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# **ZAIRE AGRICULTURE SECTOR ASSESSMENT**

**USAID ZAIRE**

**JUNE 1990**

## PREFACE

The bulk of this assessment was written in the latter half of 1989 and early 1990, although some sections were written in mid-1990. Between the beginning and end of this process there have been some institutional changes. For example, the Departments of Agriculture and Rural Development, which were separate in 1989, have (once again) been merged, repeating a process that has taken place in the past. A change of government in late April 1990 resulted in a new Commissaire d'Etat and a new Secretaire d'Etat for Agriculture. The text of this assessment at various places refers to the two separate departments, and there are also some references to "current" officials who are no longer in office. Except where institutional or other changes appear to have potentially significant impact on the agricultural sector, such changes have not been incorporated into the text.



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## ACRONYMS

ACP	Afrique Caraibe Pacifique
ADB	African Development Bank
AGCD	Administration Generale de Cooperation au Dev't (Belgian Central Aid Administration)
AID	Agency for International Development
APEC	Programme Arriere Pays Economique de Kinshasa
ARD	Agriculture and Rural Development
B.A.	Budget Annexe
B.I.	Budget d'Investissement
B.O.	Budget Ordinaire
BCA	Banque de Credit Agricole
BCA	Banque de Credit Agricole
BEAU	Bureau d'Etudes et d'Amenagement Urbain
BEDEPE	Bureau d'Encouragement au Developpement des Petites Entreprises
BUNASEM	Bureau National des Semences
BZCE	Banque Zairoise de Commerce Exterieur
C.C.C.F.	Caisse Centrale de Cooperation Economique
CADEZA	Caisse d'Epargne du Zaire
CAPSA	Centre Agricole Permanent du Service de l'Agriculture
CCA	Contribution au Chiffre d'Affaires (turnover tax)
CECOMAF	Centre de Commercialisation des Produits Maraichers et Fruitiers
CENACOF	Centre National de Coordination de la Formation
CEPETEDE	Centre pour le Perfectionnement des Techniques de Developpement
CEPLANUT	National Nutrition Planning Center
CIDA	Centre International de Developpement Agricole (Canada)
CIMMYT	Centre International d'Amelioration du Mais et du Ble
CIP	Commodity Import Program
CIRAD	Centre International de Recherche Agricole pour le Developpement
CODAIK	Compagnie de Developpement Agro-pastoral Integre de Kwango-Kwilu
COOCEC	Cooperative Centrale d'Epargne et du Credit
COOPEC	Cooperative d'Epargne et Credit
COOPEC	Cooperative d'Epargne et de Credit
CPF	Counterpart Funds
CSCo	Caisse de Stabilisation Cotonniere
DAFECN	Departement des Affaires Foncieres, de l'Environnement et de la Conservation de la Nature
DAGP	Direction de l'Administration Generale des Projets
DMPCC	Direction des Marches, Prix et Credits de Campagne
DCA	Department of Agriculture
DOARD	Department of Agriculture and Rural Development
DOB	Department of Budget
DOE	Department of the Environment
D/F	Department of Finance
DOP	Department of Plan
DORD	Department of Rural Development
DSA	Division des Statistiques Agricoles

## ACRONYMS

DSG	Direction des Services Generaux
E.C.	European Community
EEC	European Economic Community
ERS	Economic Research Service (USDA)
FAO	Food and Agriculture Organization
FCD	Fonds de Conventions de Developpement
FSR	Farming Systems Research
GAP	Groupe Agro-Pastoral
GDP	Gross Domestic Product
GOZ	Government of Zaire
IARCS	International Agricultural Research Centers
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association (World Bank)
IECC	Industrial and Export Crops Credit
IFA	Institut Facultaire d'Agronomie or Faculty Institute of Agriculture
IFAD	International Fund for African Development
IFDC	International Fertilizer Development Center
IFPRI	International Food Policy Research Institute
IITA	International Institute of Tropical Agriculture
IMF	International Monetary Fund
INEAC	Institut National pour l'Etude Agronomique du Congo Belge
INERA	Institut National Pour l'Etude et la Recherche Agronomique
INSS	Institut National de Securite Sociale
ISDR	Institut Superieur de Developpement Rural or Higher Institute for Rural Development
ISEA	Institut Superieur d'Enseignement Agricole
ISNAR	International Service for National Agricultural Research
K.U. Leuven	Catholic University of Leuven (Belgium)
MBA	Master's of Business Administration
NBK	Nouvelle Banque de Kinshasa
NGO	Non-governmental Organization
OFIDA	Office des Douanes et Assises
ONATRA	Office National de Transports
ONPV	Office National des Produits Vivriers
OZAC	Office Zairois de Controle
OZACAF	Office Zairois de Cafe
PAT2	Projet d'Assistance Technique 2
FEP	Priority Expenditure Program
PIP	Priority Investment Program
PL-480	Public Law 480
PLZ	Plantations Lever au Zaire
PME	Petites et Moyennes Entreprises
PMEA	Petites et Moyennes Entreprises Agricoles
PMKO	Projet Mais au Kasai Oriental
PNE	Programme National Engrais
PNM	Programme National Mais
PNS	Projet North Shaba or North Shaba Rural Development Project
PRAAL	Programme pour l'Autosuffisance Alimentaire
PRESU	Projet de l'Enseignement Superieur et Universitaire

