces, calls into question the appropriateness of models conceived for different economic systems.

For all the above reasons, and because of the weakness of data on production, the use of this theoretical analytical framework is complemented by an approach which evaluates the consequences of policies or takes into account institutional and other characteristics. The methodology applied to the setting up of programmes is, therefore, more eclectic than doctrinaire, the aim being to ensure that the effects of the proposed policy are compatible with the desired results because of the perception of the basic relationship between the different sectors of the economy.

2.3 Impact of the structural adjustment programmes

2.3.1 Background

During the period from 1980/81 to 1985/6 Cameroon's economy grew at a steady average rate of 7.5% in real terms, mainly due to the growth of the oil sector. The growth in budgetary and extra-budgetary resources generated by the oil sector allowed an increase in investment and the maintenance of the external debt at a reasonable level.

But at the same time, the increase in public expenditure brought about by the oil revenues was translated into a new and increasing economic dependence on oil. The growth of goods and services from other sources remained low (3% per annum on average), due to a marked stagnation in traditional agricultural exports. At the same time, the poor performance of enterprises in the public or semi-public sector, due to the subsidies necessary for their survival, had an inflationary effect on the economy and undermined economic growth. Government support came to nearly

CFAF 150 billion during 1984/5.

The surplus revenue from the petroleum sector not absorbed by State enterprises was largely directed towards much needed investment in education, public health and communications.

The financial year 1985/6 saw the start of a wide-ranging and rapid reversal in the economy, caused by the simultaneous drop in revenue from both oil and agricultural exports. The fall in exports for the year has been estimated at CFAF 329 bn or 8% of GDP. The government, already committed to a large investment programme, supported consumer demand by extra-budgetary transfers. Growth in consumer demand was estimated at 15% in nominal terms and 10.3% in real terms. However, at the same time, the budget deficit amounted to CFAF 232 bn, equivalent to 5.7% of GDP.

The economy deteriorated in 1986/7, in spite of an increase in the volume of exports of the main agricultural products: cocoa up 2%, coffee up 50%, cotton up 6% and rubber up 11%. Petroleum exports fell by 3.1% compared with the previous year. The deterioration was accompanied by record deficits in public finance and on the external account.

The 1986/7 budget was marked by the almost complete disappearance of funds from the special budget and a fall of nearly 16% in income, at a time when expenditure, particularly on investment, continued to grow. The resulting basic deficit rose to CFAF 464 bn (11.2% of GDP) and was financed by the accumulation of internal payment arrears and financial facilities offered by the Central Bank and other public bodies. The Commission for Control of Public Commercial Debt under the Ministry of Finance revealed that the full extent of the arrears owed by the State to its suppliers was in the order of CFAF 210.3 bn by 31 December 1987. Postal and hospitality debts amounting to some CFAF 40 bn were also unpaid.

The impact of the external shock on the balance of payments was reflected in 1986/7 in a record deficit of CFAF 373 bn, corresponding to 9.5% of GDP. The drop in exports was 29.4% compared with the previous financial period, and 50.5% compared with 1984/5. The current account deficit was financed partly by short- and longer-term borrowings, but mainly by accumulating a debt of CFAF 75 bn with the French Treasury.

The banking system suffered the full effects of the difficulties experienced by the Treasury. The fall in public payments to suppliers led both State and private enterprises to make large withdrawals, some CFAF 80.3 bn, from their deposit accounts, particularly the short-term ones. Faced with the increasing difficulties businesses were experiencing, the banks responded by allowing credit to expand by 10.7% in 1986/7 and by almost doubling their overseas liabilities. The combined result of these different factors was a serious liquidity crisis which magnified the recession and hampered recovery.

2.3.2 *The first Stand-By agreement*

Drawn up in September 1988, the Stand-By agreement was the first response to the situation described above. The first review under the Stand-By arrangement was completed, with the approval of waivers by the IMF Executive Board, in May 1989. The second review was completed on 1 December 1989. At that time, at the request of the authorities, the programme period was extended by three months to end June 1990, to correspond with the end of the fiscal year 1989/90; at the same time, the purchases were rephased and the amount of the Stand-By arrangement was reduced to SDR 61.8 million. No purchase was scheduled upon completion of the second review. Owing to continued slippages in the area of the budget, the performance criteria for end December 1989 could not be met, and understandings could not be reached on the policies needed to bring the programme back on track.

The programme encountered three main difficulties. First, from the outset the implementation of the strategy was hindered by a worsening shortfall in non-oil tax revenue, which meant that the economic and financial targets of the programme could not be met. The fiscal targets for 1988/9 and 1989/90 were based on discretionary tax measures and on an expected general improvement in tax administration. Although several discretionary tax measures were implemented as scheduled, they were insufficient to ensure the attainment of the original revenue estimates, and revenue fell sharply, in large part because of the shrinking tax base. At the same time, there was intensified smuggling and increasing tax evasion, and the shortfall was further aggravated by difficulties in tax collection and an increase in *ad hoc* import tax exemptions.

The non-oil revenue objective and the credit-to-government performance criterion were missed by a wide margin. A performance criterion for non-oil revenue was introduced at the time of the second review, but was not observed for the first test date at the end of 1989. Although the performance criterion on credit to government was observed for September and December 1988, the continuing shortfall in revenue thereafter made for a much higher than anticipated use of credit from the banking system.

A second difficulty was the delay in reforming the non-financial public enterprises. Continuing operating deficits caused a further accumulation of arrears, which aggravated the liquidity crunch in the economy, and gains in efficiency and competitiveness, critical to economic recovery, were postponed. Even though decisions have been taken at the technical level regarding performance contracts, only 3 such contracts, out of 61, have actually been implemented, although 18 have been signed.

A third difficulty has been the continuing deterioration in the world market prices of coffee and cocoa, and the depressed cotton prices, which have put great pressure on the banking system. Because international prices fell below production costs, the resulting losses led to an accumulation of crop credit arrears to the banks, which exacerbated the liquidity problems of the system.

In view of these developments, while some progress was made in reducing the fiscal and external imbalances, the out-turn fell short of the programme targets.

Thus, the budget deficit on a commitment basis was cut from the equivalent of about 13% of GDP in 1986/7 to 4% in 1988/9; nonetheless, the programme had targeted a deficit of less than 2% of GDP. Similarly, while the external current account deficit was halved as programmed, the higher than programmed demand for money caused the overall deficit to be worse than targeted.

Under the programme, the authorities nonetheless made some important progress. In perhaps the most decisive move, producer prices for the major cash crops, robusta and arabica coffee, cocoa, cotton and rice, were reduced by an average 40%. The burden of adjustment was spread by reducing the operating costs of marketing boards (including laying off employees), decreasing the marketing margins for middlemen, asking the banks to reschedule crop credits, and suspending export taxes. Regarding the banking system, audits were undertaken of all the commercial banks, and four of them were closed in a move to regularise banking operations.

Furthermore, in early 1989, a greatly simplified and liberalised interest-rate structure was introduced, which reduced the number of lending rates from over 20 to 4 and freed all time deposit rates above CFAF 3 million. In addition, quantitative restrictions on many imported goods have been eliminated; price setting for goods on domestic markets has been liberalised; importers no longer need to obtain import licences; and the new Investment Code significantly reduces the number of trade exemptions and simplifies the application of the trading system. In the fiscal area, the authorities established a much tighter control than before, and successfully eliminated extra-budgetary expenditures.

They also made important headway in strengthening their statistical base. A framework of tables monitoring Treasury operations was set up, which greatly facilitated the analysis of fiscal developments. Regarding external debt, the authorities established a sound data base in connection with the preparations for the Paris Club rescheduling request, although they need to ensure that it is kept up to date. The reporting of monetary data improved during the period, and the 10-week lag has in recent months moved closer to the normal 6 weeks. At the same time, however, the budget cuts have severely affected the operations of the National Statistical Office, and information for the consumer price index is no longer collected on a regular basis. Similarly, the long-planned introduction of a national price index has been shelved owing to a lack of funds. Regarding public enterprises, there has been a delay in introducing tables monitoring the operations of rehabilitated enterprises, and the information remains sketchy.

Putting this programme into effect was complicated by differences of opinion between those responsible for the financial administration and those responsible for the plan, particularly where the public investment programme was concerned. A difference of opinion also existed between the IMF and the World Bank with whom negotiations were being held on the contents of the declared strategy.

The 21-month programme ended with disturbing economic results: slippages in the implementation of the budget for 1990/91, an increase in the level of debt, a continuing structural rigidity in the economy, and insufficient evidence of the restoration of competitiveness. The subsequent 9-month programme needed to be

put into practice particularly energetically.

2.3.3 The second Stand-By agreement

In addition to intensifying the structural reforms already established, the programme for 1991/2 emphasised a series of fiscal measures aimed at broadening the tax base and reducing exceptions and exemptions. These measures were expected to bring in a sum equivalent to 3% of GDP and initiate a process whereby the ratio of non-petroleum taxation revenue to non-petroleum GDP would be brought to approximately 17% over a 3-year period. With respect to government expenditure, the budget provided for savings of the order of CFAF 37 bn (1.5% of GDP), mainly from ancillary costs of staff (perks and other indemnities).

Measures aimed at increasing taxation receipts brought in less than expected. The political strains occurring between September 1991 and March 1992 (the 'dead towns' campaign which preceded the parliamentary elections held in March 1992) sparked off a widespread refusal to pay taxes, leading to a serious shortfall in tax revenue, which only increased by 1.5% of GDP. The existing distortions probably also reduced the taxation yield at the same time as the new measures to mobilise tax revenue were being put in place. Though revenue from taxation on oil was much better than expected, the liquidity situation at the Treasury remained precarious because advance sales of oil – a crucial source of the finance needed for the adjustment programme – ran into opposition, and the unblocking of the multilateral loans in support of the reform programme did not take place because the conditions attached to them were not fulfilled.

The Treasury tried to mitigate the lack of liquidity by cutting back considerably on non-salary expenses. So by the end of the exercise the overall budget deficit for 1991/2 was in line with forecasts. Nevertheless, this reduction in expenditure did not make up for the fact that external financing was lower than foreseen. As a result, the deficit caused another sharp increase in delayed debt-service payments, notably those to the Paris Club creditors and the African Development Bank.

Management of the money supply and the balance of payments was complicated by a lessening of confidence and the resulting fall in the net balances of the private sector. Though the banks' net domestic assets shrank only slightly, this was not enough to arrest a fall in Cameroon's net external assets with the BEAC. This deterioration is itself explained by two factors: the reduction in foreign currency reserves, because of the continuing drop in export earnings from petroleum (in spite of a slight upturn in 1990/91 due to the Middle East crisis) and the mounting interest payments due on the foreign debt; and lower than expected overseas financing.

In 1991/2 the progress in structural reforms slowed down. The dearth of investment and the lack of progress in reducing costs and increasing efficiency meant that little was done to restructure the public enterprises. The authorities continued to rationalise agriculture, but producer prices were not adjusted sufficiently to stop continuing falls in production. By the end of 1991/2 restructuring of the banking system undertaken in 1989/90 had been largely

completed but the banks remained vulnerable.

Due to slippages in implementing the new economic policies, and the lack of competitiveness, none of the trimestrial reviews called for within the framework of the agreement were completed, and Cameroon was only able to make one drawdown under the terms of the agreement.

In the two months following the parliamentary elections the political situation stabilised and tax collection improved. This favourable state of affairs was caused by a slight reduction in the salaried population brought about by lowering the retirement age, and above all by a series of fiscal measures which brought back CFAF 30 bn to the Treasury. The authorities adopted a budget for 1992/3 which aimed at speeding up the adjustment process. It envisaged an overall deficit of 4.5% of GNP.

In August 1992 it was announced that the Presidential elections due in Spring 1993 would be brought forward to October 1992. Due to the rise in political tension, the monthly payments of non-petroleum-related taxes from July to December 1992 fell 10% below the levels for May–June 1992, and the level of indebtedness increased. At the same time, the banking system, the Crédit Foncier, insurance companies and the National Insurance Scheme found themselves again in difficulties.

Various factors choked the payments system: the rapid increase in capital flight; the statutory limits on access to the Central Bank's rediscount facility; the increase in non-performing loans; and the increasing difficulty experienced by the government in settling its accounts with its suppliers and with the commercial banks. Banks became increasingly unable to settle cheques drawn by the Treasury. Signs of insolvency emerged in several institutions.

In January 1993, faced with this situation, the new government decided to tackle what it considered to be the main reason for the loss of competitiveness and the budgetary deficit. Civil servants' salaries and allowances were cut by 4–30% depending on salary level (a 20% cut on average), and 4,000 unfilled positions (*postes fantômes*) were eliminated. According to estimates made at the time, net annual savings of CFAF 60 bn were expected, some 2% of GDP. In February the civil service cuts were extended to the decentralised agencies. They were expected to spread to those government enterprises operating in the protected sector and which had not so far been forced to reduce the costs of their workforce.

However, it quickly became apparent that the reduction of salaries in the public sector would barely suffice to rescue the budget for 1993/4. The hoped-for savings would merely balance out the loss of revenue income from petroleum products. Even assuming no increase in non-payroll expenses, this deficit was going to be at the level of 1991/2, and would improve only gradually. In addition, the increase in interest payments foreseen in the financial projections would bring the overall budget deficit to around 9% of GDP in 1993/4, with no hope of improvement before 1995/6. Considerable new financial assistance would therefore be needed for the foreseeable future.

2.3.4 *The third Stand-By agreement (March 1994)*

Following the devaluation in January 1994, in many respects the economic and financial position was better than expected. The consumer price index rose by 29% between the beginning of January and the end of March 1994, a rate slightly below that forecast in the programme, and stabilised from the beginning of April, showing a return to the low inflation of the pre-devaluation period.

Looking at the overall picture of economic activity, exports of raw materials and primary products increased considerably, as did industrial exports and the production of import-substituting goods for the domestic market. On the other hand, as foreseen, production fell in real terms in those enterprises aimed principally at the domestic market, particularly in those areas which, up to the beginning of 1994, had benefitted from the protection of import restrictions. All in all, evidence of economic revival in the production of tradeable goods shows an improvement in productivity in the economy. The contraction of domestic demand will, however, continue to have a negative effect on overall production in the months to come.

On the financial side, the net external assets of the banking system have been recovering rapidly since the beginning of 1994, because of the increase in exports, the reduction in imports, and to a certain extent the repatriation of capital. This has all helped to improve liquidity and to restore normality to the banks' clearing system. The government is happy with this improvement which signals a restoration of confidence in the currency. The net internal assets of the banks have stabilised and net public sector credit has been reduced, both staying below their ceilings at the end of March 1994. However, the Treasury's renewal of some public enterprise credit facilities to the sum of CFAF 20 bn within the framework of the restructuring operations, has led government debt to overshoot the ceiling fixed at the end of March 1994.

The government's financial record does not fully reflect the overall performance of the economy. Non-petroleum-generated income reached CFAF 65 bn during the first three months of 1994, a shortfall of CFAF 37 bn on the target established as a marker. This shortfall can be explained largely by the delay in implementing the tax and import duty reform programme. The preferential tax regimes (*taxe unique*, *tax intérieure*) were retained. The turnover tax (TCA), introduced in February 1994, has been applied to only 40% of the tax base. Added to this, the use of Free on Board (FOB) prices for the calculation of export taxes on timber, planned for January 1994, has still not been put into effect. Finally, the exceptional levy on exchange-rate gains on exports of primary agricultural products (cocoa and coffee) has not yet been collected.

Difficulties with economic co-ordination have hindered the necessary measures for the improvement of taxation administration and the collection of customs duties. 40% of imports continue to escape import controls thanks to *ad hocu8* exemptions, in contravention of the government's economic objectives. Strengthening computer-assisted control of the tax base and eliminating import privileges have also been delayed.

Savings made from cuts in salary payments and other related expenditure did not

compensate for the shortfall in non-petroleum income. Thus, overspending on essential elements of the budget over and above externally financed investment expenditure amounted to CFAF 5 bn for the first three months of 1994, though it was nearly CFAF 8 bn under the level fixed as the criterion of the success of the programme. Even though the rescheduling by the Paris Club of the government's overseas debt allowed it to stay within the criteria for the net reduction of arrears by the end of March 1994, the government was unable to pay all the non-rescheduled arrears. New arrears built up during the first three months of 1994, particularly those due to international financial institutions such as the African Development Bank and the European Investment Bank.

None of the indicators available on the evolution of government income and resources for the second quarter of 1994 signalled any great improvement on the figures at the end of March. In these circumstances, lack of funds led the government to postpone paying the CFAF 52 bn salary arrears initially planned within the framework of the programme.

Within the structural plan, the government has eliminated the main import restrictions and freed price controls, except for those goods and services produced by government monopolies and, for the time being, those of four basic foodstuffs: rice, flour, sugar and vegetable oil. It has also realigned the retail prices of petroleum products, to allow for the new exchange rate and world prices, and doubled the prices paid to coffee and cocoa producers in order to transfer the advantages of the devaluation directly to the farmers.

The government has also revised the Investment Code and has published the majority of the rules relating to employment practices. It has finally completed the organisation and staffing for eight Ministries and undertaken to implement these plans for the four Ministries of Finance, Planning, Civil Service, and Commerce and Industrial Development. In order to improve control and supervision of the financial and economic situation, the authorities have carried out an investigation into internal payment arrears and undertaken to offset them with government creditors. They have also carried out provisional retrospective accounts for the National Hydrocarbons Company (SNH). Nevertheless delays have been experienced in putting into practice certain measures considered as criteria of effectiveness. This is the case particularly with regard to the three-monthly compilation of the consolidated accounts of the 17 largest public enterprises.

In order to correct these slippages and to reinforce the macroeconomic and structural adjustment policies, the government has decided to take additional measures within the framework of a revised programme for 1994/5.

The framework of the medium-term programme remains essentially unchanged, and the objectives of the revised programme for 1994/5 consist of achieving a real growth rate of 4%, an inflation rate of 7.5% reducing annually, a current account deficit of 4.5% of GDP, and of substantially improving government accounts. To achieve these objectives, a series of corrective measures have been proposed for the second half of 1994 covering the areas of public finance, currency, the external sector and structural reforms, with a view to partially compensating for the slippages of the first six months and to restoring the original profile of the

adjustment programme.

To sum up, if one allows for the not unexpected problems stemming from 'democratisation', Cameroon's adjustment programmes have failed on two important counts:

- The underestimation for too long a period of the exchange-rate question, which deprived the adopted policies of an essential instrument of control for which other budgetary measures were unable to compensate.
- Inadequate governance, whether for lack of a minimum of political consensus, or of full realisation by the economic authorities of the importance of the economic measures to be taken, or of the necessary co-ordination of the admittedly complex steps of the programme.

2.4 Impact of January 1994 devaluation

As of September 1994, the devaluation (from CFAF 50 to 100 per French franc) had little immediate impact on production and exports. Over the period 1993/4 the economy of Cameroon continued its decline (by 11.2%). The secondary sector (mainly manufacturing industry) continued to decline, due to the loss of domestic purchasing power, the lack of new investment and transitional difficulties of the liberalisation programme. Similarly services, including transport, continued to decline (CMRC, 1994).

The initial inflationary effect of the devaluation appears to have stabilised, with a level of retail prices some 32% higher than previously. Little change has so far been registered in the alarming state of the public finances.

The one sector where there are signs of a revival is primary production. The increased competitiveness of Cameroonian products, coupled with increases in the world price (e.g. of coffee), has stimulated activity, especially in the second half of 1994. However, this has not yet had any clear-cut effect on exports.

The situation varies between crops. In cocoa, the 1993/4 season has witnessed a levelling off in production, compared with 1992/3, though with little change so far in the volume of exports. There are a number of extenuating circumstances: a confused marketing system, shortage of packaging materials, illegal exports, a shortage of finance and reduced activity on the part of exporting firms. On the positive side, the official cocoa organisation is back in surplus, the doubling of the official price is awakening interest among cocoa producers, and the marketing of cocoa is being completely liberalised for the 1994/5 season.

In coffee, there has been a vigorous recovery of production after the poor 1992/3 season, due to strong growth in robusta. But exports of both robusta and arabica have continued to fall. The disappointing response to the liberalisation of the arabica market may be due to the fact that few co-operatives market this type, compared with robusta. There are signs that the recent doubling of official purchase prices, against the sharp increases in world prices in the first half of 1994, is arousing interest among producers.

There has been a small increase in the production of cotton seed and fibre, and a 6% increase in the cultivated area in 1993/4 compared with the previous season. Exports have risen by 27%.

3. Case Studies on the Effects of Structural Adjustment on Farming Systems and Village Social Structures

3.1 North-West Province

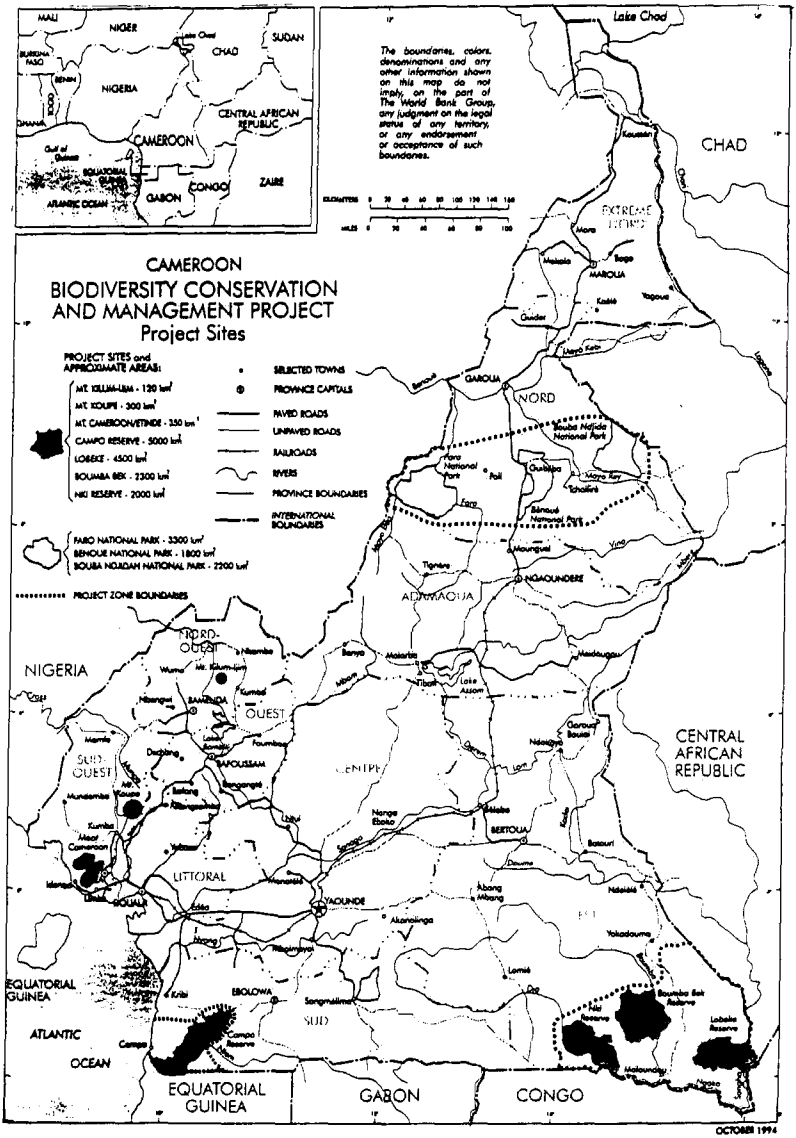
3.1.1 Introduction

This case study analyses the effects of structural adjustment programmes on farming systems and village social structures in the agro-ecological zones of North-West Province (NWP) and the western highlands. The 1987 general census put the population of NWP at 1.2 million with an annual growth rate of 3.2% (MINPAT, 1988); about 78% of them live in the rural areas. They are from Tikar, Ngemba, Chamba Fulani and Moghamo origins, with a diversity of ethnic groups; they have cultures which are interrelated and speak numerous dialects as their mother tongue, but pidgin English is the *lingua franca* here as elsewhere in Cameroon.

The study focuses on the changes and trends in land-use systems between the monoculture export commodity, coffee, and the food crops which are cultivated in different mixes, depending on the geophysical nature of the terrain, and not forgetting the importance of livestock (cattle, sheep, goats, etc.). With regard to the environmental effects of human activities, there is plenty of evidence that in many locations, including the settlements in the vicinity of the provincial capital city of Bamenda, some of the accompanying problems concern land degradation, soil erosion, bush fires and excessive grazing as livestock herds increase while available rangeland decreases. For example, as will be pointed out later on, in the Kilum montane forest area additional critical issues related to the depletion of the environment are landslides and rapid rates of deforestation prior to the launching of the Kilum Mountain Forest Project (KMFP). These environmental problems continue to be caused mainly by population growth, increasing poverty and the survival strategies adopted by different categories of male and female cultivators, very often as individual actors within their households.

To avoid over-generalisations about the linkages between (agricultural) development processes and environmental deterioration, the empirical material used here focuses on the largest remnants of the once extensive montane forest ecosystem found on the Oku or 'Kilum' massif (see map). One local community called the Oku Chiefdom in the Bui administrative division is examined in detail. The community lives near a proposed protected area, right at the edge of the forest reserve, which is surrounded by unplanned settlements. The village and the forest reserve are contiguous and are also bordered by the sister Ijim ridge conservation and development project in Kom. However, for the purpose of illustration data will be drawn from NWP as required.

Map 4 Cameroon Biodiversity Conservation and Management Project: Project Sites



3.1.2 *Profile of Kilum massif*

The Kilum massif (3,011 m) is the highest mountain in the Bamenda highlands, and second only to Mt Cameroon (4,095 m) in West Africa. From the viewpoint of socio-ecological importance the Kilum forest is situated in one of the most densely populated areas in Cameroon today. Of the people who live in this protected area, about 65,000 of them live in Oku. The protection has much wider implications than the preservation of the last refuge of a vanishing ecosystem. The economy and well-being of the local population are at stake (KMFP, 1989: 2).

For the villages around the mountain, the forest and grasslands on the massif have long provided innumerable resources. The forests provide local employment and livelihoods: honey collection, wood carving and the extraction of a wide variety of mountain plants for the preparation of traditional remedies. The commercial exploitation of medicinal plants for the pharmaceutical industry is also important. For example, the bark of a montane tree *Prunus africanum* (*pygaeum*) contains a drug which is medical science's main weapon against prostatitis. The mountain is spectacularly beautiful. The magnificent views, unique wildlife and rich culture – the forest and Lake Oku have strong cultural significance in the area – all have great touristic potential which could be realised with well planned and realistic development strategies (KMFP, 1987: 2).

The mountain supports the best development of *Podocarpus*/bamboo forest outside East Africa, and shelters a number of rare and threatened species including Preuss' Monkey (*Cercopithecus preussi*) and a toad (*Xenopus amieti*), endemic to Lake Oku. Given effective protection, the Kilum forests offer the best, perhaps the only, hope of survival for populations of two endemic and currently endangered bird species; Bannerman's Turaco (*Turaco Bannermanni*) and the Banded Wattle-eye (*Platysteria laticineta*). In a region where the dry season lasts for up to five months, the role of the forests in water catchment and regulation is crucial. The Kilum mountain range is a major watershed, the source of NWP's three principal drainage systems.

Kilum has enormous environmental problems (soil erosion, deforestation processes, degradation of watersheds, bush fires, etc.). As a result of extensive and unregulated human interventions in the forest which covered the mountain twenty years ago, only half, or about 12,000 hectares, now remains intact. Much of the biodiversity has been replaced by open, wooded savannas and bushy thickets. The direct causes include abusive and excessive use of land and waterways, encroachment for smallholder agriculture, illegal felling for fuelwood, bush fires, heavy grazing and browsing pressure from goats and sheep; these are effectively preventing natural regeneration. The factors directly responsible for the imminent catastrophe are population pressure, ambiguities in the modern land-tenure system, the gruelling economic crisis experienced throughout the country and the fall in the price of the male-dominated and sole export commodity, arabica coffee, in the late 1980s. In brief, generalised poverty creates and increasingly accelerates environmental pressures which lead to the non-sustainable use of resources.

It is for this reason that Birdlife International (formerly called the International

Council for Bird Preservation), funded in collaboration with the Government of Cameroon and WWF, created the Kilum Mountain Forest Project (KMFP) in 1987. Its ultimate objective is the protection of the remaining 12,000 ha of forest and grassland on the Kilum massif. In order to be effective in the long term, the conservation measures taken by the project give full consideration to the root causes of the rapid rate of deforestation observed in the area and constitute an integral part of a programme intended to harmonise development with the environment.

In the KMFP's seven years of existence the programme, initiated to ensure environmental conservation and the strengthening of sustainable resource management practices, has included the following activities: the establishment of an environmental education programme; the creation of a forest reserve; the initiation of a reforestation programme (soil conservation and agroforestry) and community tree nurseries; the development of forest-based industries (honey, paper pulp, wood-carving, and so on); and the promotion of improved land-use and farming systems so as to increase productivity and livelihoods while protecting natural resources. When the KMFP eventually winds up its activities, the area will gain the political and legal status of a (protected) community forest. What this implies is that the indigenous inhabitants must participate actively in the sustainable use and management of the natural resources as local, regional and national socio-economic changes occur.

3.1.3 The structure of societies in North-West Province

Unlike the societies in the southern half of Cameroon (Centre, East, Littoral, South and South-West Provinces), those of the northern half including NWP still operate on the basic of their traditional centralised political systems. These are headed by a hereditary ruler and his complex palace institutions. The ruler (popularly termed *Fon*, *Sultan*, *Fo*, *Lamido*, etc.) with his powerful regulatory society, called in different chiefdoms *Kwifon*, *Nggumba* or *Ngwerong*, provides a respected leadership which is acknowledged by all, including immigrants, living in a particular chiefdom. The traditional ruler or *Fon* of Oku is the traditional custodian of the land (forest) under his jurisdiction. In the name of the *Fon*, the *Kwifon* controls the exploitation of its natural resources (bamboos, medicinal plants, wildlife and other forest products) and guards the sacred sites in the forest.

The social organisation of Oku and its neighbours is based on localised patrilineages, with the exception of Kom where matrilineal descent is the rule. Even so, power is still largely transferred to men through the uterine line via social control mechanisms which vary from one chiefdom to the other. In its ways of tracing descent, regulating marriages, inheriting property and succeeding to offices, Oku differs from some of its neighbours although they claim a common historical connection (Ngum, 1992). The *Fon* and *Kwifon* after serious consultation select the 32 village heads from among the previous head's brothers. There is always a pool of possible heirs for the throne, depending on the second in command's attitude to

his role in the past. However, what distinguishes Oku from other Western Grasslands chiefdoms is that a deceased *Fon*'s son cannot succeed him.

The foregoing description of the social structure of NWP in general, and of Oku in particular, has one salient implication for the current efforts to conserve Cameroon's biological diversity, which is increasingly concentrated in the diminishing number of natural areas that have remained more or less unchanged by recent human activities. It is possible for a community-based forestry strategy to be institutionalised in the Kilum forest area. Apart from Oku, the Kilum forest resources are also exploited by the Kom, Nso, Noni and Babungo ethnic groups. Their traditional social structures make provision for the local leadership to exercise extensive authority over the people and to control their social behaviour. In fact, there exist social control mechanisms related to sustainable natural forest management and the sustainable use of forest resources by the local communities, and which recognise the forest's significance to their spiritual and cultural lifestyles (Berger *et al.*, 1993: 73–4). Under Cameroon's new Forestry Code (promulgated in January 1994 and still to be implemented) the Kilum massif, as a proposed protected forest area with the indigenous people's social, economic and cultural interests as a priority, will allow sustainable use to be made of the forest by the local community. Grazing within the forest and further clearing will be prohibited, but the development of sustainable forest-based industries, such as beekeeping and the harvesting of medicinal plants and carving materials, will be encouraged. Hunting will be restricted to the trapping of small animals using traps of traditional design and materials (KMFP, 1989: 4–6). The importance of the relationship between the traditional means of managing the forest, the proposed new forestry laws, and the new formal controls suggested under the KMFP is that they will strengthen and/or complement one another.

3.1.4 Changes in the socio-economic status of the study populations since 1980

Although social and economic change and development are inevitable in any society, their extent and quality largely depend on the local policies and strategies adopted. It is widely recognised today that the greatest improvement in the living conditions of the populations in NWP has occurred during the 1980s and after, especially with the establishment of the North-West Development Authority (MIDENO) project in 1981. Evidence suggests that this has been one of the most successful integrated rural development projects in the country (Mope Simo, 1992). Coincidentally this has also been the period with the most significant perturbations in the environment as a whole, and in protected areas like the Kilum montane forest in particular.

Over the years coffee price fluctuations seem to have had asymmetrical effects. As will be explained below, both rises and falls have been detrimental to the environment. On the one hand, between 1980 and 1988 the boom in the coffee economy, and what John Madeley (1987) rightly describes as the 'success story'

in the production of staples and other food crops, resulted in a worsening of the environmental depletion, especially with the accelerated destruction of wildlife habitats, the loss of genetic diversity and soil erosion. On the other hand, from 1988 until the devaluation of the CFA franc in January 1994, environmental deterioration throughout the province resulted from the sharp fall in the international prices for basic export commodities like arabica coffee and the drastic reductions in January and November 1993 in the salaries of civil servants. As will be explained in the following section, these events have exacerbated the poverty of an increasing number of men and women. Nowadays they seek the clearance of marginalised lands and/or encroachment into what is referred to in the 1974 land ordinances and the 1981 land laws as 'State Property'.

Before continuing with this economic analysis a note on changes in the social status of the local populations in the Kilum forest area is in order. There is no gainsaying that, with the creation of the KMFP, employment opportunities have increased. While some of the people retrenched, say, from the Oku-Noni Coffee Co-operative Union have been hired by the project, about 70 others are employed by it on a permanent basis (KMFP, 1989).

The majority of people in Oku still obtain their water from the numerous streams which from time immemorial have flowed abundantly down from the hills. However, there are many modern sources of piped water which are enjoyed by the privileged few and some health centres. For example, Scanwater, which was completed about five years ago, became operational, but then went out of order due to lack of regular maintenance. Six International Water (the contracting consortium for the National Water Corporation, SNEC) has more or less completed its work, but the electrical power system required for the treatment of the water has not been installed. A third source of good water is supplied by the Nso Rural Council which, before the creation of the Oku administrative unit in 1992, was responsible for the Oku-Noni area, and continues to provide piped water to the Elak Health Centre, as does the Baptist Mission to the Health Centre in Jikijem. The Directorate of Community Development in the Ministry of Agriculture supplies water to the village of Ebal, and there is an on-going water project at Jikijem jointly financed by local initiative and the British Government.

As regards electricity, there are a handful of private generators in Oku owned by the KMFP, the Catholic and Baptist Churches and the Oku-Noni Coffee Co-operative Union. However, over the past five years some parts of the chiefdom have been supplied with electric power under a British technical assistance project which aims to electrify all the rural areas in NWP. The services are provided by the National Electricity Corporation (SONEL). Some key informants estimated that only about 12.5% of the population of Oku have electricity in their homes. Meanwhile, it is estimated that about 30% of households have at least a radio set, but barely more than 1% have a television.

In the area of social infrastructure, the chiefdom is relatively well supplied but the quality is deplorable. For example, there are 30 educational establishments (24 primary schools and 6 post-primary institutions). In general, school attendance has been increasing over the past five years, but there is evidence that in the 1993/4

been increasing over the past five years, but there is evidence that in the 1993/4 school year there has been a sharp drop in the number of pupils in government institutions. Admittedly, declining budgetary revenues and the deterioration in the level of service and the quality of education provided are contributory factors in the decrease in attendance observed in State schools. However, the problem has recently been exacerbated by the civil service strike and the subsequent lack of motivation and commitment to work following the massive salary reductions announced by the government in January and November 1993. In the face of the unabated economic crisis, the increasing poverty and the consequent lack of money to buy school equipment and pay school fees, attendance in the State schools was reported to have dropped over the same period, notwithstanding the fact that State school fees are usually much less than in the private educational establishments. A good number of boys and girls in Oku had not been enrolled by their parents. Surprisingly enough, enrolment in the private schools in the area (Baptist and Catholic) has remained relatively stable. As one local opinion leader put it,

> The situation stems from the fact that the vast majority of parents are not only conscious of the importance of formal education today, but those of them who are committed Christians are also keen to send their children to schools where accountability is a basic principle of the training and discipline, and they can see for themselves how their money is spent by the school authorities (O. Holzer, personal communication).

In terms of medical facilities, the 32 villages that make up Oku chiefdom have only 8 Health Centres and health posts, 6 of them set up by the government and the rest by the Baptist and Catholic Churches. As with the schools, nearly all the health facilities are poorly equipped and/or lack qualified and experienced medical and paramedical staff. In view of the fact that traditional practitioners abound in the locality, many people do not seek modern medicine. While the majority of the indigenous people often lack the money to pay their hospital bills, an even more tangible reason is their adherence to the traditional belief system. There has clearly been very little change in the local health centres over the past five years. The availability of medicines has deteriorated while the costs of treatment have soared. Consequently infant mortality and morbidity epidemiological trends remain high, as in most rural communities. One informant neatly put it that 'people go to the health centres to die'. What this means is that a sick person is taken to hospital only because the relatives fear that if he/she dies at home, they could be accused of witchcraft or sorcery.

Although there is no mining in the entire NWP region today, informants were quick to point out that in the past a lot of iron ore was mined in the hills of Oku and Babungo. Much of it was used by local smiths for the manufacture of agricultural equipment and domestic utensils. But the sites have since been abandoned and have regenerated into secondary forests. Thus agriculture remains the largest single occupation for the people of Oku and the Western Grasslands as a whole. There are 148,000 farm families in NWP today. Given that an average

farm family contains 7 persons, about a million people depend on agriculture for the daily consumption of their households and to earn some income (G. Yebit, pers. comm.).

Everywhere more women than men are engaged in agriculture. The social division of labour is as follows: men do the land clearing for food and cash crops like coffee, Irish potatoes, beans, maize and palm oil. Women do the tilling, weeding and harvesting of most of the crops. Meanwhile, children even from the age of five usually accompany their parents to the farms and may assist in planting or some other light tasks depending on their ability. Most cropping in the NWP is on the rain-fed system, except for market gardening in areas like Santa, for which overhead irrigation is used, while flooded irrigation is applied to rice development, notably under the supervision of the UNVDA in the Ndop Plain area (Mope Simo, 1992).

More than 98% of farmers in the province cultivate their crops in different mixtures or in an intercropping system, with maize being the dominant crop in every culture except in the Momo administrative division, where root and tuber crops, and cocoyams in particular, are prevalent. This is also a reflection of the feeding habits of the populations of a region. Maize as a reference food and cash crop can be used to develop the trend in land-use patterns in NWP for other staples. Changes in grains are related to increases in the area of land cultivated and not in terms of the improved management of land resources, which would lead to increases in productivity of a given crop and therefore less need for the clearance of fresh land.

Nowadays no farmer in NWP, or Oku for that matter, produces only for self-provisioning and social distribution, as was the case in the distant past. Rather, male and female cultivators deliberately engage in some commercialisation in order to cope with their increasing and changing household needs. Granted that an overwhelming majority of the farmers are smallholders who lack cash, modern knowledge and inputs, the traditional land-use system of slash-and-burn farming is still predominant. This entails the cultivation of the conventional export crop, coffee, in more permanent plantations in and around the compounds (homesteads), carried out mainly by the household labour of wives and dependants and what is provided by the members of specific rural networks. Observations and discussions with farmers led to the conclusion that it was only the emerging class of relatively wealthy producers unable to complete the necessary tasks for successful production in time, who were relying on the wage labour of young but experienced men and women within and outside Oku village rather than on family labour. The implication is that there has been a clear dependence on factors of the economy of affection à la Goran Hyden (Hyden, 1980) and other norms and values of what Henry Bernstein described as 'the "actually existing capitalism" in an agricultural "modernizing context"' (Bernstein, 1990: 20).

Food crops are grown in the more remote farms, mainly using shifting methods of cultivation. One observer who was working in the Adaptive Research Service of the Ministry of Agriculture in Bamenda pointed out that shifting cultivation is responsible for almost 95% of the deforestation in NWP today (G. Yebit, pers.

comm.). Many of these farmers use their own labour and that of their wives and children in the case of married men, and children/work groups in the case of women irrespective of their marital status. However, in the case of land preparation and planting of Irish potatoes and beans, a few rich producers were also hiring wage labour according to the urgency of the task to be performed.

In those areas of the Bamenda highlands where arable land is still available, for example, in Boyo, Mentchum and parts of Bui divisions, relatively long periods of fallowing still serve the purpose of soil fertility and rejuvenation. In Mezam and Ngoukitujia divisions with the highest population densities of over 100 inhabitants per km^2 the fallow period has gradually been shortened over recent years to between 1 and 2 years at most. But in the Donga and Mantung division and remote portions of the Bui highlands, notably the Kilum montane forest area (Oku), even though the number of persons per km^2 is lower, the climate is favourable for large ruminant production (such as cattle, goats and sheep). This land-use pattern has increased the competition for land between food crop cultivators and graziers. There is ample historical evidence, confirmed by the personal experiences of different generations of informants, of how the difficulty in finding good grazing lands during the dry season made the Fulani (Mbororo) (the bulk of cattle business remains in the hands of these traditional stock breeders) adopt the transhumance system – a strategy which enables huge herds, which would otherwise perish, to migrate to the fertile lands of the Ndop Plain, where the cattle graze until the beginning of the next rainy season when they return to their hill-top locations (Mope Simo, 1992: 359–74). It is not unimportant to mention here that the whole NWP region is so vulnerable to farmer–grazier conflicts that administrators usually shy away from such sensitive and highly politicised issues; this often makes for a lot of bribery and corruption in settling disputes. In view of the current situation in Cameroon of economic reforms and a policy of price liberalisation for various commodities, the ever expanding production of cattle for meat and dairy products cannot continue without bitter range-wars and/or ecological damage.

In turn, the increase in population and the pressures on available cultivable lands close to settlements have resulted in shortening the traditional long fallow periods of 10–20 years even in remote places. The point needs to be made that in recent years shifting cultivation has been almost completely eliminated from some parts of the Province like Ndu, Biame, Bamenda hill station, etc., where people are now farming the same patches of land continuously (i.e. from one season to the other without a break). As mentioned already, this is largely because of human and animal population pressures and, in the case of Ndu, also because of the establishment of the Ndu tea estate by the CDC agro-industrial complex.

With the exception of a few wealthy coffee farmers, the use of agro-chemicals has not been commonplace in Oku. As part of Cameroon's SAP package, subsidies for chemical fertilisers and pesticides have been withdrawn, but this has not affected the majority of cultivators. Rather, it is just another reason for peasant producers not to use such inputs to increase their yields. Basically, this is because of the inherent inability of the low-activity clay soils which predominate in most of the highlands of NWP to respond to the high-technology farming systems which

are possible, for example, in the lowlands of the southern half of the country. There are indications of pressures to expand the cultivated areas, especially for a widely consumed commercial crop like maize and increasingly other lucrative food crops (Irish potatoes and beans), as well as the incidence of poverty which informants complained about. Thus the use of modern agricultural inputs is unlikely to be helpful or even to be considered by the rural masses in the immediate future. Without research and a real change in agricultural policy, extensification is therefore likely to be even greater in the coming years and the cost to the environment could be substantial in Oku, as elsewhere in NWP.

There used to be credit agents in the Oku-Noni Coffee Co-operative Union from the North-West Development Authority (MIDENO). It is not unimportant to mention in passing that MIDENO is a parastatal created to oversee improved farming practices and other development issues in NWP in collaboration with the Ministry of Agriculture. So the co-operative society managers were collecting money from the farmers to pay to the appropriate authorities. But with the closure of the National Fund for Rural Development (FONADER) because of mismanagement, inefficiency and nepotism, no loans are now available. Moreover, now that the MIDENO credit agents have been made redundant as part of the SAP effort, there is nobody to collect the farmers' repayments. Some farmers are still paying back their loans to the co-operative societies to which they belong, but it is not certain that the Coffee Co-operative Union channels the monies to the appropriate quarters. Chaos therefore reigns as farmers are not even pressurised to repay their debts. The impact of the lack of credit on the environment can be negative. As in the case of the failure to use modern inputs already mentioned, this means that, without an increase in productivity, the majority of the rural people in NWP, who often do not have alternative sources of income and livelihoods other than agriculture, will resort to an excessive and wasteful use of their natural resources in a manner that is non-sustainable and shows no concern for future generations.

The various sources of family income in Oku are coffee, Irish potatoes, beans, tomatoes, honey, carving, traditional medicine, and bars (for raffia wine, locally brewed liquor or *kang*, and imported drinks). Some informants admitted that, even though they work very hard, they are much poorer than their Nso neighbours. For example, most women trudge up and down to the weekly market simply to earn a few hundred CFA francs, which are usually spent on palm oil, salt, soap, kerosene, Maggi cubes and a limited amount on second-hand clothing ('Okrika' in pidgin English). Since 1991 the latter imported commodity has flooded every market in the country, to the detriment of the local tailors and textile industries in the informal and formal sectors of the national economy. For their part men spend their cash revenues on the occasional provision of some meat or fresh mackerel fish ('moloco') for their wives, and on *njangi* contributions, marriage payments, ceremonial clothing and ornaments. Both men and women have cultivated the habit of drinking heavily, especially on the market day and the traditional rest day ('country Sunday').

3.1.5 Socio-economic changes, structural adjustment, and its impact on the Kilum forest area

This section attempts to analyse the impact of recent socio-economic changes on Kilum's unique ecosystems in the era of the structural adjustment programmes. One of the reasons why the world's attention is increasingly being focused on the conservation and development of biodiversity is because in most tropical countries the majority of people still work out their livelihoods in harmony with nature. Moreover, it would not be an exaggeration to say that their cultural survival depends on their ability to continue using their natural resources in a sustained manner.

With the fall in the price of (arabica) coffee towards the end of the 1980s, more food crop farms were opened up throughout NWP, but particularly on the steep and erodible slopes of Oku where coffee plantations were either abandoned in forests of weeds or cut down. Many informed people also took advantage of the country's 'new agricultural policy' (MINAGRI, 1990) to expand their existing cultivated patches by farming even in frontier areas and on marginal land. Although the expansion of acreage under food crops cannot be said to have increased continuously over a particular period, there is hard evidence to substantiate the argument that the cultivated areas and the production levels of coffee have been decreasing at the same time.

Table 3.1 shows that for the period 1985/6–89/90, some food crops registered important increases in acreage and production, with the best season being 1987/8. It confirms that the pre-SAP years were much better for coffee development than the two seasons following the implementation of the SAP package.