## ACRONYMS

PROCAR	Projet de Developpement de la Production et Commercialisation Agricoles Regionales
PRONAM	Programme National Manioc
PVO	Private Voluntary Organization
RAV	Recherche Appliquee et Vulgarisation
SAL	Station d'Adaptation Locale
SEP	Service d'Etudes et Planification
SNCOP	Service National de Cooperatives et de l'Organisation Paysanne
SNCZ	Service National de Chemins de Fer du Zaire
SNRDA	Service National des Routes de Desserte Agricole
SOFIDE	Societe Financiere de Developpement
SONAS	Societe Nationale d'Assurances
SPCSA	Systeme Permanent de Collecte des Statistiques Agricoles
SPIAF	Service Permanent de l'Inventaire Agro-Forrestier
T&V	Training and Visit (Extension)
T.A.	Technical Assistance
UCCEC	Union Centrale de Cooperatives d'Epargne et de Credit
UMAZ	Usine de Materiels Agricoles du Zaire
UNDP	United Nations Development Programme
UNTZa	Union Nationale des Travailleurs du Zaire
USAID	United States Agency for International Development
USDA	United States Department of Agriculture

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## **ZAIRE AGRICULTURE SECTOR ASSESSMENT**

### **I. BACKGROUND DESCRIPTION AND ANALYSIS**

#### **A. Agricultural Production**

##### **1. Overview of Agricultural Production**

Agricultural production in Zaire has typically been carried out by two very distinct sectors: the traditional sector, consisting of 3-4 million small family farms, practicing slash-and-burn agriculture on cultivated areas averaging 1.5 ha or less; and the modern sector, which includes perhaps nine hundred larger plantations (averaging 300 ha in size) and other agri-business enterprises (down from 1200 in the 1970s) using modern production techniques. Broadly speaking, the traditional sector is predominantly oriented toward production of food crops, although smallholder coffee and cotton production are significant in certain areas of the country. The modern sector is oriented to production of industrial and export crops. Over the past decade or so there has been increasing involvement of smallholders in production of industrial and export crops.

Overall, the traditional sector historically accounted for approximately 60 percent of agricultural GDP while the modern sector accounted for the other 40 percent; but the decline of the modern sector over the past 15 years or so (beginning with the introduction of zairianization and radicalization) has reduced its share of the agricultural GDP. At a disaggregated level the mix between the two sectors varies considerably according to the crop or production activity in question.

In recent years, these two sectors have been supplemented by a small but growing class of farmers who are technically more advanced than those in the traditional sector. This group consists of from 150 to 400 thousand farmers. They produce 20 percent of the robusta coffee, 80 percent of the arabica coffee, and more than half the cotton; and they also produce food crops such as maize, legumes, and in some cases, cassava.

Further blurring of the previous distinction between the traditional and modern sectors has also occurred in some cases as a result of abandonment of modern-sector plantations and takeover of these abandoned plantations by groups of smallholders (i.e., village plantations). For purposes of the discussion here, it will frequently be useful to focus on the traditional and modern sectors separately, since they represent such different production units.

##### **1.1. Crop production**

###### **1.1.1. Food crops**

This section covers the following food crops: cassava, maize, rice, groundnuts, tubers, plantains, and beans. All of these are

important food crops. In addition, in many rural areas these traditional subsistence food crops have become important also as cash crops. Urban food demand is the driving force behind this evolution, and in some cases (e.g., cotton) traditional cash crops have suffered from increased competition from food crops.

As noted above, production of food crops is the primary activity of the traditional smallholder sector. Nearly all food crops are produced by smallholders (some maize is produced on large commercial farms in Shaba, and a variety of food crops is grown by some parastatals and private companies to feed their employees). Cassava is the staple of the diet in most of Zaire, and one survey of peasant farmers carried out a few years ago in Zaire's southern band found virtually universal cultivation of cassava. In addition, maize was also produced by over 90 percent of the farms included in the survey (maize is the staple of the diet within much of the two Kasais and Shaba region). The only other crop cultivated by at least half the farms surveyed was groundnuts. In addition to these three crops, bananas and rice are also important crops.

Estimates of food crop production over the past decade are provided in Table 1. The importance of cassava in the diet of most Zairians is evident from the dominance of the crop with respect to the

Table 1. Production of Major Food Crops  
(thousands of tons)

Year	Maize	Paddy <sup>1</sup>	Cassava	Sweet Potato	Beans, Peas	Peanuts <sup>2</sup>	Plantain
1979	536	227	12,566	324	137	318	1,373
1980	562	234	13,087	333	151	337	1,408
1981	637	245	13,172	343	155	348	1,438
1982	666	251	14,185	353	159	349	1,467
1983	673	271	14,601	363	164	367	1,496
1984	704	286	15,038	373	169	376	1,526
1985	721	297	15,493	382	174	386	1,795
1986	729	307	15,900	375	175	392	1,834
1987	780	319	16,400	372	166	394	---
1988	800	329	17,000	368	178	400	---
1989		341	17,400		179	410	

- 1 The conversion rate from paddy to rice is approximately 60 percent.  
2 Unshelled.

Sources: Service d'Etudes et Planification, Situation Actuelle de l'Agriculture Zairoise, January 1987.  
Service d'Etudes et Planification, unpublished data.

total volume of food crop production<sup>1</sup>. Cassava is not only the principal source of calorie consumption, it is also increasingly important as a cash crop and hence source of income. This is especially true in the country's southern band, where much of the cassava as well as much of the maize that is grown is marketed in the principal urban areas (Kinshasa, Lubumbashi, Kikwit, Kananga, Mbuji-Mayi).

With the exception of cassava, which is grown and harvested on a continuous basis, crops are most commonly grown each year during two distinct growing seasons. The timing of these seasons depends on location (i.e., on the timing of rainfall), and in some parts of the country such as the Central Basin there is only one growing season. Multicropping is the rule, and monocropping the exception, with cassava-based or maize-and-cassava-based multicropping being most prevalent. Long fallow periods were traditionally used as a means of allowing restoration of soil fertility, although in some more heavily densely populated areas of the country (Bas-Zaïre, parts of Bandundu and Kivu) there is some indication that fallow periods have been shortened with consequent adverse effects on production yields. Production increases are realized mainly by area expansion.

In addition to the major food crops, a wide variety of minor crops is also produced. These include other tubers besides cassava (e.g., taro, sweet potatoes, and yams), as well as legumes and fruits.