As part of the strategy to reform the economy and make it more productive and competitive according to the SAP guidelines, the new agricultural policy stressing liberalisation, privatisation and diversification was initiated in the 1990/91 season. For example, the government closed down hitherto state-subsidised companies like the Food Development Authority (MIDEVIV) which had squandered human and natural resources. The purpose was to encourage private initiatives, especially on the part of peasant farmers, to play a greater role in the production and distribution of foodstuffs to feed themselves and the rapidly developing urban centres. In the Kilum area most of the men involved (former coffee growers and others who developed an interest in the new, lucrative business) started to produce Irish potatoes and beans mainly for sale. This situation stimulated keen competition between male and female cultivators even within the same households, because the women were already producing for the market.

As mentioned above, the decrease in fallow led to a reduction in pasture and intensification of the long-standing farmer–grazier conflicts throughout NWP. Despite the success achieved by the KMFP in recruiting voluntary forest patrollers from the community during the field visit for this study, livestock were still observed ranging freely in parts of the forest, thus preventing regeneration and threatening some of the best remaining areas. Over-grazing and trampling have resulted in the complete loss of biodiversity in some places. Moreover, serious soil

erosion is now occurring, aggravated by deliberate burning by farmers to improve the productivity of the impoverished soil and by cattle rearers to permit new pasture to grow during the rainy season. It should be pointed out, however, that the environmental education programme introduced by the KMFP and directed towards male and female cultivators as well as school pupils/students is helping to minimise the latter environmental problem today.

The rest of this report examines the various reforms in the agricultural economy carried out in the implementation of the SAP in NWP today. One of the most significant changes that has taken place in the coffee industry is the North-West

Table 3.1 NWP: Agricultural statistics showing the switch from coffee to food crop production 1985/6–1989/90

Crops	*1985/86*	*1986/87*	*1987/88*	*1988/89*	*1989/90*	*Cultivated area, production*
Maize	40,826	50,573	52,474	41,618	37,663	CA
	104,736	120,991	156,070	141,383	110,830	P
Beans	15,379	16,207	17038	16,114	15,854	CA
	17,693	18,453	15,846	14,590	16,878	P
Groundnuts	7,781	10,011	7,243	6,664	3,715	CA
	9,408	12,054	8,470	7,531	4,355	P
Cocoyams/	14,766	23,171	16,850	14,229	12,998	CA
taro	177,342	170,564	201,987	179,631	168,587	P
	5,203	8,964	6,917	7,543	5,507	CA
Cassava	101,949	97,329	81,066	80,077	63,343	P
Plantains	7,636	7,686	5,189	5,188	2,890	CA
	136,406	140,678	110,628	111,516	66,042	P
Banana	56,666	242	7,107	5,242	5,045	CA
	04,100	92,967	104,100	100,543	67,820	P
Arabica	40,444	52,114	–	16,908	16,908	CA
coffee	5,713	6,007	5,112	5,476	5,476	P
Robusta	5,202	9,156	4,298	2,280	2,341	CA
coffee	4,054	1,364	1,026	1,492	992	P
Total	141,779	184,989	115,251	115,589	100,803	CA
	661,401	660,407	684,305	642,239	500,960	P

CA = Cultivated Area (hectares), P = Production (tons)

Source: MINAGRI/CAPP (1991).

Co-operative Association's taking over of the export of the commodity from the defunct National Produce Marketing Board (NPMB). Another innovation is USAID's project Programme for Reform of the Agricultural Marketing Sector (PRAMS), introduced in 1990 as a liberalisation scheme for arabica coffee. Most of the US$22 million earmarked for the project went to the NWCA. Moreover, in 1993 the project helped to change the law on co-operatives. The new law gives more powers to the farmers, by requiring that supervisory committees should be elected by the members to control the activities of the co-operatives rather than hiring outsiders nominated by the authorities. This is a bottom-up approach to co-operative management.

Furthermore, an Arabica Marketing Information System (AIMS) has been set up, which publishes the price of coffee in world markets and what growers in different localities can expect to receive. For example, with the devaluation of the CFA franc in January 1994 and the subsequent remarkable increases (generally at least double the previous official prices) in the weekly producer prices of arabica coffee, a new interest in this export crop has emerged not only on the part of the traditional male growers but even of some women as well. Surprisingly, all the farmers interviewed for this study reported that the new prices were not actually paid as announced.

Throughout NWP elections were held in the various coffee co-operatives during 1993 for the board of directors, the supervisory committees and delegates; the government-nominated president of the NWCA was defeated, and at the time of the research the board of directors was still deciding on whether or not to maintain the government-appointed executive manager. In the Oku-Noni Coffee Co-operative Union, for example, the number of societies has increased from 3 to 14, so as to enable as many coffee producers as possible to participate in the management of their business.

In general, the local populations in Oku were aware of the USAID-funded PRAMS project which in a way is serving the purpose of an adjustment package in the socio-economic development of NWP. But this has not been the case so far with the structural adjustment policies. According to the traditional ruler of Oku, 'Lots of administrators are not only ignorant about policies, but they do not even do their job as educators very well. Even the politicians have not disseminated much useful information. Their time is often so taken up with matters covering the immediate impact of past development policies on environmental interests and not for the long-term benefit of ordinary people' (Fon Ngum III, pers. comm.). Evidence also suggests that the shrinking economy and the devaluation of the CFA franc have severely affected the incomes of those who depend on the (public) civil service for survival. Another point is that all these events have increased farming populations everywhere. Many people in Oku were observed to be farming on what was hitherto considered as marginal or unproductive land.

In the area of agricultural extension and the availability of technicians and other personnel, the situation has been disappointing over the past five years. Basically, the problem stems from lack of money and the suspension of the activities of MIDENO. This agricultural and rural development parastatal had defined, and for nearly ten years was instrumental in the transformation of, the ratio of Village

Extension Workers (VEWs) to 1:500 farmers for the whole of NWP – a development which permitted it to support the activities of 364 VEWs in the province, 180 of them on the public service payroll, by supplying motor cycles and monthly allowances. With the suspension of MIDENO's activities in September 1993, about 180–200 VEWs lost their jobs, and most of the motor cycles were withdrawn. These facilities had been given out on special arrangements, and unfortunately for the corporation some of the contracts had matured; consequently, the beneficiaries claimed ownership of them. This now leaves the province in a confused situation, with the remaining VEWs on the government payroll with no clearly defined job, no means of transport and above all no motivation, let alone initiative. The same situation applies to the VEWs who had been posted to the soil conservation and agro-forestry components of the KMFP.

By and large, MIDENO's activities over the past decade or so had resulted in a remarkable improvement in the living conditions of the rural masses, in particular the poor and vulnerable groups. The major area of this improvement was in (food) crop production, because of the regular follow-up by VEWs, the development of extension messages and the large-scale distribution of planting materials such as the tree nurseries for individuals, schools and communities, observed in the Kilum area. Initially the policy of the MIDENO project was to give preference to an improvement in the farming systems used in the production of existing and new foodstuffs, in order not only to make the region self-sufficient but also to enable the (usually) smallholder producers to step up their income-generating abilities (MIDENO, 1987).

In general, there is a lack of agricultural statistics for specific local communities in Cameroon. The most recent hard evidence of trends in food crop production for NWP were presented in Table 3.1. However, the claims on behalf of MIDENO mentioned above can be supported by data on the evolution of arabica coffee for the immediate pre- and post-SAP seasons (see Table 3.2), which give an indication

Table 3.2 NWP: Declining Trends in Arabica Coffee Production, 1986/87–1989/90

Periods	*Farms harvested*	*Total production (tons)*	*Area cultivated (ha)*	*Production per farm (kg)*	*Production per hectare (kg)*
1986/87	85,490	6,007	52,114	70	115
1988/89	61,060	3,847.0	16,908	63	228
1989/90	67,910	2,613.4	16,582	38	158

Source: DEAPA/AMP/CAPP/MINAGRI (1991).

of the growing interest in food crop production for the local and wider markets outside the province.

The table demonstrates the sharp decreases in the tonnage of arabica coffee produced and in the cultivated area in the two seasons following the introduction of the SAP, as compared with the period just before it; for example, in the 1989/90 season from the 16,582 ha of land cultivated, only 2,613.4 tons were harvested. Another explanation for the increasingly less dynamic role of coffee production in NWP is that, by January 1990, the purchase price of high-grade coffee, which had been CFAF 475 per kg, was fixed by the government at CFAF 250 per kg, a reduction of 52.6% (*Africa*, 1990: 39–40).

With the freezing of MIDENO's activities in 1993, there have been no funds for the seed multiplication component to meet the needs of cultivators in this part of the country. The use of improved or high-yielding varieties of seed has been adopted by farmers over the years. In the 1994 season, however, the shortage of improved planting materials was evident with the flooding of markets with fake alternatives. As one female informant in Bamenda remarked, 'Those of us who were already used to the seeds provided by MIDENO could easily point out that they were not genuine ones' (Mope Simo, 1994).

The last point to be made in this discussion is that since farmers do not usually have access to bank loans, the devaluation issue will not affect their position. Nor was the establishment of the agricultural credit fund (Crédit Agricole) at the beginning of the 1990s of any help to them. It is a commercial bank like any other in the country, contrary to what its name may suggest as regards expectations for the granting of loans. For example, it insists on collateral security which only the upper and middle classes and the well-to-do business segment of the population can afford.

3.1.6 Conclusion

The Oku chiefdom where the bulk of the field research for this study was conducted is basically a traditional farming community. Thus the general run of the inhabitants are not aware of the SAPs, except when specific explanations are provided by informed local politicians and opinion leaders. Among the literate population there is some degree of awareness, but this cannot be regarded as an understanding of what the policies are about. However, the fact that educated people (experts, researchers, higher echelon civil servants, etc.) are now coming to the area, mainly because of the activities introduced by the KMFP, and that many rural dwellers are becoming increasingly politicised, could create a new awareness among them of national and international microeconomic policies like the SAPs. Overall, the disenchantment and lack of confidence in the government, as expressed by informants, make it even more difficult for them to ask searching questions about recent national events or policies. So whatever awareness can be detected in the local populations about the current processes of change and development is simply part of a struggle for survival against all odds.

The crucial question that needs to be answered after analysis of the data collected can be posed as follows: In the face of the structural adjustment measures highlighted, can sustainable development (i.e. the improvement of the quality of human life and the provision of alternative occupations within the carrying capacity of the supporting ecosystem) be attainable in the Kilum montane forest area, in particular, and in NWP in general? Having to depend more on local resources as the population increases might force the inhabitants of the rural and peri-urban areas of NWP to appreciate the increasing fragility of those resources. In terms of its effects on the environment, there was consensus among informants that the KMFP was seeking the active participation of the different social groups in the area to intensify conservation-oriented utilisation which would ensure a more responsible and equitable use of the available natural resources.

The recent trend towards more intensive cultivation brought about by the construction and maintenance of feeder roads and the activities of MIDENO before and after the SAP have greatly increased the agricultural potential in the entire NWP region and especially in the Oku (Kilum) area. The population growth from 9,000 in 1953 to 65,000 in 1993 (Fon Ngum III, pers. comm.), combined with the improved market access, has led to new farming systems without the traditional long fallow periods used to restore soil productivity. The result is that crop yields are poor and the natural forests are being rapidly cleared to open up new farm lands and/or to augment impoverished ones. These practices have not yet led to sustainability, in the sense of meeting today's needs while the communities do not so degrade the environment and squander their natural resources as to compromise the ability of future generations to meet their own needs. One of the implications of this situation is the reinforcement of the poverty–environment trap.

It is too early to make a realistic assessment of the effects of devaluation on the costs and benefits of farming systems in the Kilum forest area, as elsewhere in NWP. Possibly the liberalisation policy and more recently the raising of agricultural prices (notably of the export crop, coffee) as part of the SAP package will result in an aggregate expansion of output and greater rural differentiation. In terms of the environmental impact, if intensive agriculture is adopted, there will be possible damage from inputs (fertilisers, pesticides and other new technologies). On the other hand, if extensive agriculture is maintained, then deforestation, bush fires, soil erosion impoverishment and landslides will worsen.

What can be said with certainty is that the strategies have stimulated an inflation spiral even in rural communities like Oku. Devaluation has increased the prices of many basic commodities, in some cases beyond the new level of the devaluated currency. For example, a bucket of maize which sold at CFAF 700 before January 1994 now sells for between CFAF 1,500 and 2,000, compared to the devalued rate of 1,400 CFAF. An 18 kg bag of cooking salt, previously CFAF 1,300, is currently priced between CFAF 7,000 and 6,500. The inflation is described as spiral because the woman who produces maize needs to buy salt, palm oil, soap, sugar and so on. Many people in Oku were observed to be doing without these commodities because they lacked the money to purchase them. Faced with this frustration, they may well simply turn to their usual productive activities with no concern for the environment.

3.2 Far North

3.2.1 Introduction

Far North Cameroon is located in the fragile Sudano-Sahelian transition zone of sub-Saharan Africa. This semi-arid region covers about 7% of the country's land area, and contains over 17% of the total population. The climate is fairly hostile. Temperatures range from 16°C (January) to 41°C (March–April), with an annual average of 26°C. Rainfall averages 600 to 900 mm, and is concentrated between the months of June and September. The short rainy season has become quite irregular, and poses problems for farmers.

Four resource areas make up this zone:

- *Logone and Chari Delta.* This is an alluvial flood plain characterised by a natural savanna, where, because of frequent bushfires and overgrazing, the present plant community is mainly annual grasses and acacia trees. The area is traversed by the main migration route of herders between Nigeria and Chad. It is essentially rangeland, but of low quality.
- *Yaerés alluvial plains.* This area is usually flooded from July to October. It is essentially rangeland of a fair quality; the grass that grows here is used for dry season grazing. The Waza National Park covers one quarter of the area. The plant community consists of high-producing annual sorghum and perennial grasses.
- *Diamaré plain.* This area is situated between the flood plains of the Logone River and the Mandara Mountains. Most of the soils, 'sols hardés', are unproductive and erosion is severe in certain parts. Because of the high population density, the area is heavily cultivated. The potential plant community is characterised by a natural savanna with thorny tree species, but it has been greatly altered by heavy grazing, cultivation and bush fires, and the present plant community is dominated by annual grasses and species of degraded land. In the cultivated areas, isolated trees dot the surface.
- *Mandara Mountains.* This area is known for its specialised farming of terraced mountain slopes. Erosion is quite severe on the steep slopes. Although there is some woodland, the area is heavily degraded due to excessive farming and grazing, because of the high population density (over 100/km^2). On the alluvial foot slopes, there is natural savanna. The area is generally of low potential for crops and rangeland because of the shallowness of the soils and the steep slopes.

The population density of Far North at 64 inhabitants per km^2 is a little over 2.5 times the national density. Nearly 90% of the population lives in the rural areas and are engaged in agriculture. The literacy rate is very low. A 1992 literacy investigation by The Save the Children Fund showed that 52% of the population was illiterate, 28% had some primary school education, 17% some Koranic education, and only 3% any education beyond primary school level.

The quality of health is very poor. The region has been plagued by recurrent

epidemics of cholera and meningitis caused by contaminated water, malnutrition and inadequate health delivery services. Over 90% of the water consumed comes from wells. Mortality and morbidity are quite high. Infant mortality is 103 per 1,000 as against the national rate of 95 per 1,000. Protein deficiency has been identified as the cause of malnutrition.

3.2.2 Economic activities

The economic activities of Far North may be divided into three broad categories: (a) agriculture, (b) livestock breeding and (c) trade, especially border trade.

a) **Agriculture**. Although subsistence agriculture predominates, agricultural production may be grouped into food crops, cash crops and other activities. *Food crops* produced exclusively for subsistence include sorghum, millet and mouskwari (dry-season sorghum). Although the surplus of these crops is sold, the objective of the producers is to maximise survival. For this reason, prices play no role in production decisions. Crops produced for local consumption and also for the market include maize, groundnuts and niebe. Prices are important in the production and sales of these crops. Cotton is the number one *cash crop*. It is produced exclusively for sale, and only to the parastatal cotton company, SODECOTON. Onions are another cash crop, which is irrigation-fed. Although the returns to onions are quite high, the demands made in their production limit the quantities produced.

Other activities. Inland fishing is very important in Cameroon. About 55% of the fish caught nationally come from inland waterways. Far North accounts for 34% of this. Almost all fish caught are sold. Wood is harvested for food, energy, medicines and construction. Wood is the only source of energy, especially for cooking, for over 90% of the population. Although wood harvested for food, energy and medicine is for household consumption, a small portion of it is sold, especially to meet the demands of people in the urban areas.

b) **Livestock**. This zone contains over 35% of the nation's total livestock. Keeping animals is an integral part of the farming family's way of life, with two to ten cattle, goats and sheep feeding around the homestead. There are also nomadic transhumants, who migrate over long distances with large herds of cattle in search of good pasture. Livestock, especially cattle, are used as a store of wealth.

c) **Trade, especially border trade with Nigeria**. Cameroon and Nigeria have a 1,500 km long border, which is porous, especially in the north where people of the same tribe are found on both sides. As well as the tribal link, the economic policies of the two countries have tended to promote trade. The Nigerian naira is weak and not freely convertible, whereas the CFA franc, until 1994, has been fairly freely convertible because of its fixed parity with the French franc. Exports to Nigeria from the zone include onions, groundnuts, niebe, livestock and fish products and a small quantity of cereals; some of the rice and wheat flour imported into Cameroon is also re-exported to Nigeria. Imports to the region from Nigeria include construction materials and some hardware supplies; vegetable oils, sugar, preservatives, various beverages and liquors; textiles; audio-visual and electronics equipment, vehicles, engines, and household furnishings; and farm inputs such as

fertilisers, insecticides and some light farm implements. Before the 1994 CFAF devaluation, the border trade with Nigeria constituted an important economic activity.

3.2.3 Economic reforms

Some parts of the structural adjustment programme have had a direct impact on the region: the fertiliser reform programme, the restructuring of SODECOTON, the devaluation of the CFA franc and the salary cuts of civil servants, along with the irregular payment of their salaries. The SAP was introduced as a result of the collapsing national economy, which has continued to deteriorate in spite of these measures. It is sometimes difficult to isolate the specific effects of the SAP from those of the deteriorating economy. For example, the population pressure, limited land availability and lack of alternative employment opportunities are pushing farmers to intensify land use by reducing fallow periods and also by cultivating marginal lands. Elephants from Waza National Park have also been ravaging farms and causing havoc in the areas around the Park, because of the decreasing forage area for the animals as human activities encroach on their habitat. This can be ascribed to both the deteriorating economic situation and the SAP measures.

3.2.4 Agricultural production

Changes in land use. Although a variety of crops are cultivated in this region, sorghum, cotton, groundnuts and maize are grown by most farmers. The system of production is relatively simple and depends on the interplay of the climate and the topography, together with the soil type and the availability of land, labour, tools and agrochemicals. Except for mouskwari, which is dew-fed, and onions, which are irrigation-fed, all the crops are rain-fed, and have to be grown during the short rainy season from June to September.

The soils, which are mostly of poor quality, vary in texture and characteristics, with a lot of what is locally known as 'hardé', i.e. degraded, very compacted and concentrated infertile soils. Soil erosion by surface flow is quite common because precipitation far exceeds infiltration and through flow. The dark top soils or vertisols crack badly when dry. In 1987, the amount of land available per person was 1.85 ha, 42% of the national average. By 1993, it had dropped to 1.5 ha (41%). This change has very serious implications for land use in a region which is predominantly rural (80% as against 60% for the nation as a whole). Because of the fragile nature of the soils, land preparation does not require any heavy equipment. Most of the tools used are traditional, with animal traction, which is being introduced in the region by the parastatal cotton corporation SODECOTON, being the only relatively modern equipment in use. This is used mostly for cotton cultivation and, as yet, only by relatively few farmers. Agrochemicals are also used mostly for cotton cultivation. SODECOTON has made it clear to cotton farmers that they must use agrochemicals, which it supplies together with extension services.

Most crops are grown by smallholders on small parcels of land. The basic production unit is the family; depending on their means, some farm families hire some labour. The smallholders may be grouped into three categories; those who use only traditional tools, those who use some purchased inputs, including animal traction and hired labour, and the irrigation or onion farmers who farm on irrigated land and use some fertiliser and pesticides (see Table 3.3).

Using this classification, Ali (1994: 96) shows that the productivity of the irrigated farming system is the highest, and that of the traditional farmer the lowest. Irrigation farming is, however, limited by the water supply and the technology used. For this reason, irrigated farms are small and few in number. Moreover, water for human consumption is the number one priority in many villages (Ngono, 1991: 55).

Table 3.4 shows the evolution of the area under cultivation for the four main crops. Crop rotation is practised here. The total area under cultivation for these four crops increased from 1985/6 to 1991/2 by 21.7%, the increase being mainly for sorghum and maize, the principal staple crops of the region.

As already noted, *cotton* is the most important cash crop in the region, and most farmers use it as the basis of their crop rotation. Its production requires particular attention because it is very sensitive to disease and bad weather. All cotton produced must be sold to SODECOTON which provides extension advice on its cultivation. SODECOTON forbids farmers to grow cotton two years running on the same field, to prevent disease. Before planting cotton for the first time, fields must be cleared of all trees because their roots impede ploughing by animal traction, which SODECOTON is introducing for smallholder parcels of land larger than a quarter of a hectare. Sowing is done at right angles to the predominant wind direction so as to improve the effectiveness and safety of pesticide spraying. After harvesting, all plant residues must be removed and burnt (SODECOTON orders), again to prevent diseases. Fertiliser is always applied to cotton fields, following SODECOTON's recommendation. When farmers sell their cotton to SODECOTON, the cost of the inputs supplied are deducted.

Groundnuts are the next most widely cultivated cash crop, though some of it is used for home consumption. Unlike cotton, little care is needed in its cultivation, which is dominated by the traditional farming methods, with little use of agrochemicals.

Sorghum is consumed by almost all families in the region. Every farmer cultivates sorghum, mostly for home consumption, quite often on fields which the previous year were under cotton cultivation, thus allowing the crop to benefit from any fertiliser residue that may be left in the soil. Before the devaluation, some farmers applied urea bought from Nigeria to their sorghum crop. Some use dung to fertilise their fields. Because of its importance in the people's diet, sorghum is considered to be the most essential crop.

Maize and other crops are grown on relatively small parcels of land, indicating their relative (un)importance to the product mix. Maize, which is the same family as sorghum, is increasing in importance. However, like groundnuts, it is cultivated with very little use of agrochemicals.

Table 3.3 Far North: Production under varying cultivation conditions and percentage sold, 1991/92

Crop production and percentage sold	*Techniques of cultivation*			
	Manual[a]	*Animal traction I*[b]	*Animal traction II*[c]	*Irrigation*
Cotton (kg/ha)	565	1,250	1,800	1,125
% sold	99	100	100	100
Onions (kg/ha)	–	–	–	11,390
% sold	–	–	–	80
Groundnuts (kg/ha)	130	250	115	50
% sold	47	37	25	–
Niebe (kg/ha)	200	200	250	304
% sold	28	32	54	15
Sorghum (kg/ha)	830	1,570	2,000	1,400
% sold	13	6	11	14
Millet (kg/ha)	350	300	720	120
% sold	15	12	19	33
Mouskwari (kg/ha)	120	200	160	–
% sold	2	3	3	

Source: Ali (1994: 93)

[a] Production using only traditional equipment
[b] Production using one or two animals
[c] Production using more than two animals and/or some mechanised equipment

The role SODECOTON has played in providing the farmer with know-how in cotton production is very important, as the farmer can now be expected to transfer this know-how to the production of other crops.

Cause of observed trends in land use. The average gross income per farm in Far North was CFAF 53,000 before the devaluation (Sikod, 1991: 179) – only 29% of the national average. This shows why smallholders cannot easily capitalise their agricultural production. Although population pressure and the deteriorating economic situation are driving some farmers to expand on to marginal land, most smallholders do not have this opportunity. They therefore have to reconsider their product mix, which consists at present of sorghum, groundnuts, niebe and maize, grown in rotation with cotton. So far, the decisions that have influenced production

Table 3.4 Far North: Changes in area under production for selected crops, 1985–92 ('000 ha)

Subsector/ crop	*1985/6*	*1986/7*	*1987/8*	*1988/9*	*1989/90*	*1990/91*	*1991/92*
Cotton	94.5	94.7	11.6	89.0	93.8	89.9	95.0
Groundnuts	43.4	42.6	35.6	42.8	49.0	44.2	53.3
Sorghum[a]	236.3	240.9	212.2	243.6	272.4	232.2	271.8
Maize	22.5	24.0	12.8	30.9	46.4	44.7	60.3

Sources: SODECOTON, quoted in Ali (1994: 44–47); Ministry of Agriculture (1993).

[a] Includes mouskwari

have been subsistence requirements rather than revenue maximisation (Tables 3.5 and 3.6).

The returns to sorghum and maize, and the prices of these two crops, have been relatively low, and yet the area brought under production for these crops has gone up. This is because, as people have lost their jobs and their incomes have gone down, they have sought to protect themselves by increasing the cultivation of basic staple foods to ensure self-sufficiency. A positive side to the economic squeeze is that small private traders are entering the agricultural market, and farmers are beginning to sell their excess sorghum and maize.

Cotton production is the main source of revenue for the peasants in this zone, though, because of the fall in cotton prices since 1989 and the constant increases in the cost of inputs, they are trying to diversify their sources of income. The liberalisation of the fertiliser sub-sector has led to an increase in the cost of fertilisers and pesticides. SODECOTON has, however, attributed the notable increase in cotton production, which rose from 84,000 tons in 1980 to 165,000 tons in 1988 (Table 3.5), to the following factors:

- The introduction of improved varieties which pushed the yield from 1,295 kg/ha in 1980 to 1,480 kg/ha in 1988. Since 1990, SODECOTON has been experimenting with a glandless variety with grains rich in proteins which the peasants can consume. The idea is to make cotton production more competitive with food crops.

- A more efficient and effective farmer training programme by SODECOTON.

- An increase in the number of farmers from 120,000 in 1981/2 to over 170,000 in 1991/2.

Table 3.5 Far North: Returns to selected crops, 1991/92

Variables	*Crops*			
	Cotton	Sorghum	Maize	Onions
Yield (kg/ha)	1,333	1,198	2,215	28,438
Price (CFAF/kg)	90	40	45	30
Total revenue/ha (CFAF)	119,970	47,920	99,675	853,140
Costs				
Fertiliser (kg/ha)	124	76	110	778
Fertiliser (CFAF/ha)	15,004	4,560	6,600	46,680
Herbicides (litres/ha)	2.78			
Herbicides (CFAF/ha)	5,004			
Hired labour (CFAF/ha)	6,600	3,200	2,450	15,500
Seed (kg/ha)				11.5
Seed (CFAF/ha)				139,500
Engine pump (water) (CFAF)				77,000
Total costs (CFAF)	26,608	7,760	9,050	278,680
Net revenue (CFAF)	93,362	40,160	90,625	574,460

Source: Calculated by author from Ali (1994), fertiliser used for cotton is from SODECOTON at 120CFAF/kg and for other crops from Nigeria at 60CFAF/kg.

- An increase in the area treated from 56,800 ha in 1981/2 to over 90,000 ha in 1991/2.

- Mastery of the farming system being introduced by SODECOTON by the farmers. The use of animal traction increased from 36,800 ha in 1981/2 to 70,000 ha in 1991/2.

- The substantial increase in producer prices from 90 CFAF/kg in 1981 to 140 CFAF/kg in 1985/6, followed by a fall to 95 CFAF/kg in 1989/90 (Table 3.7). In terms of FOB prices, producer prices climbed from about 20% before 1985 to nearly 36% in 1985; in 1989, they dropped to 18% of FOB prices, as a result of the SAP measures. Producer prices have never, in fact, been indexed to world prices. Following the January 1994 devaluation, prices to producers should

Table 3.6 Far North: Prices/kg of selected crops, 1980–92

Year	*Crops*			
	Cotton	*Corn*	*Groundnuts (shelled)*	*Sorghum*
1980	80	60	140	
1981	90	75	201	
1982	205	80	205	
1983	117	80	163	
1984	130	130	209	130
1985	140	120	272	120
1986	140	90	219	70
1987	140	60	230	35
1988	140	65	233	55
1989	95	90	235	50
1990	95	60	235	50
1991	95	60	240	60
1992	85	65	235	55

Sources: *Rapport annuel de la section départementale des statistiques agricoles*, Ministry of Agriculture, Maroua (1993).

double. It is too early, however, to determine the response of smallholder farmers. As far as liberalising the cotton subsector is concerned, it cannot follow the arabica coffee subsector which is completely liberalised in terms of input purchases and sales of coffee. Cotton farmers have no such flexibility, since they are tied to the monopolist buyer, SODECOTON, which is 30% owned by the Compagnie Française d'Exploitation des Fibres Textiles, CFDT, and which supplies them with inputs on credit.

The management of wood. Wood plays a very important role in the economic, social and cultural lives of the people of the region. It is used for construction, and as a source of energy, food and medicine. Traditionally, the forest is a collective property and is open to every member of the community for exploitation. Although, because of the fragility of the environment, people have been sensitive to harvesting wood they do not need, the changing economic environment is leading them to change their attitudes toward this property of the commons.

The demand for wood is dominated by fuelwood, which accounts for over 95% of all the wood exploited and consumed in the region. Table 3.8 shows the demand and supply for fuelwood. The last column in the table shows the degree to which local production meets demand. The deficit between demand and supply is increasing over time.

Table 3.7 Far North: Cotton – area cultivated, production, yield, FOB price, producer price, and PP/FOBP, 1980–92

Year	*Area cultivated (ha)*	*Production (tons)*	*Yield (kg/ha)*	*FOB price (CFAF)*	*Producer price (CFAF)*	*PP/FOBP*
1980	65,340	84,453	1,295	480	80	0.17
1981	63,340	79,819	1,260	510	90	0.18
1982	54,629	72,361	1,325	690	105	0.1
1983	71,092	94,580	1,330	755	117	0.15
1984	73,316	97,412	1,329	580	130	0.22
1985	89,232	115,544	1,295	390	140	0.36
1986	94,461	122,773	1,300	400	140	0.35
1987	94,744	113,699	1,200	465	140	0.30
1988	111,604	165,431	1,482	440	140	0.32
1989	89,004	103,877	1,167	515	95	0.18
1990	93,814	113,258	1,207	465	95	0.20
1991	89,848	114,362	1,273	385	95	0.25
1992	90,000	11,500			85	

Source: Ministry of Agriculture (1993). Producer price/FOB price calculated by author.

Table 3.8 Far North: Demand (consumption) and supply (production) of fuelwood, 1987–2000 ('000 m^3)

Year	*Population*	*Consumption*	*Production*	*Production/ consumption*
1987	1,855,695	3,944	2,809	71.2
1990	2,021,860	4,248	3,001	70.6
1992	2,138,390	4,460	3,109	69.7
2000	2,690,950	5,108	3,280	64.2

Sources: Adapted by author from BONIFICA reports.

A 1981 forestry law regulating forestry, wildlife and fisheries, requires that nationals pay for and obtain tree permits before exploiting fuelwood, poles and the manufacture of charcoal, whereas they are allowed to collect dead trees free of

charge for their personal use, even from forest reserves. Table 3.9 shows the number of tree permits issued, 1985/6–1991/2, and Table 3.10 shows the villagers interviewed thought had the authority to decide on who could exploit the village forest. From Table 3.9, it can be deduced that the majority of those who deal in fuelwood do so without permits. Table 3.10 shows the uncertainty in villagers' minds about who manages the forests. In 1983, the roadside price for fuelwood was CFAF 150–200 per log, or about CFAF 1,500–2,000 per cubic metre (Fultang, 1991). In 1991, this price had climbed to 300–350 francs/log or 3,000–3,500 francs/metre (Biesbrouck and Guijt, 1991). Also, those who collect fuelwood are having to travel longer distances to fetch it.

Although, allowing for inflation, it is possible to say that prices have not gone up in real terms, the nominal change has an impact on the perception of the peasants, especially at a time when people are experiencing falls in their nominal incomes. All these factors show the growing difficulties producers have in meeting fuelwood demands. The increase in the price of fuelwood is likely to serve as a motivation for some people to take up sales of fuelwood as a means of generating income.

As the economic situation continues to deteriorate, the institution for the collective management of the forests is collapsing. Gradually, people are encroaching on the forests more than they should, a situation which is bound to have a negative impact on the environment.

The per capita energy consumption for the region has been found to be 1.17 to 2 m^3 per annum. Other alternative sources of energy include stalks of sorghum and millet and cow dung. The use of kerosene and gas is of limited potential because most households cannot afford the cost. Wood fuel is therefore very important. The cost of fuelwood before devaluation represented about 20% of the total cost of a meal for a family of 8 in the province.

3.2.5 *Implications of changes in land use for the environment and sustainability*

Barbier (cited in Cromwell and Winpenny, 1993: 638) has developed a

Table 3.9 Far North: Number of tree permits issued, 1985/86–1991/92

	1985/86	*1986/87*	*1987/88*	*1988/89*	*1989/90*	*1990/91*	*1991/92*
Permits	85	114	73	12	12	10	14

Source: BONIFICA (1990); Forestry Delegation, Maroua (1994).

Table 3.10 **Far North: Authority to decide on who exploits village forests**

Authority	*Number*	*Percent*
Village head (Chief)	66	21.1
Forestry Officer (Administration)	100	32.1
Individual proprietors	65	20.8
No-one	81	26.0

Source: IRA (1991).

categorisation of the erosive powers of some common crops in Malawi based on the criteria of ground cover, soil fertility maintenance and soil structure cohesion as well as typical cultivation practices. According to these criteria, tobacco, cotton, maize and cassava are erosive crops. Cotton, the main cash crop of Far North Province in Cameroon, and maize, one of the main staples, are erosive crops. As already noted, cotton farmers are almost locked into cotton cultivation. Inputs and extension services are supplied to them on credit, by SODECOTON; this arrangement makes things easier for them, especially as payment for the cotton they supply to SODECOTON is in the form of a lump sum. Lump-sum payments enable farmers to procure those consumer goods requiring savings, which most of them cannot make. Smallholder farmers therefore welcome SODECOTON's encroachment to expand cotton production.

Cotton production requires that the land be laid bare before planting, thus exposing it to wind erosion. Also, the obligatory use of agrochemicals is not necessarily good for the environment. SODECOTON has laid off workers as part of the SAP measures, and prices of inputs have gone up, also as part of SAP measures. Cotton producer prices have dropped, also as part of SAP measures. As noted earlier, the 1994 devaluation should raise them, but the cost of inputs, which are nearly all imported, will also go up. The effect of the devaluation in this area will be seen towards the end of the year when the cotton season opens, i.e. when smallholders sell their cotton to SODECOTON.

One major effect of the devaluation for the region has been the reduction in the volume of the border trade with Nigeria. According to Radio Cameroon, Maroua, the trade has dropped to a trickle. While the devaluation has the positive effect of reducing imports, it has the negative effect of reducing the smallholders' ability to capitalise their agricultural activities. The cost of procuring agricultural inputs has become too high for what is basically a subsistence economy.

As cotton production expands into the more fertile lands in accordance with SODECOTON preferences, the cultivation of other crops will have to expand into marginal lands. It was noted above that the institution for managing the forests has

collapsed, so there is more encroachment on the forests to satisfy the increasing demand for forestry products. This combination of activities has led to serious encroachments on the wildlife habitat.

The above discussion demonstrates that the rural economy in Far North Province is not sustainable, as measured here by the decreasing availability of land and the degradation of the environment as a result of human activities, which is reducing what will be bequeathed to future generations. This unsustainable use of the environment is being accelerated by the SAP measures which are intended to make the economy more efficient.

3.3 The Impact of Structural Adjustment on the Cocoa Growers of East Province

3.3.1 General background

East Province covers an area of 109,000 km^2. There are three main types of vegetation: a dense, semi-deciduous forest area (76,300 km^2); a transitional area which is half forest and half savanna (8,100 km^2), and a zone of scrub savanna, criss-crossed by corridors of forest. The forest is the province's chief resource. East Province is the least populated region of Cameroon (517,198 in 1987). The population, which belongs to four major language groups (Baka, Bantu, Semi-Bantu, Sudanese), is unequally spread over the region: 22% is concentrated on around 3% of the land, while 46.1% of the area is empty (see Tables 3.11 and 3.12).

Table 3.12 shows that the districts of Upper Nyong and Boumba and Ngoko, which between them cover more than 65,000 km^2, are virtually human deserts. The sparse population of East Province constitutes a major economic drawback, but, on the other hand, it offers an opportunity for environmental protection.

The socio-economic infrastructure as a whole is limited, especially in the fields of education, health and transport. In education, the main problem is that of population distribution: the school network is made up of small units serving vast areas (410 km^2 on average per primary school in the Boumba and Ngoko areas and 10,129 km^2 per high school or secondary school in the same département). A number of schools teach several classes in the same room. The percentage of children receiving full-time education dropped from 69.5% in 1985–6 to 60% in 1990–91. This is linked to the stagnation, and even the fall, in pupil numbers (see Table 3.13). The drop-out rate is around 16% over the whole province, reaching 21% and 20% respectively in the Boumba and Ngoko *départements*.

The health situation in East Province is precarious, mainly due to the shortage of financial resources. The number of doctors, nurses and health workers is

relatively satisfactory in comparison with other provinces (1 doctor for 23,000 inhabitants, 1 nurse for 1,654, 1 health worker for 1,537). The same applies to health establishments (23 hospitals, 13 sophisticated health centres, 81 elementary health centres, 18 ante-natal and maternity hospitals and dispensaries, 5 pharmacies, 46 pro-pharmacies, 126 health villages). The running of these facilities is hampered, however, by the lack of financial (funding dropped from CFAF 30–40,000 a month in one hospital in 1992 to CFAF 10–15,000 in early 1994) and material resources, and by the unreliability of the staff who show a high level of absenteeism due to lack of motivation. The infant mortality rate for the under-fives is very high. In a survey by Sieffert and Troung (1992) in Mbang and Dunako district, an average 66% of mothers had lost a child under the age of five, with a marked difference between urban and rural areas, the chief cause of death being proteino-energetic diseases, tetanus, diarrhoea, measles, meningitis and witchcraft. Sickness levels are also high; 41% of children were ill on the day of Sieffert and Troung's survey and 14% were suffering from diarrhoea. The main illnesses were respiratory diseases (37%), skin diseases (21%), worms (12%), malaria and related diseases (16%). Epidemiological monitoring is poor and irregular and levels of vaccination cover low (10%).

East Province has one conservation area: the Dia Wildlife Reserve created in 1950. Over recent years, it has barely been maintained due to lack of human and material resources (1 Conservator and 7 Rangers to guard an area of 500,000 ha); consequently, poaching has become widespread. The situation may improve under the ECOFAC project (protection of tropical forest ecosystems), a regional project financed by the European Development Fund, which got under way in 1993. Other areas about to become conservation areas are Lake Lobeké, Boumba-Bek and the

Table 3.11 East Province Population and Population Density, 1987

District	*Area (km^2)*	*Population*	*Density of inhabitants/km^2*
Upper Nyong	36,384	148,475	4.08
Lom and Djerem	26,345	156,642	5.9
Kadey	15,884	132,146	8.3
Boumba and Ngoko	30,389	79,935	2.6
Total	109,002	517,198	4.7

Source: 2nd Population Census (1987).

Note: This table reveals an average population density of 4.7/km^2. This conceals a huge variation in local situations, in particular the size of uninhabited areas as shown in Table 3.12.

Table 3.12 East Province: Breakdown of uninhabited areas by district

District	*Total area A (km^2)*	*Total area B (km^2)*	*Ratio B/A*	*% of land inhabited rel. to EP*
Upper Nyong	36,384	18,373	50.50	36.56
Lom and Djerem	26,345	2,642	10.03	5.26
Kadey	15,884	4,334	27.29	8.62
Boumba and Ngoko	30,389	24,905	81.92	49.56
Total	109,002	50,254	46.10	100

Sources: Nsangou (1984).

forest of Nki; these may receive funding from the Global Environmental Facility.

The main environmental problems observed in East Province are:

- the increased scarcity, even disappearance, of certain wildlife (gorillas, chimpanzees, elephants) and plant species;
- the transformation of dense primary forest into secondary and tertiary forest;
- the depletion of the forest's high-quality commercial species.

These problems are chiefly the result of forest development both direct (forest industries) and indirect (increased human demands on forest resources), and are compounded by the lack of resources (human and transport) of the public watchdog body.

3.3.2 Changes in the economic situation of cocoa growers since 1980

Cocoa is grown especially in the forest area of East Province where climatic conditions are favourable. The sector is made up mainly of traditional smallholdings rarely exceeding 2 ha and employing mainly family labour. The economic situation of the growers has changed in recent years as a result of the government's economic, and, above all, agricultural, policies.

Between 1980 and 1988, the authorities introduced measures to improve agricultural productivity, including that of cocoa. These measures include:

- the stimulation of farmers by holding competitions for the best plantation, plus a triennial agricultural show;
- the regeneration of cocoa trees supported by bonuses for uprooting and replanting;
- increased plant protection by providing free phytosanitary treatment.

To implement these measures the authorities established or reinforced parastatal

Table 3.13 East Province: Distribution of schools and number of pupils at different levels of education

Level	*Number of schools*	*Number of classes*	*Number of pupil*	*Pupils per class*
Primary schools	412	1,862	90,396	48.54
High schools and secondary schools	23	249	14,247	57.2
Technical schools and colleges	5	54	2,886	53.44

Sources: Délégation Provinciale du MINPAT (1992a, 1992b).

bodies, the most important for the cocoa growers being:

- the National Rural Development Fund (FONADER), with the aim of providing credit for farmers and financing rural development projects (the purchasing and distribution of phytosanitary products);
- the Integrated Priority Action Zone (ZAPI) with a mandate to support farmers in the processing and marketing of agricultural produce (cocoa), the provision of rural credit, and the development of social and economic infrastructures;
- co-operative savings and lending banks (SOCOOPED, SOCOODER) which concentrated on the marketing of agricultural produce, the provision of loans to growers for social purposes (schooling, housing) or for production (chemicals, light equipment, sprayers) and assisting young growers with start-up loans.

Despite the considerable financial and human resources devoted to the implementation of this policy, the impact on cocoa growers in East Province has been limited. In fact, yields have increased little (around 100 kg/ha as against the national average of 381 kg/ha). Production figures for Upper Nyong district are given in Table 3.14. This shows that the area cultivated remained virtually constant, as did the yields between 1982 and 1988; these were low compared with the national average but since 1988 there has been a downward trend. The apparent prosperity observed during this period was in fact due to the maintenance of producer prices (see Table 3.15) and to the increase in state subsidies to the parastatals mentioned above. Table 3.16, giving figures for cocoa growers' expenditure, shows that consumption ranks high, while productive investment is not a priority.

Table 3.14 **East Province: Production of cocoa in Upper Nyong district, 1982–92**

Year	*Production (kg)*	*Area (ha)*	*Yield (kg/ha)*
1982/3	2,246.553	23,000	91.7
1983/4	2,658.217	23,000	108.5
1984/5	2,727.275	23,000	111.3
1985/6	1,894.819	24,845	77.3
1986/7	2,832.560	24,845	115.68
1987/8	2,430.820	23,000	105.69
1988/9	2,091.979	23,000	90.95
1989/90	912.980	23,000	36.69
1990/91	1,715.986	23,000	74.60
1991/2	524.088	23,000	22.786

Sources: Annual reports of Upper Nyong Regional Delegation for Agriculture 1982–1992, Abong-Mbang.

Food crops are also grown on the same farms (see Table 3.17). This activity is mainly in the hands of the women and production is chiefly for home consumption. Speculation in certain food products (groundnuts, cucumbers, plantains) also encourages this activity. The increase in production in 1981/2 can be explained by government investments in the rural sector for the 1981 agricultural fair held in Bertoua. From 1985/6 to 1990/91 production went steadily up largely because of the falling prices for cash crops; this increase was not achieved by increased productivity but by the expansion of the area under food crops.

In 1988, the fall in world cocoa prices and in State revenues led to a reassessment of the previous economic and agricultural policy. This revision introduced the adoption of structural adjustment measures, mainly:

- the disbanding of parastatal bodies, including FONADER and ZAPI;
- the co-operative banks which had been government-run were made independent, which led to the demise of SOCOOPED and SOCOODER;
- the various grants to help stimulate production were withdrawn.

At the same time, there was a sharp fall in the producer price for cocoa growers, which led to a considerable drop in their income. Faced with these difficulties, the growers increasingly turned towards food production and hunting and fishing, virtually abandoning their cocoa plantations, in particular because all the facilities previously provided by the State had been suspended.

The producer price of cocoa and speculation on the prices of food products emerge as the key factors affecting the socio-economic activities of cocoa growers

since 1980. Production techniques have remained archaic which accounts for the low yield.

3.3.3 Adjustment measures and their impact on cocoa growers: environmental consequences

Stabilisation measures. The sale of public service vehicles is the measure which most affected the cocoa growers; most of the administrative services in East Province, including those of the Department of Agriculture, no longer have any transport. In a district of 16,000 km^2, such as that of Lomié, there is only one public service vehicle belonging to the public works department. All the other departments, including the administrative authorities, must wait for a headquarters or provincial official to visit before they are able to travel within their area. This situation prevents government agents from making field visits, thus depriving farming communities of the only chance of support still possible after the disbanding of the parastatals (see above). The effects of this measure have been

Table 3.15 East Provinces: Cocoa prices in Mbang district, 1980–94 (CFAF/kg)

Year	*Purchase price per kg*
1980/81	300
1981/82	310
1982/83	330
1983/84	370
1984/85	410
1985/86	420
1986/87	420
1987/88	420
1988/89	420
1989/90	250
1990/91	220
1991/92	200
1992/93	200
1993/94	150[a]

[a] CFAF 300 after devaluation.

Source: Annual reports of the Mbang Local Agriculture Delegation.

Table 3.16 **East Province: Expenditure of cocoa and coffee growers**

Age of growers	*School fees*	*Taxes etc*	*Debts etc*	*Food*	*Cloth -ing*	*Agric. inputs*	*Housing*	*Total*
Under 30	6	4	8	1	5	4	3	31
30–39	3	1	2	3	2	2	2	15
40–49	8	5	2	2	0	1	0	18
50	9	6	4	5	2	0	0	26
Total	26	16	16	11	9	7	5	90
%	28.88	17.78	17.78	12.22	10.0	7.78	5.55	100

n = 90 growers

Source: Nsangou (1984: 485–6).

Table 3.17 **East Province: Food crop production, 1980–90**

Year	*Production (t)*
1980/81	577.371
1981/82	642.237
1982/83	641.834
1983/84	521.742
1984/85	412.817
1985/86	330.392
1986/87	431.305
1987/88	446.619
1988/89	458.972
1989/90	458.972
1990/91	465.522

Sources: Provincial Department of Agriculture, Reports and Figures, East Province.

exacerbated by the freeze and even the drop in the salaries of government officials who are paid irregularly: they have lost their motivation and are absent for at least one week a month while they collect their pay in Yaoundé.