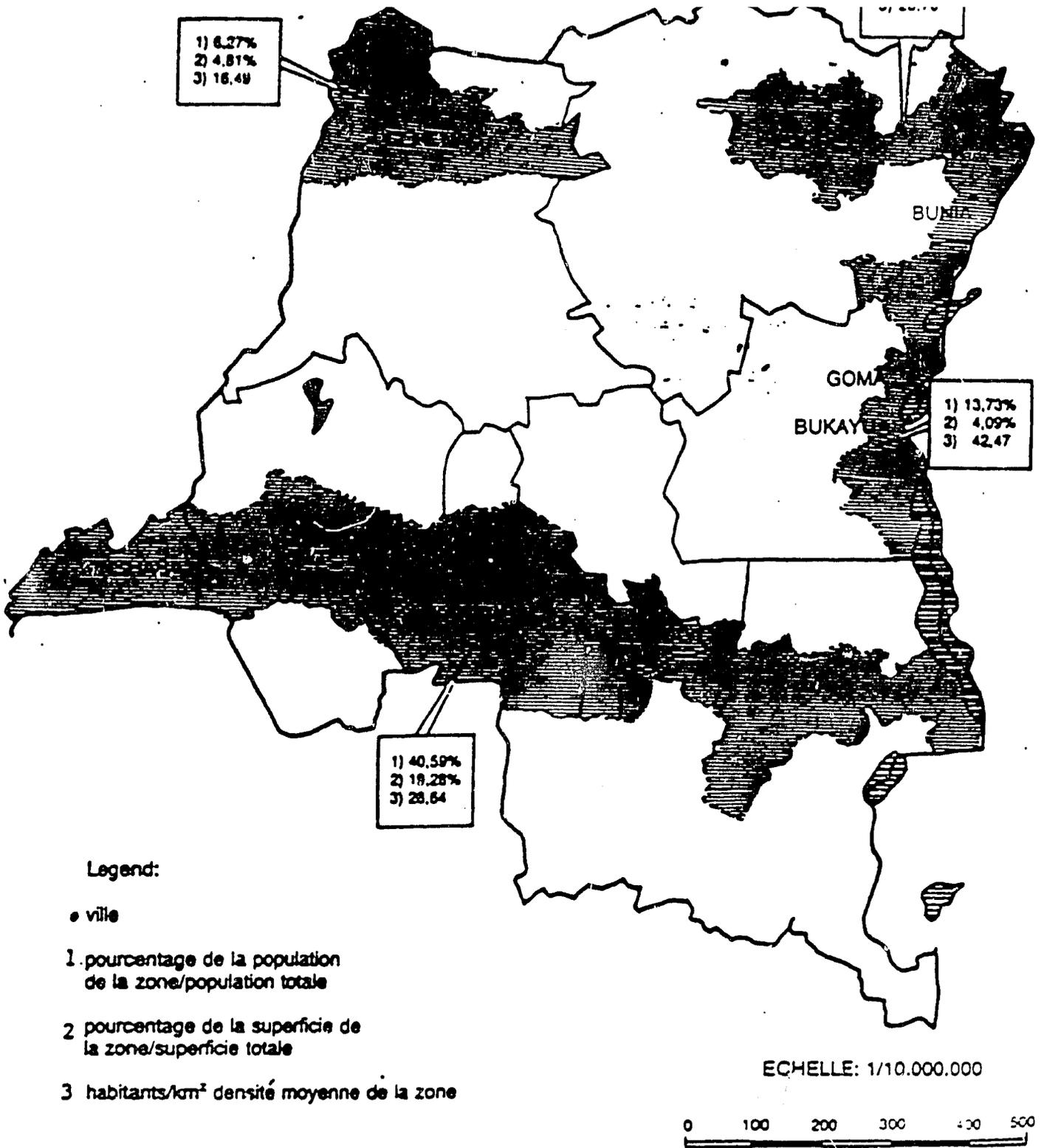
Table 2 below provides details on food crop production by region. Cassava is cultivated throughout the country, as is maize. As noted earlier, these crops are especially prevalent in the southern band of Zaïre running from Bas-Zaïre through Bandundu, the two Kasais, and into Shaba (see map below). This area includes approximately 40 percent of the country's population, and includes most major urban centers.

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<sup>1</sup> Up through 1986, these estimates are official figures from the Department of Agriculture (DOA). The data base for agriculture in Zaïre is very poor. For example, a DMPCC/K.U. Leuven study of cassava, maize, and groundnut production in the Bandundu region concluded that official production figures severely understate actual production. If these results apply as well to other regions, realized production is well above the official statistics. The text will discuss the official statistics, but the reader should at least be forewarned that the link between these statistics and reality is subject to considerable speculation.

For 1987 and 1988, official figures on food crop production are not yet available. However, preliminary DOA figures (now awaiting official approval) imply that from 1986 to 1987, maize production increased by over 15 percent and rice production increased by well over 50 percent. These reported increases do not appear to be realistic. Hence, the data for 1987 and 1988 in Table 1 and also below in Table 3 are not official DOA estimates; rather, they are estimates that have been provided by staff from the technical assistance team at the DOA's Service d'Etudes et Planification (SEP).

# Principales Zones de Peuplement



**Legend:**

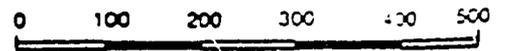
• ville

1. pourcentage de la population de la zone/population totale

2. pourcentage de la superficie de la zone/superficie totale

3. habitants/km<sup>2</sup> densité moyenne de la zone

ECHELLE: 1/10.000.000



Rice and bananas are additional important food crops in Zaire, with production most heavily concentrated in the northern and eastern parts of the country (i.e., Equateur, Haut-Zaire, and Kivu regions). According to the data in Table 2, these three regions account for nearly three quarters of Zaire's rice production and almost two thirds of banana production. By contrast, they represent 44 percent of maize production and 38 percent of cassava production.

Groundnuts are also produced on a fairly wide scale. As noted above, a large number of secondary crops (e.g., various legumes, tubers, and fruits) are also cultivated; and the composition of these secondary food crops varies considerably by location.