As part of the reform of the civil service, there has been a reduction in recruitment which has contributed to the growing unemployment. In nearly all villages, the number of qualified young people who are unemployed is very high. Faced with such a situation, parents no longer feel it is worth sending children to school. The presence of these idle young people in the village also threatens social stability. The cutback in expenditure by the restriction of staff mobility also limits the number of State agents: all the progress reports from the various departments mention the shortage of staff. This measure exacerbates the lack of support for agricultural communities.

With regard to the reform of public bodies, the disbanding of ZAPI and FONADER and the demise of the State co-operatives, which were among the biggest employers in East Province, not only meant an end to the support they provided farmers with respect to production, but also led to the unemployment of many of their offspring. The closures led to the loss of over 1,000 jobs between 1988/9 and 1991/2; ZAPI alone shed 487 jobs in 1987. Most of the former employees of these agencies have returned to their villages where they grow food crops and hunt. The closure of the parastatals in East Province and the withdrawal of the credit they provided is putting the cocoa growers under severe financial pressure, which places them at the mercy of the first trader who comes along.

The closure of FONADER deprived them of any chance of obtaining a loan. Since its disbandment, no other financial institution has been set up to provide loans to agricultural communities.

Boosting economic activities. The key measures for cocoa growers are the improvement of growing techniques with the aim of increasing yields. For cocoa, the emphasis must be on the regeneration of the cocoa trees and on plant protection. Department of Agriculture reports and observations in the field show that there has been no revival since 1988; in the majority of cases plantations have been abandoned. Plant protection is now a luxury for the cocoa growers of East Province. With regard to brown rot, treatment has been completely liberalised: it is up to the planters to buy the product (often available only in Yaoundé) and to arrange the spraying. Transport costs are a major constraint for farmers wanting to acquire the product. As regards treatment against capsids the government has gone into partnership with the growers: it buys the products and the equipment, and the growers provide the petrol and the batteries and cover the transport and maintenance costs of the technician provided by the authorities. In the majority of cases, the growers are quite incapable of meeting these expenses. As a consequence the trees are deteriorating and being abandoned – at a rate of 60% in 1992/3 in Upper Nyong, the main cocoa-producing area. This means a drop in yield, quite contrary to the aims of the SAP.

The liberalisation of the marketing of cocoa has completely disorganised the market. Before liberalisation, purchases were made at regular markets in places and on dates decided by the authorities, thus ensuring that transactions were carried out

properly. With liberalisation, there is no longer such control. Exploiting the growers' urgent need for cash, traders pay no attention to established prices and fraudulent practices have grown apace. The situation is exacerbated by the lack of transport, the growers' own reluctance to join forces to defend their interests (they show a strong individualist tendency) and their isolation.

These factors, combined with the plummeting producer price, have severely reduced the cocoa growers' income, and this has caused them to lose interest in producing cocoa.

Galvanising the forestry sector, envisaged in the SAP as 'an important potential source of currency', has been translated into action in East Province by increased forestry exploitation, as shown by the growing number of logging companies operating in this sector; figures rose from 14 in 1991–2 to 25 in 1992–3. Similarly, production rose from 789,576 m^3 in 1980–81 to nearly 1,400,000 m^3 in 1992–3. The logging companies attract the unemployed and also the cocoa growers who can sell them food produce and game. Forest exploitation therefore encourages cocoa growers to switch to food crops and hunting. As already emphasised, forest exploitation appears to be one of the factors increasing human pressure on forest resources. An experiment in sustainable forest management, bringing together a logging company, SFID (Société Forestière Industrielle de la Doumé) and the local communities, is currently being conducted in East Province as part of a pilot project known as API–DIMAKO (Aménagement Pilote Intégré de Dimako). Some aspects of this project, such as compiling a forest inventory of the undeveloped areas, raise doubts as to its real objectives. Could API–DIMAKO be SFID's response to the mobilisation of ecological organisations in Europe and North America against the exploitation of the tropical forest?

As regards the industrial sector, the lifting of trade restrictions and the price increases for essential products such as oil, soap and salt have been a major blow for the cocoa growers whose income is already depleted. The situation has been further aggravated by the devaluation.

East Province has not especially benefited from measures to boost the water and energy sectors. It remains highly deficient in supplies of drinking water and electrification. One of the major problems associated with the SAP remains the maintenance of drinking water installations. Most water supply points are currently non-operational.

Infrastructures in general, and more specifically in the area of communications, have seen no noteworthy improvements (except for the opening up of forest tracks which is of no interest to already established growers). East remains the province with the fewest roads suitable for motor vehicles, with only 80 km of asphalted road and 2,595 km of dirt track, i.e. a density of 1 km of asphalted road for 1,365 km^2 and 1 km of dirt track for 42 km^2.

In the field of education, the measure which affects the cocoa growers of East Province most is the withdrawal of grants and the introduction of fees for university places. Considered since Independence as a region which is under-resourced, East Province is one of the regions which benefited from the measures to encourage education by positive discrimination in awarding grants to students

from the province. In the current context, it is difficult for a grower to meet the costs of a university education. The enrolment fee (CFAF 50,000) is far in excess of the income of some growers. The proportion of students from East Province in higher education must have fallen.

Of all the different provisions of the SAP, the one which has really begun to get under way is the strengthening of the process of encouraging grassroots participation in socio-economic development through FIMAC (Financing and Investment in Agricultural and Community Micro-projects). There were difficulties in implementing FIMAC because of problems in forming community groups, as a result of the individualism of the various communities as well as their inability to contribute their share which amounts to 25% of the cost of the project for which they are seeking funding. In Mbang district, four groups have been set up, but so far only one has received funding from FIMAC.

This brief look at the adjustment measures affecting cocoa growers of East Province shows that, overall, the measures implemented have had a negative socio-economic impact (a drop in income for growers and increased unemployment among the young). The measures which could have had a positive impact (boosting economic activity) have had only limited success in relation to their provisions, as with the FIMAC programme, and in most cases have not got off the ground in East Province.

Confronted with this situation, the cocoa growers and unemployed young have developed new strategies for survival.

3.3.4 Strategies for survival

As noted earlier, food crops have increased considerably throughout the province since 1985/6, with larger areas given over to them. Several large plantations have been created such as the one in Nguelemendouka, where, in less than a year, 160 ha have been cleared over a distance of less than 10 km, solely for planting food crops. This trend can be seen especially in easily accessible areas. Elsewhere, hunting is the main activity, particularly for unemployed young people. It is strongly encouraged by the opening up of forest tracks and the lack of any governmental controls.

3.3.5 Impact on the environment

As a result of the SAP, East Province, and especially its forest region where cocoa is grown, is becoming increasingly degraded owing to the uncontrolled proliferation of economic activities (forestry exploitation, food crop cultivation and hunting). In the long term, these changes will have repercussions not only on the stability of the environment, but also on human activities and the health of the local and national economy.

3.4 The effects of structural adjustment on the Cameroon forestry sector, with particular reference to South Province

3.4.1 Introduction

The forest cover of Cameroon is amongst the most important in the sub-region in terms of its size, the diversity of its species and the earning potential of its wood. This rich diversity is due to its geographical location, between latitudes 2° and 5° north. It covers an estimated surface area of 22.5 million hectares, or 47% of the national territory, made up of 17.5 million ha of humid tropical forest on solid ground, 4.5 million ha of mixed forest and 0.5 million ha of marshland forest.

National surveys covering nearly 14 million ha show that the forest potential can be estimated at almost 1.5 billion cubic metres, of which 450–650 million m^3 can be exploited directly according to market parameters. In addition, special species of medicinal plants and wild fruit trees form not only the basis of the traditional and nutritional pharmacopoeia, but also a not insignificant source of revenue for the State.

The Cameroon forest has some of the richest and most varied fauna in the continent. Cameroon possesses world famous national parks such as Korup, Dja and Waza (areas of total conservation and biospheric heritage). The forest is an important economic asset to Cameroon. It was estimated in 1985 that 15,000 people were employed directly and another 15,000 indirectly in the forestry sector, and that the output from this sector represented 3% of GDP. Excluding oil, wood products are the third largest export after cocoa and coffee, accounting for 7% of the total.

Since adjustment began in the late 1980s, the value of forest services and products has remained stable or has increased, unlike the case for agriculture. Forestry value added doubled between 1986 and 1990 from CFAF 80 bn to CFAF 161 bn. During this same period the contribution made by the timber industry to GDP increased from 3.2% in 1985/6 to 4.8% in 1988/9, whilst timber exports have continued to improve in quality and value.

Cameroon adopted the Plan d'Action Forestier Tropical (Action Plan for Tropical Forests (PAFT) in 1985. In May 1989 the government published its first document outlining its strategy for economic recovery (Republique du Caméroun, 1989) which, with regard to the forest, reiterated commitments agreed to with the international community in April within the framework of the PAFT.

3.4.2 Deforestation in South Province and encroachment on protected areas

Forestry exploitation is highly selective in Cameroon because it responds principally to the demands of the international market.

On site the contractors cut a dense network of roads into the forest so as to reach the 1–3 trees per ha that are actually in demand on the market. As a result of this type of exploitation at national level over the past decade, more than 50% of production is made up of three species only out of the 300 or so recorded in the area of dense forest, namely, Ayous (*Triplochiton scleroxylon*), Azobé (*Lophira alata*) and Sapelli (*Entandrophragma cylindricum*). In South Province about 70% of the annual wood production between 1987/8 and 1991/2 has been made up of six species only: Azobé, Fraké (*Terminalia superba*), Ayous, Tali (*Erythropleum ivorense*), Bidou (*Saccoglotis gabonensis*) and Movingui (*Distemonanthus benthiamus*). The most serious consequence of this selective lumbering is the scarcity, even the disappearance, of some species. A current case in point is that of the *Baillonella toxisperma*, a very useful tree for the local population because its seeds make a tasty cooking oil, but one that is also much sought after by the contractors because of the high price it fetches on the international market.

In South Province, the roads opened up in the forests by the contractors make it easier for the inhabitants to penetrate to satisfy their constant need for virgin land for agricultural purposes. But the populations of this region practise a shifting slash-and-burn type of agriculture. The fires lit by the peasants in order to 'clean' the cleared plots are often not controlled properly and, as a result, it is common for a fire to break out of these cleared plots and burn down vast areas of forest. These fires, destroying in their wake trees, saplings and seeds, seriously compromise the natural regenerative potential of the forest.

It is therefore logical to conclude that the deforestation in South Province is largely attributable to lumbering and to the shifting slash-and-burn type of agriculture, the first facilitating the practice of the second. The figures currently available for the rate of deforestation have been calculated at national level from the study of aerial photographs. As far as the forest is concerned, the rate is estimated at 100,000 ha per year on average.

Regarding the encroachment of forestry exploitation on protected areas in South Province, one case only is worth mentioning. Forestry exploitation in the Campo Wildlife Reserve by the Société Forestière de Campo was made possible over a period of 25 years by an agreement signed with the government on 30 April 1969. The exploitation, which involved over 200,000 ha of the reserve, is currently suspended.

In South Province, as far as environmental deterioration is concerned, one can observe two main types caused by forest exploitation:

i) The disappearance of over-exploited species because of too much demand from the international market.
ii) Soil erosion on empty slopes as a result of the construction of roads by forest exploiters.

3.4.3 Reafforestation and regeneration

It is important to point out that natural regeneration is the only mode of regeneration on the national domain, which, however, supports the near totality of

forest exploitation activities taking place in South Province.

The reafforestation plantations established in South Province by ONAREF (replaced by ONADEF in 1990) concerned only the southern part of the Kienké reserve, with a total of 7,258 ha. These operated from 1950 to 1989. The technical services of ONADEF have pointed out certain weaknesses of the areas planted and the impossibility of extending the regeneration exercise owing to the lack of financial resources.

With regard to the non-allocation of resources, all the benefits from rents, taxes, etc., generated by the forestry sector have been paid directly to the public treasury. ONADEF, like its predecessor, has never withdrawn its complete share of this income so as to implement its development policies. Consequently, the renewal of forestry resources is guaranteed neither by the private sector nor by the national domain of the State apparatus. The fact is that such problems are long-standing in the forestry institutions of Cameroon.

One of the possible solutions aimed at avoiding the mistakes of the past would be the creation of a forestry fund. This would need clearly defined budgetary provisions. Such a new line of action would enable tree planting and regeneration projects to be scrupulously and continuously monitored and evaluated, so as to achieve the expected results.

3.4.4 National forestry policy

The national forestry policy document (MINEF/Dirèction des Forêts, 1993a) dating from March 1993, was produced after consultation with all interested parties (NGOs, industry, investors, etc.). Up to that time no comprehensive written forestry policy had existed for Cameroon.

Its overall objective is to maintain and develop the economic, ecological and social functions of the forest, within the framework of integrated management which allows the sustainable conservation and utilisation of forest resources and ecosystems. There are four main aspects:

- To ensure the protection of the country's forestry heritage and to safeguard the environment and the preservation of biodiversity.
- To improve the integration of forestry resources into rural development, in order to raise the local population's standard of living and to help them contribute to the conservation of resources.
- To increase the forest's contribution to GDP, whilst preserving future yields.
- To galvanise the forestry sector by implementing an efficiently regulated system and ensuring that all those involved participate in its management.

The new forestry policy is designed to encourage the reasonable exploitation, the conservation and the renewal of the forest resources over the whole forest area, which is composed of two principal parts: the Permanent Forest domain (*forêts du domaine permanent*) and the National Forest domain (*forêts du domaine national*) as defined in the land-use plan.

i) Permanent Forest domain (*forêts du domaine permanent*) – production forests (*forêts de production*)

The production forests of the Permanent Forest domain are to be managed with the aim of providing permanent forest cover in the relevant areas. The forests will be divided into development units allocated as long-term forestry concessions, linked to processing factories; the allocation of these concessions will be made by public tender.

The aim is to set up a development programme for a sustainable yield from the production forests in the Permanent Forest domain. The concession holders will have to take part in the design and implementation of the development plan, as well supervising their own concessions.

Responsibility for the management/exploitation contracts, based on specifications, will be placed on the concessionaires, to ensure that the forest resources are maintained. Each management/exploitation contract will guarantee a yield based on a calculation of the potential output; the concessionaire in return must participate in the management and supervision of the concession. The management plan included in the contract will determine the actual quantities of wood to be produced, and the silvicultural operations to regenerate and improve the forest which are indispensable to the preservation of the forest ecosystem.

The implementation of the proposed forestry plan will remain the responsibility of the Forestry Service and its financing will have to be supported by the forestry activity itself. This activity could be sub-contracted out to private companies or public bodies.

ii) National Forest domain (*forêts du domaine national*)

The National Forest domain, for which the forestry policy recommends conservative or gradual development adapted to the needs of the local population (planned exploitation), will be the ideal place for forestry and agro-forestry educational programmes designed to protect the forest cover whilst stabilising agro-pastoral activity. The exploitation of forest resources will be carried out through annual sales of timber by tender.

The implementation of these measures will take into account the existing industries in order to ensure their supply in the best way possible; a transitional phase of five years is planned, at the end of which the current licences will have expired. It is during this period that the large wood-producing forests in the Permanent Forest domain will be divided into development units. The preparatory work by the forestry technical services department is almost complete. The industries which already hold licences in the forests that will become part of the Permanent Forest domain will be able to benefit from annual timber sales, during the time it will take to implement the plan. The established industries which get their supplies from what will be the National Forest domain, and whose licences are about to run out, will be given preferential treatment for concessions as similar to their previous licences as possible, assuming that their records show a willingness and an ability to adapt to the recommended changes.

What emerges from this is that the new forestry policy is aiming towards a valorisation of forestry resources. This economic valuation brings into play the

processing industries, the first link of which (the industries involved in the initial processing) is closely tied, in the national forestry context, with forestry development. Also, in order to ensure forestry development, in particular that of the processing industries, the new forestry policy recommends an increase in timber processing, using the tax system as an incentive.

One of the main objectives of the new forestry policy, and of the new Code that enforces it, is the long-term management of forest resources, and measures have been taken in the new forestry law promulgated on 20 January 1994 to meet this objective. Thus, the new forestry policy aims at stabilising both forestry exploitation and agriculture.

The new law states that:

- Exploitation in a domain production forest must be carried out in accordance with a management programme. This will implement – on the basis of set objectives and a predetermined framework – a number of activities and investments aiming at sustained production of forestry products and services without endangering the intrinsic value or compromising the future production of the aforementioned forest and without undesirable consequences for the physical and social environment.
- When a domain production forest is exploited for the sale of timber, it must only be for a limited period of time and the volume of wood sold must be specified in advance and must not exceed the annual felling allowance. Furthermore, the parameters (i.e. surface area and duration) of permitted timber sales in National Forests are set by the Forestry Service.

Although the actual laws enforcing the above clauses are not yet in place, one can say that these clauses might, if correctly applied on site, minimise the current causes of deforestation, namely, selective lumbering and shifting slash-and-burn agriculture.

3.4.5 Forestry and land use

The new forestry policy is one of the components of a national strategy to promote economic activity in the rural areas. It is part of a larger land-use strategy and works hand in hand with agricultural policy. Both the new forestry and land-use policies are included in the SAP reforms.

It is with the aim of ensuring that the impact of current human activities does not lead to a depletion of natural resources that the Forestry Department of the Ministry of the Environment and Forests has formulated a plan for allocating land in the dense forest of South Province, with a view to rationalising the use of the land in this region (MINEF/Dirèction des Forêts, 1993b).

The land-use plan aims to organise the forest area first by outlining the State's Permanent Forest domain (*forêts du domaine permanent*): this Permanent Forest domain will subsequently be classified into various zones according to their use. The forests assigned to the production of timber will have their own category (fx),

with output managed on a sustainable basis.

The forests not included in the Permanent Forest domain will be classified as multi-purpose forests, meaning that they can be assigned to other uses (farm land, pasture land, etc.); they will make up the National Forest domain.

Only land covered by the National Forest survey is affected by the land-use plan. This land covers a surface area of about 14 million hectares, or about 30% of the national territory. The land-use project does not therefore affect all the forest of Cameroon, but includes the majority of the dense humid tropical forest, which is almost the entire commercial forest.

The proposed division of areas according to the allocated categories is shown in Table 3.18. 'Areas of human occupation (af)' are defined by the space needed by humans, taking into account the land requirements of the population up to the year 2020. A forecast of the demographic trend over a period of 30 years has allowed the land requirements for this period to be estimated. It is also hoped that farming will stabilise during the same period. The approach adopted, therefore, was to define the National Forest domain first and then to assign the remainder to the Permanent Forest domain.

In order to delimit the zone of human occupation needed to satisfy human requirements up to 2020, the calculation of the surface area to be allocated for this purpose is based on the following assumptions:

- 0.3 ha per year per person under cultivation, which is roughly the average surface area recorded as being utilised in East Province, if the total surface area of cultivated land per province (MINAGRI, 1987) is compared with the population per province (MINPAT, 1991). This figure has been further confirmed by the results of socio-economic research carried out in the Dimako region (East Province) within the framework of an integrated development project. On the basis of the same comparisons, the figures are 0.375 ha per person in South Province, 0.168 ha in Interior and 0.067 ha in Littoral Province (MINAGRI, 1987), the small surface area cultivated in the latter two provinces being explained by the presence in these provinces of major cities (Yaoundé and Douala). If we take into account the fact that the surface area to be retained for agriculture is not applicable to major cities, 0.3 ha per inhabitant per year corresponds to the order of size observed in rural areas.
- A 1-year cultivation period and a 5-year fallow period (annual clearing of 0.3 ha) which corresponds, in terms of occupied surface area, to a 2-year period of cultivation for a 10-year fallow period (annual clearing of 0.15 ha) or a 3-year cultivation period for a 15-year fallow period (annual clearing of 0.1 ha). Within the framework of current practice, the cultivation period is generally around 2 years followed by a fallow period of 5–10 years or even more in some sectors, depending on demographic pressure and the presence of natural obstacles (such as large rivers or mountains) impeding the expansion of the cultivated area.
- We therefore we arrive at a surface area of 1.8 ha per person allocated to cultivation, to which we add a similar surface area – representing 50% of the total – for other purposes, in which are included the clumps of forest to be preserved. As a result, a total of 3.6 ha per person for the estimated population

Table 3.18 South Province: Land allocation by category

Type of allocation	*Area (ha)*	*Percentage*
Production forests (fx)	6,024,608	43
Areas of human occupation (af)	4,417,362	31.5
Protected forests and reserves	1,664,572	11.9
Reserve projects and sanctuaries	739,321	5.3
Mines and human occupation (af–em)	402,068	2.8
Forest for community use	275,213	2.0
Other	487,983	3.5
Total area	14,011,127	100
Permanent forest area	8,983,571	64.1

Source: *Land Use Plan for the Forests of South Cameroon*, CIDA/MINEF, January 1993.

in 2020 has been used as a basis for calculating the minimum surface area to be allocated for human occupation. In his 1990 report on the agriculture/forest question, De La Mettrie came down on the side of an annual clearing of 0.088 ha with a fallow period of 7, 15 or 25 years and a ratio of non-cultivated land of 10, 20 or 30%. Moreover, a fallow period of 5 to 10 years has been proved to be less than the time needed for the land to recover its fertility without specific interventions, this period being 12 to 20 years in the areas where losses attributable to leaching are important. Although the fallow period currently allowed is often less than 15 years and sometimes even less than 5 because of demographic pressure, cultivation methods have not been changed to minimise the loss of fertility.

The currently accepted assumptions imply therefore an improvement in current cultivation methods which should materialise with the adoption of measures such as the use of compost, of fallow periods, and of agro-forestry species likely to improve fertility. There is no doubt that these assumptions do not correspond to an ideal agricultural situation. However, they have been accepted within the socio-cultural (a change of mentality cannot take place overnight) and economic context (the massive intensification of agriculture implies the acquisition of machines and the use of fertilisers beyond the scope of smallholders, and their use on a large scale constitutes a threat to the environment).

The fact that these assumptions have been accepted as valid should, in the first instance, give enough time for mentalities to change, if a programme of education and training is developed for the villagers. Moreover, the need has also become apparent for protecting the areas of forest where development will take place and, given the rotation periods of these forests (about 40 years), protection would

become impossible if more drastic assumptions were accepted straightaway. Thus, it is essential to operate a gradual intensification of agricultural practices if we want to ensure that the permanent forest heritage remains.

The improvement of agricultural practices is therefore a *sine qua non* for the long-term maintenance of the permanent forest heritage, and concrete measures will have to be taken to allow this change to happen. The quicker these measures become effective, the better the management potential of the rural land will be. By minimising the surface area to be cultivated in order to ensure the subsistence of local communities, it will be possible to dedicate more land to other purposes within the National Forest domain, and this should guarantee a diversification of sources of income and a healthier economy for the rural communities. In addition, it is essential that the local populations should benefit directly from the application of the land-use plan. The areas of forest remaining within the zone of human occupation should be managed by the communities themselves, who could then benefit from them and would take an active interest in protecting them.

For each portion of the zone of influence of human occupation on the map of this region – obtained by the study of aerial photographs and satellite pictures showing the whole of the land disturbed by human activities other than forestry exploitation (i.e. inhabited areas, cultivated or fallow) – a projection of the population in the year 2020 and a calculation of the surface area required according to the above assumptions have been made. A comparison has then been made with the surface areas currently occupied and the larger of the two figures has been accepted, taking into account the basic premises. In those cases where the surface area to be allocated for human occupation has to be extended, the extension has been planned according to the following criteria: areas adjoining those already occupied, ease of access, and areas favourable for agriculture.

3.4.6 A new legal framework

In accordance with the commitments made within the SAP, Cameroon has revised its Forestry Code in the light of the new forestry policy. As with the new forestry policy, the formulation of the new Code included consultation with all the parties involved. Before being adopted by the National Assembly the bill was heavily amended. It became law on 20 January 1994.

The present analysis concerns the version of the law promulgated as law No. 94/01 on that date, since it is not possible to identify the modifications that it will undergo at the time of its review in the National Assembly. As far as is known, the government was committed by its main sponsors, in this case the World Bank, to re-submit the law during the parliamentary session in November 1994. This had not been carried out by February 1995. Our analysis will look at the major changes which concern forests, fauna and fishing and which are planned to

allow the development of sustainable forest management in Cameroon.

Community forests. One of the major causes of the shrinkage of the forest cover is the appropriation by the State of all natural resources and the marginalisation of the local people in their management. The local population living on the edge of the forests subjected to industrial exploitation feel that the State has confiscated 'their forests' and handed them over to the logging companies. This is the main reason why the local people have never been interested in conserving the forest ecosystems within their territory.

The new law states in Article 37(1) that 'the department in charge of forests must, as a way of allowing the local communities who have expressed an interest in managing the forest resources, help them . . .' and that 'all the produce from the exploitation of the community forests belongs entirely to the village communities concerned' (Article 17(3)). This will favour the sustainable management of the forests by the village communities who own them, since it will be in their own interests.

Clearly these aims will only be achieved if the communities concerned are made sufficiently aware of these new measures in their favour.

Interests of the local population. Forest resources will only have real importance in the eyes of the local population if their exploitation contributes effectively to their socio-economic development. In return, these people will find it advantageous to contribute to the sustainable management of their resources.

This is the reason why the law provides that:

- '. . . The timber processing industry and the company headquarters will be located in the area of exploitation . . .' (Article 50(2)).
- 'With a view to the development of the local village communities bordering on some of the forests in the National Forestry domain which are under exploitation, a share of the income from the sale of forest produce will be made available for the said communities' (Article 68(2)).
- 'The contribution to social development is allocated in full to the communities concerned and cannot be allocated elsewhere' (Article 68(3)).

While waiting for the implementation of these provisions, it is worth noting that the principal complaints put forward by the great majority of the local village communities living in the forests subjected to exploitation were taken into account when the current law was formulated.

Resource allocation. In the National Forest domain the current licensing system will disappear. Only sales from logging areas of no more than 2,500 ha will be allowed. Permits will be awarded by the Forestry Service which will determine each year which areas in the National Forest domain are to be opened up to exploitation in each ecological zone. The permits will be for three years non-renewable and will be awarded after consultation with the authority concerned.

The exploitable areas of the Permanent Forest domain will be allocated in the form of logging sales licences and forestry concessions. In the case of logging sales licences, they will be awarded only to Cameroon nationals by the Minister in charge of forests, after consultation with the authority concerned, for a period of one year renewable. These licences will allow them to exploit a specific number

of trees for a limited period, whilst preventing them from exceeding the annual logging allowance.

Forestry concessions are production areas of the Permanent Forest domain which are to be allocated to those who sign an agreement of forestry exploitation with the Forestry Service. They will be awarded to industries after consultation with the authority concerned, to allow them to supply wood to their processing factories on a long-term basis (15 years renewable). The amount of wood permitted for logging should not exceed the allowance calculated for each development unit. The surface area of the concession will not exceed 200,000 ha and the exploitation agreement will contain precise specifications.

Our main observations on resource allocation as provided for in the new forestry law are as follows:

- Whereas the new forestry policy had chosen public auction as the method of selling exploitation rights in the forest, the new forestry law provides for their being awarded by the Forestry Service after consultation with the relevant authority.
- It is the financial authorities who will be dealing with the management programme and not the concessionaire as provided for by the forestry policy.
- Exploitation of the mining type, which is the only form used at present and is one of the main reasons for the degradation of the forest cover, will evolve into a more restrained form of exploitation since it will always be carried out within management programmes.
- In principle the Forestry Service will ultimately be better able to supervise the forestry activities in the field, thus facilitating the State's collection of both taxes and other forest dues.

The award of forestry exploitation rights. The current forestry regulations provide for the right to sell timber from domain forests and national forests and also to grant concessions in domain forests.

Exploitation of domain forests

• *Sale of timber*

The surface area for timber sales in any one forest must not exceed 2,500 ha. In domain forests, the sale of timber is carried out according to the management programme agreed for each individual forest. In the sale of timber, the trees are sold uncut after having been listed, marked and measured. The beneficiary of the sale of timber is determined by auction, or by mutual agreement if there is no successful bidder. The beneficiary can only be a registered forestry contractor and priority is given to Cameroonian nationals. The mutually agreed sale of timber is usually limited exclusively to national contractors, to State-owned companies or to organisations in which the State holds at least a 50% share. The right to sell timber is granted by order of the Minister in charge of forests upon receipt of a formally filed request.

• *Exploitation by concession*

Concessions are large areas of forest (over 200,000 ha) granted to companies in which the State holds at least a 51% share. The exploitation must follow the management programme laid down. Concessions are granted by the Prime Minister on the basis of recommendations from the Minister in charge of forests. Apart from the case of the Campo Wildlife Reserve, where exploitation was allowed by an agreement signed before the current regulations came into force, only one concession has been granted to date: to SOFIBEL in the forest of Deng-Deng situated in East Province.

Exploitation of forests in the national domain for timber sales

This type of exploitation is permitted

- in areas where felling is essential
- in enclosed areas of a surface area not exceeding 2,500 ha
- when a track is being opened up.

The current regulations stipulate that the right to sell timber shall generally be conferred through a public auction, and by mutual agreement in exceptional cases. In practice, mutual agreements have become more common, the exception having become the rule. The new forestry law provides that, in domain production forests, exploitation will be by the sale of timber and by concessions and that the right to sell timber will also be extended to forests on the national domain. The contractor will be allowed to exploit – on a surface area not to exceed 2,500 hectares – a volume of wood sold uncut. The right to sell timber will be granted on the advice of a competent commission for a period of 3 years non-renewable.

Exploitation of domain production forests

• *Sale of timber*

Cameroon citizens will be granted the right to exploit, for a limited period, a predetermined volume of wood sold uncut. The right to sell timber will be granted by the Minister in charge of forests after consultation with a competent commission of advisers. Although the new Code predicates the existence of a competent commission of advisers, in practice the granting of rights to sell timber may be handled by mutual agreement between the Minister and the forestry contractors – the only function of the commission being to give advice which the Minister in charge of forests is free to follow or ignore.

• *Forestry concessions*

The right to exploit an area of a domain production forest – not to exceed 200,000 ha – will be granted for a period of 15 years renewable to a forestry contractor owning one or several processing companies. The concession will be granted on the advice of a competent commission according to regulations fixed by decree.

3.4.7 Contribution of the colonial heritage on forest policy

Two principal points from the present forestry policy date from the colonial period, viz: the gazetting of forests and the fixing of the minimum diameter for the exploitability of exploited species.

Gazetting of forests

Since the colonial period, a number of efforts have been made by forest services in certain forest domains to remain definitely afforested.

At the national level a lot of effort has been exerted from the colonial period up to the present with regard to the gazetting of forests.

The regulation in force fixes a gazetting rate of 20%. Meanwhile the new forest law stipulates that the permanent forests must cover at least 30% of the national territory (Article 22).

The fixing of a minimum diameter for exploitability

Dating from the colonial era, certain measures have been taken at the level of the different forest codes to fix a minimum diameter at which certain species could be exploited. These are conservation measures aimed at protecting species of economic value against excessive exploitation, which would lead not only to their complete disappearance but also to a poor forest ecosystem.

3.4.8 Management of the forests

Several factors contributed to the creation of the new Ministry of the Environment and Forests (MINEF) in April 1992 to ensure the integration of management for both flora and fauna. Previously there had been a dispersion of decision-making organisations in forestry matters (the Ministries of Agriculture, Industrial and Commercial Development, Town and Country Planning, Finance and Tourism). These organisations found it increasingly difficult to co-ordinate their decisions. This coincided with a growing national and international concern with environmental protection.

For the same reasons, the National Forest Development Office (Office National de Développement des Forêts (ONADEF)), which is a public industrial and commercial institution, was created in February 1990 to replace the National Centre for Forest Development (Centre National de Développement des Forêts (CENADEFOR)) and the National Office of Forest Regeneration (Office National de Régénération des Forêts ONAREF)).

With regard to the tasks assigned to MINEF and its enforcement agency ONADEF, one should ask if these organisations have the necessary skilled manpower to fulfil their respective objectives. They will probably be badly affected by the SAP's discontinuation of personnel recruitment in the civil service.

As well as the lack of skilled manpower, the forestry sector continues to be faced with a shortage of transport for its forestry officers. Well before the adoption of its official SAP, the Government of Cameroon had already started implementing some austerity measures, one of which was the sale of administrative vehicles and the reduction and/or cancellation of funds for their upkeep. At present the fleet of vehicles belonging to the Forestry Service's field services is virtually non-existent, causing serious problems for daily operations to supervise the activities of forest exploitation.

The absence of forestry officers in the field allows serious fraud to take place

undisturbed in the logging concessions (cutting undersized trees, under-estimation of volume, unreported felling, felling off limits, etc.), as well as licence holders exceeding the authorised quantities of trees allocated for logging and the practice of secret chainsaw felling. The main consequences are the degradation of the forests and the loss of earnings for the State.

If the problems described above persist, Cameroon's forests will continue to deteriorate, all the more so because of current pressures on the forests from the coffee and cocoa planters whose earnings have dropped severely and who find the forests an important alternative source of income.

3.4.9 Reforming the forestry tax system

Taxation reform has been envisaged in order to implement a fiscal system for forest resources which is more simple, more transparent, administratively more cost-effective and more profitable for the State. The complementary objectives envisaged are agreement on the forestry heritage and on the diversity and richness of the ecosystems, and the promotion of local wood processing. To achieve this, studies on fiscal reform have been conducted and documents published.

A comparison of the different headings and clauses of the new forestry law with the previous one shows that the new law is much more specific in its designations (contributions to social improvements, forest surveys and forest management).

At present, the taxation system still in force is the one provided for by law number 81/13 of 27 November 1981 regarding regulations for forests, fauna and fishing and implemented by decree number 83/169 of 12 April 1983 setting out the forestry regulations. The only element of this tax regime which is currently the subject of a heated debate between the customs service of the Ministry of Finance, the Forestry Service and the export companies is the market value of exports according to the species and origin of the timber. The State intends to raise these values significantly, given the devaluation in January 1994 of the CFA franc.

Capture of forest rents by the State. According to the current forestry law, the forestry sector is subject to taxes levied at three levels: proportional to the surface area allocated (fixed taxes), dependent on the volume of trees felled (variable taxes) and on the export of logs.

The State does not currently enjoy a profit from its forestry sector. There are several reasons for this:

- If fixed taxes are fairly well understood by the forestry services, because they are based on the surface areas allocated to the contractors, there is a problem with the variable taxes. When the records of the Forestry Department were computerised in 1987/8, it was decided that, from then on, all variable taxes would be calculated by computer. However, the computer has been out of commission for the last three years and, as a result, the contractors have been asked to calculate their own variable taxes and to communicate the results to the Forestry Department!

- Corruption of the forestry officers by the contractors prevents the State collecting the forestry taxes that it is owed, including those levied on exports.
- The lack of control of forestry exploitation.

It is mainly for the reasons listed above that taxes levied on the forestry sector in South Province only reach an annual average of CFAF 800 million, in spite of its being one of the most intensively exploited regions in the country.

The objectives of the reform of forestry taxation – which had to be included in the new forestry law – are therefore as listed at the beginning of this section. Because the level of forestry taxation will be determined by fiscal law in some cases and by decree in others, it is not yet possible to assess the profitability of the forestry sector under the new tax system.

3.4.10 Conditions for a more efficient Forestry Code in Cameroon

It would be desirable for the funds which will be generated by the forestry sector thanks to the implementation of a more efficient and simplified taxation system to be utilised to equip the external services of the Forestry Administration with vehicles and assorted forestry materials. In fact, only a permanent and rigorous monitoring and follow-up of forestry exploitation activities in the field is likely to allow the government to obtain all the funds expected from the forestry sector and to carry out sustainable management of the forests.

Those responsible for forest administration at the central level need to show more appreciation of the methods which could benefit the agents and favour the effective restoration of the corporate spirit which has been at the core of the forestry administration.

Such action appears to us to be urgent if one wants to reduce, in a significant manner, the corruption of certain agents by the professionals, a phenomenon which has increased since the significant drop in living standards of these agents following the two salary reductions.

3.4.11 Conclusion

Given that the SAP measures were implemented nationally and not sectorally, some of them, as well as measures previously taken by the government, have been very harmful to the forestry sector. This explains why the sector's contribution to efforts to redress the national economy has been a far cry from what was needed. In the meantime the degradation of the forest ecosystems continues to an alarming extent.

Admittedly, the SAP reforms with regard to the forestry sector have led to the formulation of important documents (in particular a land-use plan for the forests in

the southern part of Cameroon, and the forestry policy). However, much remains to be done by the State if it wants to see its forest heritage really play its role in the environmental, economic and social spheres. For this to happen, there is an urgent need for the human and material requirements of the Forestry Service to be met and for appropriate measures to be implemented according to the new Forestry Code.

4. Analysis of Adjustment–Environment Links

The purpose of this section is to consider the effects that economic adjustment in Cameroon might have had on the natural environment. The discussion takes the following form:

i) assessment of the economic strategy pursued prior to adjustment;
ii) review of the economic and social effects of adjustment that are likely to happen *in principle*;
iii) analysis of the *actual* effects of adjustment;
iv) identification and discussion of specific elements in the SAP likely to affect the use of the natural environment;
v) consideration of the impact of adjustment on the environment from the grassroots perspective.

4.1 Previous economic strategy

In the decade prior to the mid-1980s Cameroon achieved relatively high growth, as it was then conceived and measured. This growth was based mainly on earning economic surpluses (rents) from the exploitation and export of natural resources, both renewable and non-renewable. In effect, the surpluses were devoted to the creation of a domestic industrial base, expansion of the country's social and economic infrastructure, and support of a growing public sector. The aggregate rate of investment in this period was high. Industrial output grew rapidly, as did spending on infrastructure and the public service. However, subsidies to loss-making public enterprises, and the increasing recurrent costs of public services of all kinds, absorbed increasing amounts of the central budget.

In retrospect, it appears that the rents extracted from Cameroon's natural resources were not used to create sustainable development. Conventional ways of measuring economic performance created the illusion of success, and concealed the extent of resource depletion that was taking place. Even without the economic difficulties from the mid-1980s onwards, Cameroon was launched on an unsustainable economic trajectory, with the environmental consequences described in Section 1.

A recent study of poverty in Cameroon offers the following perspective:

> The lesson from the early period of high economic growth is that growth alone is not sufficient to reduce poverty, as is evident from the poverty profile. In retrospect there are a number of striking features of past performance that contributed to this outcome: failure to maximise income opportunities for the poor from agricultural growth; excessive focus on industrial promotion based on uneconomic investments; a tendency to favour capital-intensive methods over labour-intensive ones; a lag in

human resource investment in rural areas; and an urban bias in the choice of public investments. The bias against rural areas was a critically important factor. (World Bank, 1994a: xiv)

4.2 Effects of adjustment

Adjustment typically involves the following processes:

- devaluation of the domestic currency;
- reduction in aggregate spending (absorption) to bring expenditure into line with real resources, achieved by contractionary fiscal and monetary policies;
- liberalisation of domestic product markets, bringing domestic prices more into line with world prices, and making markets more efficient. Privatisation should be seen in this context;
- trade and exchange liberalisation – replacing quantitative controls with tariffs, lowering the general level of tariffs, and relaxing exchange controls;
- reducing the degree of financial 'repression' by removing interest-rate ceilings in the banking system, and improving the liquidity and solvency of the commercial banks.

In Africa, adjustment programmes have been applied both at the macroeconomic level (e.g. fiscal reforms, devaluation, trade liberalisation) and for specific sectors (e.g. in agriculture, involving marketing board reforms, support price changes, etc.) and, more commonly, involving actions at both levels. IMF-supported stabilisation programmes overlap SAPs, typically focusing on exchange-rate, fiscal and monetary policies.

Adjustment affects economic behaviour through its impact on product and factor markets, economic and social infrastructure, institutions, and the financial sector (Duncan and Howell, 1992).

4.2.1 Relevant features of SAP design

Cameroon's structural adjustment efforts since 1988 have been 'weak'. The major reason for this is that, until January 1994, no change was made in the increasingly overvalued exchange rate, due to Cameroon's membership of the CFA franc zone. Hence the entire adjustment was 'internal'.

In designing the original SAP in 1988/9 it was not sufficiently appreciated that the exchange-rate overvaluation was too high to be corrected by other macroeconomic measures in the programme. The necessary fiscal balance proved elusive. Government financial (budgetary) problems kept emerging to frustrate SAP elements: public sector reforms using performance contracts failed because the government could not meet its financial commitments; the investment programming initiative lost relevance because the public investment programme shrank to a bare

minimum for budgetary reasons; the banking sector reforms never succeeded because the government did not contribute financially. Trade reform did occur, but its efficacy was undermined because the currency overvaluation led to a flood of imports when controls were relaxed.

With hindsight, the original SAP was probably too elaborate, 'overdesigned', and contained too many different elements. It might have been better to concentrate on the budget, civil service and parastatal reform. Other issues of resource management might have been better dealt with in separate sector credits, or projects, as is now increasingly the preferred practice.

All three tranches of the original structural adjustment loan (SAL) were released, but the third was converted into a new IDA credit on softer terms (because Cameroon had recently qualified for IDA concessionary finance). The conditions of the SAP have remained the same throughout. Following the January 1994 devaluation the IMF offered a credit (February 1994 Letter of Intent) and the Paris Club also met to offer debt relief. French aid is also being offered under the IMF's 'policy umbrella'.

The original SAP contained a social-dimension element, which was hived off into a free-standing project. The project was negotiated, but proved to be abortive because the government failed to honour its commitments, and other donors did not support it. The current preference of the World Bank is to deal with the social repercussions of adjustment through sectoral operations.

With the devaluation of the CFA franc by 50% in January 1994, the adjustment programme finally achieved balance.

4.2.2 Economic and social impact of adjustment

Adjustment did little to halt the economic decline which began in the mid-1980s, and until January 1994 actually worsened the state of the tradeable sectors. Between 1986 and the end of 1993 real GDP declined by around 30%, and real per capita income (allowing for terms-of-trade loss) by 55% (World Bank, 1994a). All sectors suffered: between 1988/9 and December 1993 agricultural output fell by 25%, and that of manufacturing and services by 20%. Mining and petroleum extraction also continued to fall.

Over the period 1984/5 to 1992/3 overall consumption declined only slightly, while domestic savings fell from 35% to 10% of GDP and domestic investment from 25% to 11%. These figures indicate the absence of real adjustment in this period.

Although encouragement of the tradeable goods sectors is a fundamental aim of adjustment, the programme as carried out in Cameroon had the perverse effect of penalising tradeables compared with non-tradeables. This arose because the continuing decline in the country's international terms of trade and the appreciation of the French franc (to which the CFA franc was tied) obliged the government to reduce the local support prices of the main exports (coffee, cocoa and cotton) by

around 50%. This virtually halved the incomes of rural producers, while leaving the prices and incomes of other sectors largely unchanged.

This choice of SAP measures dictated the impact of adjustment on different social groups. Until 1993, civil servants were among the very few 'gainers'. The first to suffer, in 1990, were cocoa and coffee farmers, whose output prices were reduced and whose support services (extension, input subsidies, credit, marketing systems, etc.) were drastically scaled down. Soon afterwards, social services (education, heath) were squeezed. Public servants did not feel the pinch until January 1993 (in fact, they continued to benefit from artificially cheap imports). But in January and November 1993 their benefits were sharply reduced, leaving the total public service wage bill at 60% of what it was at the beginning of the year.

Because the exchange rate was not part of the adjustment process until January 1994, adjustment had to take the form of deflation – a fall in nominal prices and incomes – which has been painful. The urban elite and the public service have been better able to defend themselves and have suffered least. Politically weaker groups (e.g. farmers) have suffered most. By the end of 1993, however, most sections of society were experiencing economic hardship. Some of the symptoms of the growing poverty in rural areas are discussed in the case studies in Section 3. The World Bank's recent *Participatory Poverty Analysis of Cameroon* (World Bank, 1994a) has assembled much data to support its conclusion that 'The period since the mid-1980s has been one of rapid impoverishment in Cameroon, and there has been a very sharp decline in per capita consumption since 1983' (p.iii).

Average per capita consumption in Yaoundé is estimated to have fallen by 50% in real terms since 1983, making it 10% lower than it was 30 years ago. More than 20% of the city's households fell below the poverty line in 1993, compared with only 1% ten years earlier. The urban population have been squeezed between the 60% cut in public sector wages in 1993 and the 30% price increases from devaluation early in 1994. It has been estimated that the average purchasing power of public sector workers has declined by 50% since November 1993 alone.

The situation is much worse in the rural areas. Over the same period 1983–93, the number of rural households below the poverty line rose from 49% to 71%. In this period, real income from cash-crop farming has fallen by 60%, and food-crop producer prices by 40%.

The decline in formal sector employment has led to a rapid expansion of the informal sector, especially in the urban areas (DIAL, 1994). Everywhere there has been a rapid decline in salaried employment, and a corresponding growth of informal employment:

> The *informalisation* of the Cameroonian economy is perhaps the most significant and least appreciated feature of the structural shift in the economy over the last ten years. (World Bank, 1994a, p.ix)

Increasing poverty has reduced public access to health, education and other services. People have found it harder to meet the costs of education and medicines, and many officials are levying illegal charges for these and other 'public' services. The demand for education is also affected by a public perception that the returns to schooling are declining.

The deteriorating state of public health adds to this depressing picture. There has been increasing resort to traditional medicines and healers as the formal system becomes more inaccessible. Measures of the state of children's health indicate a growing incidence of wasting and cases of under-weight. This is likely to be related to the 30% decline in per capita food consumption over the period 1983–93.

With the devaluation of January 1994, the burden of adjustment is likely to shift. In principle, producers of tradeables and import substitutes, and consumers of non-tradeables, should benefit, and consumers of tradeables and producers of non-tradeables should suffer. Crudely, the former group, the beneficiaries, will include many farmers and manufacturing firms, while the latter group will comprise most urban consumers. The poor and/or landless rural population will have mixed fortunes: supplies (including food) that they buy may cost more on balance, but their employment prospects should improve.

4.3 SAP measures and the environment

The previous section discussed the impact of adjustment in general terms. In this section we identify elements in the adjustment programme that might be expected to have a specific impact on the use of natural resources and the environment. These specific measures include:

i) **Reduction of the official purchasing prices of coffee, cocoa and cotton by around 50% in 1989**. The purpose was to increase the competitiveness of these basic exports, and to eliminate the losses sustained by the official marketing boards. In practice, this measure, combined with the various others described below, led producers to reduce output and cut down on the maintenance of plantations, in some cases to cut down trees and plant food crops, in other cases to plant food crops on marginal land.

Given that the CFA franc was devalued in 1994, it is too early to be able to speak with precision about changes in the behaviour of commodity producers. This is because, for perennials like cocoa and coffee, it takes a much longer time to determine behavioural changes, positive or negative, though for annuals like cotton, it is possible. It should also be noted that world prices announced in the media in Cameroon are not passed on, in their entirety, to the producers because of the role of intermediaries who buy directly from the producers.

In the final analysis, a follow-up study in four or more years time will be useful in determining the correlations between prices, incentives and farmers, behaviour.

ii) **Curtailment and suspension of support services to rural producers, such as input subsidies, the provision of free materials, and extension services**. The motive of these measures was to conserve revenue. One effect was to discourage the use of agro-chemicals. Farmers in some areas (see Section 3) made little or no use of fertiliser. Those who did (probably 40% of all farmers) were hit both by the

withdrawal of the subsidy and (after January 1994) by the doubling of the cost of fertiliser imports from Nigeria.

The effective withdrawal of extension services in some areas (e.g. the cessation of MIDENO's activities in North-West Province) was a blow to diversification, conservation, the spread of agro-forestry, and the adoption of more intensive methods of production.

iii) **Reforms in marketing arrangements for export crops**. These reforms were intended to reduce the fiscal burden of unprofitable marketing boards, and improve the incentives for the production of tradeable crops. The production and marketing of non-traditional export crops and arabica coffee have been fully liberalised. This principally affects West and North-West Provinces, and transfers powers from the former National Produce Marketing Board to co-operatives. The latter are increasingly being run by their members, and world prices are publicised through a new Arabica Marketing Information System (see Section 3).

In the case of robusta coffee and cocoa, the government's intention is imminently to abolish the system of reference prices and fixed marketing margins; meanwhile reference prices have been doubled. For cotton, liberalisation will proceed more gradually, and for the time being the guaranteed producer price has been raised by 50%.

These reforms should eventually ensure that producers appropriate a greater share of the world price, by eliminating or reducing the share absorbed by the marketing boards' overhead costs. At a time of low world prices and reduced official purchase prices, the marketing reforms in arabica coffee had little apparent impact. But given a recovery in prices, such as happened in 1994, magnified by the devaluation, the incentives to producers have been greatly sharpened. The restoration of plantation production, and its extension on to new land, or at the expense of food crops, can be expected.

iv) **Reforms in rural credit institutions**. The main impact of the reform of the financial system on rural producers has been through the demise of the National Fund for Rural Development (FONADER). The decay of this Fund was well advanced before its formal end, hence there was no dramatic change in the supply of rural credit. In some regions, credit agents based in co-operative unions exist to collect repayments, but there is currently great confusion about where the funds should be paid to. In effect, rural credit is in a state of abeyance in most areas. This seriously hampers producers in their purchase and use of cash inputs.

v) **Devaluation of the CFA franc**. The motive for devaluation was to provide an alternative to internal deflation, which was reaching intolerable levels, and to provide a sharper incentive for the production of tradeable goods by changing price relativities. This measure helped to reverse the impact of the earlier reduction in the purchase price of export crops, and in the case of coffee its effect was magnified by the dramatic increase in the world price in the first half of 1994. Farmers appear to be responding partly by restoring the capacity of existing plantations, and partly by planting new areas.

vi) **Redundancies and salary cuts in the public service, including parastatals, public co-operatives and agricultural extension and forestry services**. Taken

with the increased cost of living following the devaluation of 1994 (which has added at least 20% to the price level), the 1993 sizeable cuts in salaries and benefits have drastically reduced living standards in the public service. Many public servants have taken up farming to supplement their incomes. In the rural areas, many of the redundant village extension workers added to environmental risks by encroaching on to marginal land or hunting or cutting trees in forest reserves.

vii) **Implementation of the new Forestry Code**. The Code only recently (1994) came into effect, in a watered-down form. Its aim is to improve incentives for concessionaires to manage Cameroon's tropical forests sustainably.

The World Bank and the French Government have combined in opposition to the Code as it has emerged from debate in the National Assembly. Both consider it too weak, and are working to restore it to the form in which it was originally presented to the Assembly. There are two crucial issues. Attribution (transparency and accountability) is one; the terms of concessions should be clearly set out, so that companies can bid knowing what is expected of them, and their performance can be monitored against clearly set out criteria. The second issue is the scale and length of concessions. Originally they were for areas of at least 500,000 hectares for a minimum of 25 years. This was considered as offering concessionaires an incentive to use their area sustainably. These limits were reduced in the Assembly to 200,000 ha and 12 years respectively. The Code also contains a proposal to create an Office National du Bois to act as a parastatal for selling logs.

The structure of taxation of forestry is intended to serve several purposes. The area tax is aimed at making concessionaires use all their area. The stumpage tax varies according to species, size, etc. The export tax is intended to be an incentive to domestic processing. Any remaining natural 'rent' will, in theory, be captured in the fee during the bidding process.

viii) **Curtailment of the Forestry Service**. The decline in the general effectiveness of the Forestry Service is not wholly attributable to adjustment, but the recent cuts in government spending have aggravated the Service's operational problems. Evidence from the case studies in Section 3 is that little of the revenue due from logging concessions is being collected, and logging practices are not being properly monitored. Hence the 'rent' from forests is not being collected by the government, and this, together with the absence of controls on logging practices, increases the incentive for unsustainable rates of extraction.

ix) **Increase in the official price of commercial fuel (substitute for woodfuel)**. The motive for this measure was to reduce the public subsidy on commercial fuel, and to increase the incentives to economise. However, from the environmental point of view an unfortunate side-effect has been to increase incentives for the use of woodfuel for heating and cooking, leading to increased deforestation.

x) **Reduced public expenditure on health and education**. This resulted from the overall fiscal stringency, and the failure to implement special programmes to protect these key social sectors. Evidence from the rural areas is that the standard of service in both health and education has declined. The longer-term effect of declining health on the environment is difficult to predict without more field work. Declining educational standards – especially when associated with reduced returns

to educational attainment – leave parents with an incentive to remove their children from school to help with farm and household duties. In effect, the opportunity cost of labour is reduced, and, other things being equal, this is a spur to labour-intensive methods. The growing amount of environmental education in schools (e.g. on the perils of soil erosion) is also likely to have suffered a setback.

The possible environmental effects of these elements in the adjustment programme are summarised in Table 4.1.

4.4 Adjustment and the environment: the grassroots perspective

The purposes of adjustment, and its mechanisms, are not widely understood in Cameroon. Potentially significant adjustment measures have often been blunted or compromised by other events and policies. The rural populations covered by the four case studies in Section 3 are aware of continuing impoverishment and reduced access to government services, punctuated by sharp changes in the selling prices of export crops. The background to adjustment is a high level of political, social and economic instability and uncertainty about the future.

We start this section by observing certain patterns of change in the use of the natural environment, and seek explanations in local, sectoral and macro level determining factors (Coates and Cromwell, 1994). These are then related to adjustment. The focus of this section will be on agriculture and forestry.

Two environmental phenomena have been widely noted, unsustainable land use in agriculture and continued loss of forest cover.

4.4.1 Unsustainable agriculture

The main symptoms of this problem are shortened fallow, extension of the cultivated area on to marginal and potentially erodible land, and the choice of annual crops, inputs and techniques which carry the risk of soil depletion and erosion. The immediate causes of these symptoms are:

- growth in the farming population;
  - entry of new farmers due to redundancies and loss of income elsewhere;
  - shift of resources from tree to annual crops, necessitating use of new land in the short term;
  - discouragement of intensive, and encouragement of extensive, modes of cultivation, due in part to the reduced availability of credit, fertiliser, and

Table 4.1 Adjustment components and the environment

Adjustment component	*Environmental impact*
i) Reduction in purchase price of cash crops by half.	Reduction of output and upkeep of plantations; shift of land and resources into more erosive food crops.
ii) Cuts in farmer support facilities (fertiliser subsidies, extension services, etc).	Discouragement of more intensive farming, diversification, conservation and agro-forestry.
iii) Reforms in marketing systems for export crops.	For coffee and cocoa, increased incentive to plant new trees and restore existing plantations, at expense of foodcrops. Increased profitability of cotton has environmental risks.
iv) Reforms in rural credit.	Collapse of credit hampers farmers in purchase of cash inputs, e.g. labour, fertiliser.
v) Devaluation.	Planting new areas to export crops, restoring existing plantations.
vi) Redundancies and salary cuts in public service and parastatals.	Widespread impoverishment and environmental encroachment by new and under-resourced farmers.
vii) Enactment of new Forestry Code.	Positive effect on sustainable forestry use if implemented in robust form. In present form, its effect greatly diluted.
viii) Cuts in Forestry Service.	Logging unsupervised, forest rent not collected, degradation of forests accelerated.
ix) Increase in price of commercial fuel.	Increased use of woodfuel and forest encroachment.
x) Less public spending on health and education.	Increased impoverishment because of reduced productive ability. Decline in environmental education.

extension services.

The local population's recourse to environmentally degrading practices in response to changes in price incentives may be fully rational. The following are the main response determinants:

Demographic. Growth in the total population, and increase in the population dependent on agriculture. The latter is due to increased unemployment and reduced income in other sectors, especially industry, the civil service, and rural support services.

Land ownership and property rights. In many regions, new land is available free of cost to the farmer, except for that of clearance and planting. Its use is an aspect of common property management; the user does not normally compensate society or his/her neighbours for the costs of land use, including the risk of soil erosion and future depletion of fertility. In short, there are externalities from cultivating new marginal land, which do not feature in the costs to the user.

The converse of this is that many cultivators have insecure tenure on their land or are tenants, which they see as a disincentive to making long-term improvements, such as terracing, conservation, tree planting, etc. This situation has arisen because of the superimposition of modern land legislation on to traditional customary law.

Traditional law gives more or less adequate security at the village or community level to cultivators employing family labour with simple tools. It is not well adapted for capitalised production methods, where formal title and longer-term security are necessary, nor can it handle the needs of migrants. On the other hand, the respective jurisdictions of modern and traditional legislations are poorly understood, and frictions are common. Ambiguities are sometimes exploited by unscrupulous operators, especially those with political connections, in order to acquire land. In any case, the costs of land registration and entitlement are prohibitive for the poorer farmer, and procedures are slow.

The combination of effectively free new land and insecure or unclear tenure on existing land tilts the balance towards the extension of the cultivated area rather than the more intensive use of the currently cultivated area.

Relative crop prices. Farmers in all regions are acutely aware of changes in selling prices and marketing outlets for their cash crops. The decline in world prices for coffee, cocoa and cotton from 1985 onwards, coupled with the growing overvaluation of the CFA franc, led to progressive cuts in the official purchase price for these three major cash crops. After the devaluation of January 1994 these cuts were partially reversed, although the disorganisation of the marketing system has prevented some producers (e.g. coffee producers in North-West Province) from benefiting from the recent price increases.

There appears to have been an asymmetrical response to decreases and increases in the local prices for tree export crops, although the latter are still having an effect. Both may have led to an increase in the cultivated area. This may be because tree plantations are initially left intact following price falls, and the shift to food crops takes place on newly cleared land. But a subsequent increase in price leads to new land being planted, possibly because of declining yields from the previous areas.

There are clear signs in the cocoa-producing areas of East Province that plantations have been allowed to run down to the point where their ability to increase output in response to the current prices is very doubtful. Disease control, for instance, has been neglected, partly because of reduced cash flow, and partly because phytosanitary services have been cut back and are now more expensive to farmers.

In North-West Province the fall in coffee prices in the late 1980s led to the direct substitution of food crops for coffee plantations on erodible slopes, with clear environmental risks. In East Province the fall in cocoa prices led to the abandonment of many plantations.

Although mature coffee and cocoa plantations confer important environmental benefits (shade, soil stability, organic matter for the soil, firewood, etc.), in the process of land clearance and in the early stages of growth the soil can be left dangerously exposed (Winpenny and Willis, 1994).

In the case of cotton production in Far North Province, the option of expanding the cultivated area is not available to most small farmers. Their response to relative price changes tends to be to change their crop mix between cotton and annual food crops such as sorghum, groundnuts, niebe and maize. The environmental impact of these crop shifts is difficult to judge without knowing local circumstances; cotton tends to use more agro-chemicals, but residual fertiliser can benefit food crops grown later in the same rotation. Grown on slopes, without adequate terracing or soil conservation, any of these annual crops is potentially erosive.

Marketing outlets. It is unfortunate that reforms in the marketing system for export crops, which are essential in the long run, have added to the confusion and uncertainty arising from the recent fluctuations in world prices. The effect has been to weaken the incentives intended by the recent increases in the selling price. Recent economic problems have worsened transport and communications, and some of the adjustment measures have made the situation worse (e.g. increased price of fuel, lower spending on road maintenance, sale of government vehicles). Hence producers' ability to respond to price signals has been weakened.

In coffee the on-going reforms aim to empower co-operatives as marketing channels, and give farmers greater control over these organisations. The Arabica Marketing Information System was created to publicise world market prices for arabica coffee, though it has largely served to inform producers of the gap between what they should be getting and what they actually receive. Nevertheless, the coffee sector now has the elements of a better marketing system, and one which communicates changes in world prices more efficiently to producers.

In cocoa the tentative steps towards reform do not appear yet to have benefited producers. The previous system offered certain dates and places for the sale of cocoa. Currently buyers appear to have a cavalier attitude to official prices and exploit their bargaining position vis-à-vis producers.

Farmer support services. Farmers' support services appear generally to have deteriorated as a result of adjustment. In East Province, the National Fund for Rural Development (FONADER) and the Zone for Integrated Priority Action (ZAPI) were both dissolved. These organisations were responsible, respectively, for credit and

the distribution of phytosanitary products, and processing, credit and rural infrastructure. Although it did useful work, FONADER's rural credit operations were very limited. The two officially-sponsored co-operative societies (SOCOOPED, SOCOODER) also disappeared as a result of giving the local institutions more autonomy.

In North-West Province, the development authority project (MIDENO), which had been successful in many respects, saw its activities suspended in 1993. MIDENO's extension workers and credit agents were laid off, and its vehicles withdrawn. Its work in disseminating seeds, tree nurseries, and other planting materials came to a halt.

Such special projects as these were important because of the absence of a well functioning rural credit system. The limited scope of FONADER has been commented on. The Banque Camerounaise de Développement was liquidated after 1989, but in any case had had little rural involvement. The Crédit Agricole, set up in 1990, operates like an ordinary commercial bank, lending short term at high interest rates, and with a preference for the service or processing sectors.

Farmers' resources and techniques. The majority of the output of the three main export crops comes from small farmers. Practically all the food crops are grown on family-size farms. The majority of these rely mainly on family labour, which may be supplemented with wage labour during busy periods. Most farmers rely on traditional techniques: only a minority use fertiliser, and hand labour is the norm. Where topographical conditions permit, animals are also used in farm operations. The reduction in the availability of credit has restricted farmers' use of bought-in supplies and wage labour.

Improvements in present methods, e.g. the more intensive use of existing land, diversification into new crops, upgrading planting materials, etc., tend to rely on specific, often regionally-based projects, most of which have suffered directly or indirectly from the cutbacks in recurrent government expenditure.

Social and gender aspects. Most rural areas of Cameroon observe 'spheres of influence' in gender relations, with men taking the prime responsibility for cash crops, and women for food crops. There is some overlap, e.g. men will usually assist with heavy work such as land clearance, and women may carry out weeding or even harvesting of cash crops. Women will often be able to sell surplus food crops. As elsewhere in Africa, land ownership is normally vested in males; hence women will be reluctant to invest much in land improvement, tree planting, or conservation work. Similarly, credit is normally advanced against the security of land or tangible assets, which limits women's access except where there are credit schemes specifically targeted to them.

There are important exceptions to this general picture. For instance, women have taken part in the revival of interest in coffee cultivation in North-West Province.

The above pattern of gender relations has implications for the impact of adjustment measures. Switching between export and other crops may provoke conflict within the family over the use of land and labour. An increase in the prices of cash export crops does not necessarily create resources for general farm investment if it is used by males for consumption or investment in export

production. It may even aggravate family poverty and malnutrition if cash-crop production reduces the availability of foodstuffs to the farm household.

More broadly, sustainable agriculture requiring more intensive production needs to contend with women's inferior access to credit, bought inputs, and transport. They are often excluded from extension messages, which are targeted at male farmers, and there may be social or even legal barriers to their taking up non-traditional crops.

4.4.2 Unsustainable forest use

Cameroon is being deforested at the rate of c.100,000 ha a year. Certain species of timber that are harvested selectively are in danger of disappearing. Farmers are cultivating plots of land within forests, causing localised damage to vegetation. There is also encroachment on protected forest areas.

The immediate causes of this situation are, on the one hand, the activities of local operators with licences to sell cut wood (*vente de coupe*) and, on the other, the largely unregulated operations of large timber concessionaires. The access roads which the latter create open up forest tracts to slash-and-burn cultivators, who cause secondary devastation.

There are a number of determinants of the above behaviour. The root causes, however, are the relative profitability of logging, the failure of the authorities to regulate timber concessionaires and extract an economic rent from the timber cut, the lack of incentives for the concessionaires to harvest sustainably, and the conflict between national and local property rights in this sector.

Profitability of logging. The discussion of profitability needs to recognise the differing situations of the two main types of operator, namely the small local *vente de coupe* licensees who operate on a small scale and sell either locally or to the foreign concessionaires, and the large, mainly foreign, concessionaires who export their output. Under the SAP the profitability of logging has increased relative to the production of other export crops, which increased the attractiveness of *vente de coupe* licences compared with farming. Since the 1994 devaluation, the absolute profitability of logging for export has also increased, a point relevant to the holders of concessions.

Regulatory and taxation regime. The inherent profitability of logging is substantially due to a lenient regulatory and taxation regime. The respective authorities are unable and unwilling to enforce existing rules for logging concessions. The issue of concessions is a political decision, with mutual benefits. The Forestry Service is in poor condition (Section 3) and unable to monitor or enforce agreements on, for example, maximum annual cutting or replanting obligations. Very little of the total amount of tax due – which itself is well below the stumpage value of the timber – is collected.

Disincentives for sustainable yield harvesting. Although the new Forestry Code is intended to redress the situation, in its current form it does not encourage holders of concessions to manage their forest tracts sustainably. For instance, the maximum period for which a concession may be held (12 years) is too short to encourage

replanting, hence logging companies have no interest in regeneration. Similar reasoning applies to the maximum area of a concession (200,000 ha) which is believed by forestry officials and the companies themselves to be too small to encourage sustainable management. An important motive for the choice of these terms is to favour Cameroonian concessionaires.

Moreover, the current structure of taxation does not penalise the practice of 'high grading', with the result that many trees are destroyed in order to extract a few valuable species.

National and local property rights. Communities living in or near forested areas perceive that the passage of national legislation has undermined their customary rights of access to and enjoyment of forest services. Whatever the merits of this legislation, its practical effect has been to alienate local communities and set them at loggerheads with the Forestry Service. More recently, the emasculation of the Service has created a vacuum of power and responsibility in respect of the forests. In effect, the State has overridden, and therefore undermined, local rights, without having the means to enforce its new powers.

The upshot is that forests are fast becoming common property, without the previous customary methods of management and control. The State cannot control the activities of concessionaires, while local communities see little point in co-operating in the protection of the forest reserve and every point in turning a blind eye to infractions.

The general conclusion from this brief analysis of forestry in Cameroon is that the SAP has sharpened the incentives to unsustainable logging, against a background of weakened regulation, a failure to capture economic rents, and the insecure property rights of interested parties.

4.5 Conclusion: Provisional judgement on adjustment and the environment

i) Until 1994, the absence of exchange-rate adjustment led to a severe squeeze on the farming sector, which penalised the production of tree crops such as coffee and cocoa. This led to the neglect of plantations and a switch of land and other resources into the production of annual food crops. On balance, the environmental impact of this process was probably negative.

ii) The eventual incentive effect of devaluation, followed soon after by sharp increases in the world price of coffee, was weakened by the disorganisation of marketing systems, the collapse of rural credit, and the weakening of all rural support services, in particular extension. The use of agro-chemicals and other tradeable inputs in agriculture was also discouraged by the ending of subsidies and the devaluation. Some of these effects preceded adjustment, and some were inevitable, but the design of the SAP made them worse. These internal contradictions of the SAP have hampered the reflux of

resources into export tree crops, and reduced the potential environmental benefits that might have occurred.

iii) The general deflation prior to 1994, and the specific measures to reduce government spending programmes and to reform parastatals, caused widespread impoverishment. Many people took up farming, while unemployed young people returned to the countryside to pursue hunting and trapping. Their lack of experience, plus the weakening of farm support services, led to the adoption of unsustainable and degrading farm practices.

iv) The SAP continued the bias of incentives towards extensive rather than intensive farm cultivation. The use of new land was effectively free, apart from the cost of clearance, while the more intensive use of existing land was penalised by the increased cost of inputs, the shortage of credit, and the scaling down of extension advisory services. Hence the cultivated area continued to expand on to marginal and potentially erodible land. Where uncultivated land was scarce, as in North Province, farmers tried to intensify production, but without sufficient means to do so. The result was a tendency to degrade the land.

v) Before and after the SAP was introduced, the prices of agricultural commodities had decreased in the international markets. This situation led many farmers deliberately to allow their cocoa and coffee plants to grow into unmanaged bushes. This did not necessarily mean that the export crop trees were cut down. Following the devaluation of the CFA franc in 1994, producer prices have increased. These encouraging prices have motivated many 'old' farmers to resume work in the said abandoned plantations. Apart from these export crops, peasant cultivators have continued to produce food crops for subsistence and income generation as a basic strategy for survival. But many of them have been careful not to establish new coffee or cocoa plantations because they are not sure that the high prices provided by the present market situation will be maintained.

vi) An important element of the SAP was the formulation of a new forestry policy and Forestry Code, aimed at fostering the sustainable exploitation and management of forests. The eventual shape of the Code is still being debated, but when this is in place and effectively monitored it will have major benefits for the country's forests. Meanwhile, their degradation has worsened under adjustment. Cutting trees has become more profitable relative to other export activities, as the selling prices of the latter were reduced. The collection of concession revenue and the policing of logging practices have practically ceased, as the Forestry Services have been seriously weakened. The exploitation of forests may even have worsened as concessionaires anticipated the imminent enactment of the Forestry Code.

vii) The social repercussions of adjustment were intended to be offset by various actions to be undertaken by the World Bank and other donor agencies. In practice, the weakness and inefficacy of adjustment alienated some donors, and many complementary programmes failed to materialise. The conclusion to be drawn is that social and environmental programmes intended to offset the negative effects of adjustment measures should be part of the initial design of the SAP, rather than left to separate, or subsequent, programmes. Otherwise, the growth of poverty, the continued decline in health and literacy in rural areas, and the withdrawal of resources from environmental awareness programmes, are likely to aggravate environmental abuse.

viii) Interpreting adjustment–environment links requires an understanding of the crucial role of women as cultivators, especially of food crops, and gatherers of fuelwood. There is evidence that extension and other farmer support services are not oriented towards women or sympathetic to their needs. Moreover, legal and customary practices deprive women of secure rights over land use, except through their male relatives. These factors militate against the more intensive and productive use of land. Marginalising women worsens the potential environmental harm from adjustment.

5. Scenarios for Sustainable Development

5.1 Towards sustainable development

All the evidence is that Cameroon has well diversified resources, with major potential. This applies to its natural resources, climate and hydrological assets, fauna and flora, soil fertility, mineral reserves (e.g. offshore petroleum, natural gas at Kribi, bauxite at Minim Martap, iron ore at Sangmelima), etc. It has relatively good infrastructure and communications, and plentiful high-quality human resources. Unfortunately, all these advantages, without being fundamentally wasted, seem never to have been developed efficiently. This was the case during the prosperous years (1960–85) when economic performance was less spectacular than that of some other countries which are not so well endowed, but it became acute with the advent of the difficulties in 1985–7.

The appropriate adjustment measures have been taken, but they are too few and too late (Section 2). Hence a long recession and a situation which is continually deteriorating: all the indicators are bad, from the chronic budget deficit and the worrying instability of the cumbersome and inefficient public sector, to the neglected investment, the diminishing production capacity, and the impoverishment which is damaging the education and health sectors. True, the recent devaluation of the CFA franc has opened up a few possibilities for new initiatives, but efforts to control the inflation recorded in the first months of 1994 seem to have run out of steam with the (speculative?) price increases of August–September for essential products such as salt, sugar and palm oil.

In fact, and for the future, much depends on the political will of the Cameroon authorities to implement a series of complex reforms despite the considerable resistance of powerful interest groups. The leadership needs to be resolute in resisting the temptation to postpone the reforms or to change course. Similarly, particular attention must be paid to the management of the programme, and the functions of co-ordination, administration and monitoring must be a continual priority. Then, and then only, will the credibility of the initiatives taken stimulate the private sector, both domestic and foreign, on which the hopes of growth are pinned, to make the investments needed for the definitive reversal of the negative trends observed today.

In the light of the past, respect for these crucial requirements has not yet been established. That is why any global measures present a major difficulty, in view of the immense uncertainty; they must certainly be economic, but also political, with the much debated evolution of democratisation.

Another difficulty arises from the quality of the data used; where statistics are available, they are often biased rather than presenting objective findings. Relying on them means including random data which could affect the results of the

forecasts. Some have ventured to use these figures, such as the Global Coalition for Africa and the World Bank which forecasts with the help of its country economic model. These projections are based on a growth of 3% for nearly all the variables, and do not take into account the hoped-for changes in the structure of the economy. Moreover, they assume the successful implementation of the adjustment policies.

5.2 The political future of reform

The restructuring of the Cameroon economy must be pursued with the objectives of correcting the imbalance in the balance of payments, reducing inflation and boosting growth. As a result of economic stagnation and the lack of access to capital, there are few alternatives to stabilisation and adjustment.

Put simply, the basic components (standard package) of typical stabilisation and adjustment programmes include, in theory, the following:

Stabilisation measures:

i) The reduction of the balance-of-payments deficit, principally through devaluation of the exchange rate and import liberalisation.
ii) The reduction of the budget deficit through tax increases, long-term fiscal reform and cutbacks in public expenditure.
iii) The rescheduling of foreign debt, if necessary.
iv) The transfer of the financing of the budget deficit from the banks to private bond holders. This will help both to reduce the deficit and to control the money supply.
v) The increase of some prices, such as interest rates (so as to reduce the demand for credit and increase savings) and commodities (so as to reduce the cost of subsidies), and the imposition of charges for State goods and services (so as to increase revenue).
vi) A salaries and wages freeze, so as to reduce the relative costs of production and contain inflation.

Adjustment measures:

i) Liberalisation of trade and prices (letting the market find its own level).
ii) Adjusting prices to cover net costs.
iii) The transfer of resources from the public to the private sector (extensive privatisation).
iv) The rationalisation of the remaining government responsibilities (budgetary and other rationalisation).
v) Institutional reforms.

Some of these elements, although of general relevance, could have direct repercussions on the environment and should receive special attention in this respect to pre-empt any negative effects. Thus for Cameroon:

On the monetary front:
The lack of control and of flexibility in the exchange rate has made it impossible to guarantee or maintain the profitability of export activities in this era of the globalisation of the international economy. Furthermore, the GATT and the arrangements with the IMF and the World Bank lead to the systematic reduction of protection against foreign competition. An appropriate exchange rate can help compensate for the detrimental effects, at least in the transitional period during which the country redeploys its economy so as to benefit from its comparative advantages.

The adjustment of interest rates (above the inflation rate, in principle) is designed to eliminate excess demand for credit. Whether this policy is maintained in the long term or whether the market is left free to determine the rates, the specificity of the agricultural and forestry sectors makes it essential to promote, for the future, new credit instruments and institutions, even at the risk of exhausting the sources of finance made available to these sectors (all the more so because the State will in fact only be able partially to fulfil its financial responsibilities).

On the budgetary front:
The redefining of the State's responsibilities must be rapidly completed and followed up by the streamlining and restructuring of its institutions. The thinking behind this must be governed by economic efficiency and that is why the emphasis must be placed more firmly on the rationalisation of budgetary decisions and adhering to them for the duration of their implementation.

An initiative which is not in keeping with the stated priorities has shown its limitations in that it deprives the State of all means of having a positive and active impact on key sectors.

Concerns associated with the development of the environment ought to lead to the emphasis being placed on research and on the dissemination of agricultural know-how, on credit institutions certainly, but also on the development of infrastructures, health and education, based on efficiency criteria.

On the other hand, the trend towards higher taxation with the sole objective of boosting State revenues must be curbed, since it risks damaging certain activities which are currently thriving (for example, the 1994/5 budget provides for a 15% tax on bananas, which have become, in the space of three or four years, one of the leading exports from Cameroon, just as this commodity is engaged in a decisive competitive battle in the European Community market against the South American banana).

It is not certain whether the long-term fiscal reforms implemented or being considered are as concerned as could be wished with the specific problems of agriculture, since they risk damaging the national economic fabric still further.

On the trade front:
The policy of trade liberalisation obeys the logic that greater competition and more flexibility will ensure better results in all areas of economic life: freeing the markets with a view to balancing supply and demand, prices reflecting opportunity costs, etc. helping to ensure an optimal growth rate.

The State no longer intervenes except to boost the operation of markets through the control of monopolies, taxation or subsidies for external costs and profits, the protection of infant industries, investment in infrastructures and the development of new trade institutions.

Price controls can be maintained for certain commodities (basic foods?) but kept to a minimum (and in all instances, never quantitative, the prices administered being adjusted to reflect the scarcity and the opportunity cost of commodities, services, production factors and time factors and therefore being close to free market prices).

A close watch on the national and international economic situation is essential here, as is the ability to react rapidly. In the sectors associated with the environment, a kind of observatory is needed to make up for the shortcomings of operators who are often insufficiently educated, under-informed and badly organised to take on the market in these conditions.

Because of the importance of agriculture in the Cameroonian economy (24.4% of GDP in 1993 and approximately 75% of employment), despite its low productivity, production levels and revenue, the negative effects of the policies carried out must be erased for fear of destroying the various sectoral efforts which need to be made and which we shall examine in the next section.

5.3 Requisites for the sustainable development of agriculture and forestry

Of the two sectors which are the focus of this study, the objectives for the future development of agriculture can be restated as follows. The growth of this sector should be somewhat greater than the rate of growth of population. Cultivation methods should become more intensive. Research, dissemination and extension efforts should be redoubled. Systems of rural credit need to be re-established and improved, possibly using mutual responsibility for repayments.

The law governing land tenure and property rights needs to be reassessed, and procedures simplified. At present most cultivators are subject to the traditional laws and customs which underpin traditional land uses. Modern formal legislation exists which is intended to cater for migrants, acquisition of land by 'outsiders', purchase of land for public purposes, etc. The application of this legislation in areas governed by traditional systems is a source of confusion, uncertainty and –

frequently – abuse. Also, the procedure for registering formal title is prohibitively costly and time-consuming. An important objective should therefore be to clarify the respective spheres of application of modern and traditional law, and to simplify procedures.

In forestry, the government has announced a policy of prohibiting the export of unprocessed wood, starting soon. The aim is to stimulate domestic timber processing and add more value to the raw timber. Implementing this policy would forfeit fiscal revenue for the government in the short/medium term. Both export and domestic markets for the new processed products would need to be developed, and a radically new type of investor attracted. The industry would need to turn its attention to new types of wood, currently overlooked in favour of high value species.

The need for managing the forest domain in a sustainable fashion would remain, and become more urgent in view of the probable requirements of the domestic processing industry. Experience elsewhere warns of the waste and inefficiency likely if a domestic wood processing industry is allowed to develop under an over-indulgent regime.

5.4 Implications for the design of adjustment and development programmes, and complementary actions

The following general measures are highly desirable:

i) Preparation of land-use plans (including urbanisation plans) and the creation of regulations and structures for the effective implementation of these plans. (This could be a condition for SAPs).

ii) Enactment of comprehensive environmental laws and the creation of conditions for their effective implementation.

iii) Reform of forest legislation (including wildlife laws), preferably the restoration of the terms of the original Forest Code.

iv) Completion and effective implementation of a National Environmental Action Plan, and improved interministerial co-ordination on environmental matters.

v) Clarification and simplification of legislation relating to property. Its aim should be to give the rural population sufficient security to encourage investment in farm improvements, tree planting, and the adoption of more intensive agricultural practices, and to encourage the development of a market in land.

vi) Promotion of mutual rural credit funds, offering loans on appropriate (short, medium and long) terms, with mutual guarantees from all, or groups of, members.

Recommendations on the design of future SAPs are:

i) The explicit incorporation of environmental aims and indicators.

ii) Social and environmental programmes intended to offset certain of the negative impacts of adjustment should ideally be part of the original SAP, rather than left to separate, or subsequent, programmes. If this is impossible, such programmes should be closely synchronised with the SAP.

iii) The sequencing and balancing of SAP components need great care in order to avoid internal contradictions. For instance, reforms in marketing arrangements, credit agencies and systems for supplying farm inputs should be undertaken gradually, and without causing a damaging decline in the level of services, in order that incentives can be maintained.

iv) Adjustment programmes should contain a balance of measures, including action on the exchange rate if necessary, in order to improve the SAP's chances of success, and to avoid disproportionate hardship falling on particular groups such as farmers, with consequences for the environment.

v) As and when the national fiscal position allows, subsidising the use of commercial substitutes for woodfuel and of fertiliser. In both cases, the justification for subsidy is the existence of external benefits (or avoidance of external costs) from the greater use of these products.

vi) Protection of the recurrent budgets of Forest Services, park guards, agricultural extension and other key farmer-support services, either by earmarking revenues, budgetary guarantees, or by implementing sectoral programmes or projects closely synchronised with the SAP.

5.5 Prospects for the adoption of sustainable development policies

The government and international agencies need to recognise certain constraints in implementing the above reform agenda.

On the government's part, there is the political task of elevating environmental issues to their rightful place amidst the many other pressing political, social and economic problems to be addressed. The population needs to be persuaded of the importance of seemingly remote and exotic issues such as the conservation of

forests and wildlife, when many people are oppressed with bread and butter issues such as jobs, growing poverty, and declining public services.

Politicians will also be reluctant to forfeit a source of patronage, as might happen if forestry policies were to become more transparent. The continuing fiscal crisis rules out significant new funds for subsidies (e.g. on commercial cooking and heating fuels) or new environmental programmes. Improving the level of policing of forestry and other protected areas in the face of local encroachment would also be unpopular and difficult. In any case, some of the relevant public services, e.g. forestry, wildlife and extension, are seriously demoralised, parts of them possibly beyond the point of no return.

Nor should the political and constitutional obstacles to environmental policy be underrated. New legislation would have to be passed by the National Assembly, which has shown in its treatment of the Forestry Code that it relishes its new independence. Moreover, several reforms discussed in this report would entail the devolution of powers, or the transfer of responsibility, to local communities, with constitutional and political implications. The empowerment of NGOs, also desirable in many cases, would be a further forfeit of power by central government.

For their part, international agencies have to face difficult and delicate decisions. They need to persuade the government to adopt an environmental agenda without subverting or further complicating the urgent task of economic reform, which is the precondition of environmental redemption. They need to attract local support for environmental programmes with global as well as local significance, which means capturing tangible benefits for the local populations. They need to be generous in their offer of meeting local, rather than offshore, costs, and of finance for recurrent, as well as capital, items. They need to be ready to work with NGOs and to show flexibility over the modalities of co-operation.

References

Africa (1990) 'Cameroon: Café-Cocoa', *Africa* 223.

Ali, Madi (1994) 'Politique agricole et élasticité de l'offre dans les exploitations de la zone cotonnière au Cameroon'. Unpublished thesis, University of Montpellier.

BONICA (1990) *Schema d'Aménagement de la Zone Soudano-Sahélienne. Bilan Diagnostique*. Milan: BONIFICA.

Forestry Delegation, Maroua *Annual Reports*, 1991, 1992, 1994.

ANON (1992) *Environment and Sustainable Development for Cameroon.* Republic of Cameroon, Ministry of Environment and Forests, Yaounde. (1992) 73p + appendices.

Ngu *Geography of Cameroon.*

Berger, R. et al. (1993) *Evaluation d'Impact Environmental du Projet Conservation de la Biodiversité au Cameroon* (Final project report). Yaoundé: Fond pour l'Environnement Mondial, May.

Bernstein, H. (1990) 'Agricultural "Modernization" and the Era of Structural Adjustment: Observations on Sub-Saharan Africa', *The Journal of Peasant Studies* 18(1): 3–35.

Biesbrouck, K. and Güjt, Joost (1991) *Where Has All The Water Gone? Environmental Problems in and Around Gawar and Gadala in North Cameroon.* Leiden.

Coates, B. and Cromwell, E. (1994) 'Structural Adjustment and Sustainable Development', unpublished paper for World Wide Fund for Nature, March.

Comité Technique du Bois (1989) La filière bois du Cameroun, synthèse bibliographique.

Comité Monétaire de la République du Cameroon CCMRC (1994), *Note de conjoncture économique*. 21 September.

Cromwell, E. and Winpenny, J. (1993) 'Does Economic Reform Harm the Environment? A Review of Structural Adjustment in Malawi', *Journal of International Development* 5(6).

DEAPA/AMP/CAPP/MINAGRI (1991)

Délégation Provinciale du MINPAT (1992a) *Développement de la Province de l'Est, 1982–1992.*

Délégation Provinciale du MINPAT (1992b) *Impact de la Politique Economique du Renouveau.*

Délégation d'Arrondissement pour l'Agriculture de Lomie. Annual reports for the periods 1981/82 to 1992/93.

Délégation Départementale de l'Agriculture du Haut-Nyong. Annual reports for the periods 1981/82 to 1992/93.

DIAL (1994) *Le Secteur Informel – Crée-t-il sa Propre Demande?* Paris: DIAL.

Dogmo, J.L. and Loung, J.F. (1993) 'Analyses régionales: Délimitation de la région de l'Est'. (mimeo).

Duncan, A. and Howell, J. (eds) (1992) *Structural Adjustment and the African Farmer.* London: James Currey for the Overseas Development Institute.
Forestry Delegation, Maroua (1994)
Fultang, Benedict A. (1991) *Forestry and Desertification in North Cameroon,* Sectoral Technical Report No. 5. Yaoundé: Ministry of Planning and Regional Development.
GCA (1993)
Gartlan, S. World Bank biodiversity ms
Gartlan, S. (1992) 'Cameroon' in J. Sayer, C. Harcourt and M. Collins (eds) *Conservation Atlas of Tropical Forests. Africa.* London: Macmillan.
Gartlan, S. (1991) *La Conservation des Ecosystèmes Forestiers du Cameroun,* Gland, Switzerland and Cambridge UK, IUCN.
Hyden, G. (1980) *Beyond Ujamaa in Tanzania: Underdevelopment and an Uncaptured Peasantry.* London: Heinemann.
IRA (1991), Annual Report of Activities, IRA, MINREST, Provincial Delegation for the Far North, Maroua. (mimeo)
Kilum Mountain Forest Project (1987) *Cameroon: Conservation of the Oku Mountain Forest.* Oku, North-West Province.
Kilum Mountain Forest Project (1989) *Second Annual Report.* Oku, North-West Province.
Korup Project (1993).
Madeley, John (1987) 'Cameroon: A Success Story', *West Africa* 3625: 416–18.
Ministry of Agriculture (1993) 'Bilan Diagnostique Du Secteur Agricole, 1980–1990'. Yaoundé.
MIDENO (1987) *Activities and Achievements Report 1982/83–1980/87.* North-West Development Authority.
MINAGRI/CAPP (1991)
MINAGRI/B.M. (1987) *Contrôle des exploitations forestières.*
MINAGRI (1990) *Politique Agricole du Cameroon.* Agricultural Projects Division, Ministry of Agriculture, Yaoundé, June.
MINAGRI (1993) 'Rapport Annuel de la Section Départementale des Statistiques Agricoles', MINAGRI Maroua. (mimeo).
MINEF/Direction des Forêts (1993a) *Plan de zonage du Cameroun, Document de généale politique* Yaoundé.
MINEF/Direction des Forêts (1993b) *Plan de zonage du Cameroun forestier méridional.* Yaoundé.
MINPAT (1988) *The 1987 Population Census in Cameroon.* Yaounde: Ministry of Planning and Regional Development.
MINPAT (1991) *Rapport sur l'Etat de l'Environnement et du Développement au Cameroun.* Yaoundé: Ministry of Planning and Regional Development.
Mope Simo, J.A. (1992) 'Gender, Agro-Pastoral Production and Class Formation in Bamunka, North Western Cameroon', published PhD thesis, University of East Anglia.
Mope Simo (1994) *Agricultural Expansion and Tropical Deforestation in Cameroon,* 176p, Report Commissioned by the UNRISD/WWF.

Ngono, Jeanne (1991) *Etudes Sociologiques Préliminaires pour une Participation des Populations à l'Aménagement de la Forêt de Gawar (Extrême Nord).* Dschang.

Ngum, M.Y. (1992) 'African Folk Performance as an Element of Social Structure: An Inside View of Oku in Cameroon', unpublished PhD thesis, University of Manchester.

Nsangou, Arouna (1984) 'Innovations Technologiques et Développement Rural. L'Exemple de l'Est Cameroon'. Doctoral thesis, University of Montpellier.

République du Cameroun (1989) *Déclaration de stratégie de développement et de relance économique.* Yaoundé: Government Printer.

Rodwald, P.G., Dejaifve, P.A., and Green, A.A., (1994) 'The Birds of Korup National Park and Korup Project Area, Southwest Province, Cameroon', *Bird Conservation International*, Vol. 4: 1-68.

Second Population Census (1987)

Sieffert, A. and Troung, H.X.P. (1992) 'Mode de production et stratégies paysannes des commmunautés rurales de la zone forestière dans l'Est', dissertation for Tropical Agricultural Engineer's Diploma.

Sikod, Fondo (1991) 'An Introduction to Agricultural Economics and Rural Development', unpublished thesis, University of Yaoundé.

Thomas, D.W. 'The Vascular Plants of Korup National Park'.

Winpenny, J.T. and Willis, R. (1994) 'The Economic Assessment of Production-Related Environmental Impacts', report to FAO, Rome.

World Bank (1989) *Cameroon Agricultural Sector Report.* Report No. 7486-Cam. Washington, DC: World Bank.

World Bank (1994a) *Cameroon: Diversity, Growth and Poverty Reduction, Participatory Poverty Assessment.* Washington, DC: World Bank, June.

World Bank (1994b) 'Memorandum and Recommendation of the President of the International Development Association to the Executive Directors on a Proposed Credit in an Amount Equivalent to SDR 53.1 Million (US$75.0 Million) to the Republic of Cameroon for an Economic Recovery Credit', Report No. P-6359-CM. Washington, DC: World Bank, 25 May.

Young, J. (1994) *Ijim Mountain Forest Project Cameroon*, Second Annual Report, January–December 1993. Kom, North-West Province.

62: Environmental Change and Dryland Management in Machakos District, Kenya: Institutional Profile, *edited by Mary Tiffen*, 1992, £4.00, ISBN 0 85003 179 6
63: Environmental Change and Dryland Management in Machakos District, Kenya: Tree Management, *Michael Mortimore*, 1992, £4.00, ISBN 0 85003 180 X
64: IMF Lending: The Analytical Issues, *Graham Bird*, 1992, £4.00, ISBN 0 85003 182 6
65: The Seed Sector in Developing Countries: A Framework for Performance Analysis, *Elizabeth Cromwell, Esbern Friis-Hansen and Michael Turner*, 1992, £6.00, ISBN 0 85003 183 4
66: The Performance of the Seed Sector in Zimbabwe: An Analysis of the Influence of Organisational Structure, *Esbern Friis-Hansen*, 1992, £4.00, ISBN 0 85003 184 2
67: Political Regimes and Economic Policy Patterns in Developing Countries, 1978–88, *John Healey, Richard Ketley and Mark Robinson*, 1992, £4.00, ISBN 0 85003 185 0
68: The Impact of NGO Poverty Alleviation Projects: Results of the Case Study Evaluations, *Roger Riddell and Mark Robinson*, 1992, £4.00, ISBN 0 85003 1923
69: Continuity and Change in IMF Programme Design, 1982–92, *Tony Killick*, 1992, £4.00, ISBN 0 85003 194 X
70: IMF Lending: The Empirical Evidence, *Graham Bird*, 1993, £4.00, ISBN 0 85003 197 4
71: Issues in the Design of IMF Programmes, *Tony Killick*, 1993, £4.00, ISBN 0 85003 199 0
72: Food Aid Programmes of the European Community and its Member States: A Comparative Statistical Analysis, *Edward Clay and Charlotte Benson*, 1993, £4.00, ISBN 0 85003 200 8
73: Economic Inflexibility in Africa: Evidence and Causes, *Tony Killick*, 1993, £4.00, ISBN 0 85003 205 9
74: The Changing Role of NGOs in the Provision of Relief and Rehabilitation Assistance: Case Study 1 – Afghanistan/Pakistan, *Nigel Nicholds with John Borton*, 1994, £6.00, ISBN 0 85003 206 7
75: The Changing Role of NGOs in the Provision of Relief and Rehabilitation Assistance: Case Study 2 – Cambodia/Thailand, *Charlotte Benson*, 1993, £6.00, ISBN 0 85003 207 5
76: The Changing Role of NGOs in the Provision of Relief and Rehabilitation Assistance: Case Study 3 – Northern Ethiopia/Eritrea, *John Borton*, 1994, £6.00, ISBN 0 85003 210 5
77: The Impact of Drought on Sub-Saharan African Economies: A Preliminary Examination, *Charlotte Benson and Edward Clay*, 1994, £6.00, ISBN 0 85003 212 1
78: Financial Integration and Development in Sub-Saharan Africa: A Study of Informal Finance in Ghana, *Ernest Aryeetey*, 1994, £6.00, ISBN 0 85003 214 8
79: Financial Integration and Development in Sub-Saharan Africa: A Study of Informal Finance in Tanzania, *Mboya S.D. Bagachwa*, 1994, £6.00, ISBN 0 85003 215 6
80: Devolution of Management in Public Irrigation Systems - Cost Shedding, Empowerment and Performance – A Review, *Hugh Turral*, 1995, £6.00, ISBN 0 85003 221 0
81: Changing Public and Private Roles in Agricultural Service Provision, Diana Carney, 1995, £6.00, ISBN 0 85003 222 9
82: Structural Adjustment and Sustainable Development in Mali: A World Wide Fund for Nature Study, *A.S.Maiga, B. Teme, B.S. Coulibaly, L. Diarra, A.O. Kergna, K.Tigana, with J. Winpenny*, 1995, £6.00, ISBN 0 85003 223 7
83: Structural Adjustment and Sustainable Development in Cameroon: A World Wide Fund for Nature Study, R.Tchoungui, S. Gartlan, J.A. Mope Simo, F. Sikod, A. Youmbi, M. Ndjatsana, and J. Winpenny, 1995, £6.00, ISBN 0 85003 224 5
** currently out of print*

Overseas Development Institute
Regent's College
Inner Circle
Regent's Park
London NW1 4NS
UK

Telephone +44 (0)171 487 7413
Fax +44 (0)171 487 7590
Telex 94082191 ODIUK G
Email (Internet) publications@odi.org.uk

£6.00