#### 1.1.2. Export and industrial crops

Prior to independence in 1960, the colonial administration discouraged smallholders from engaging in plantation agriculture because there was a strong belief in the economies of scale of large estates. Moreover, the mining sector and the plantations already had to cope with a shortage of labor. Wherever possible, cotton was "imposed" as a cash crop on smallholders. Among tree crops only

Table 2. Food Crop Production by Region in 1988  
(thousands of tons)

Region	Cassava	Rice (paddy)	Maize	Peanuts	Soybeans	Banana Plantain	Banana Douce	Pine- apple
Kinshasa	510	4	17	23	6	56	4	5
Bas-Zaire	850	9	25	34	8	252	60	27
Bandundu	2890	30	127	114	10	162	81	19
Equateur	1700	74	127	63	8	486	77	12
Haut-Zaire	1870	121	135	86	22	324	60	18
Kivu	2890	121	110	57	35	396	81	18
Shaba	2210	9	110	74	1	54	20	11
Kasai Occ.	2210	30	102	69	16	36	12	14
Kasai Or.	1870	32	93	51	15	54	8	12
<b>Total</b>								
Production	17000	430	846	572	121	1819	403	136

Source: SEP (unpublished data)

arabica coffee was imposed on smallholders, in the highlands of Kivu. Thus, it is not surprising that the smallholder's share in tree crops has increased since 1960, particularly for coffee but also for other tree crops.

During the first seven years after independence, civil unrest prevented companies from making a profit on their plantations. The seven following years were characterized by a rapidly growing economy, a stable currency and good investment prospects. Profits were again made but difficulties with the transfer overseas of part of the profits, the forced cutdown in expatriate staff and the rhetoric against foreign interests and multinationals discouraged companies from making new investments. Zairianization in 1973 (discussed in section I.B.2.1. below) proved them right. The ensuing disintegration of the economy, with skyrocketing oil prices, rapid inflation, and subsequent devaluations forced the GOZ to give back most of the plantations to their former owners, after having taken over the plantations from the Zairian owners through "radicalisation."

Several plantation owners were reluctant to claim back ownership, and many simply never showed up. Most of those who did return went into an association with Zairian businessmen, and only the large companies listed on the European stock market returned and made some investments to make the factories and plantations again operational. However, the investment climate had not cleared up and attempts were made to get as much out of the plantations as was possible with a minimum of investments in replacement.

In the 1980s, the sluggish growth in the economy, rapid inflation followed by successive devaluations, the intractable system of taxes and administrative harassment, periodic fuel shortages, etc. all contributed to a negative climate for making long-term investments. Many plantation owners extended their activities and working capital into the buying up of coffee from smallholders, an activity which was certain to be profitable and which enabled many companies to acquire foreign exchange.

Production of export and industrial crops over the past decade is shown in Table 3 below. In contrast to the situation for food crops, where production estimates indicate modest growth in output over time for virtually all crops, there is a much more mixed record for export and industrial crops. Thus, while the past decade has seen modest and fairly steady increases in outputs of sugar and coffee, there have been (often sharp) declines in production of palm oil and rubber. Production of seed cotton has declined since 1983. For the other crops shown in Table 3 there have been either fairly stable levels of production during most of the past ten years (e.g., tea, cocoa) or else fluctuations in production without any clear trend (e.g., tobacco, quinine).

Overall, there has been a clear decline in the modern sector over the past 15 years or so, beginning with the zairianization and radicalization measures of 1973 and 1974, and compounded by deterioration of the transportation infrastructure and (until the

early 1980s) by maintenance of a set of macroeconomic policies that had severe adverse effects on export-oriented agriculture. In some cases, such as rubber and palm oil, this decline has been translated into corresponding declines in production and exports; while in other cases, most notably coffee, there has been a concomitant increase in the importance of smallholder production that has served to offset the shrinkage of the modern sector. Smallholder production now accounts for 40 percent of total coffee production, and smallholders (including village plantations) contribute a third or more of rubber and cocoa production and have nearly one quarter of the land that is under tea cultivation.

Table 4 shows production of export and industrial crops by region. Coffee, the principal export crop, is grown primarily in Haut-Zaire, Equateur, and Kivu. Both robusta and arabica are grown: the former (which accounts for 85 to 90 percent of total coffee production) is grown in all the production areas, while the latter is confined to the Kivu region and a part of Haut-Zaire. Over the past ten years or so, there has been an increase in the amount of land under coffee cultivation, largely due to expansion by smallholders. At the same time, land devoted to other export crops has been decreasing, reflecting shrinkage in the modern plantation sector.

Additional export crops of note are rubber, tea, cocoa, quinine, and oil palm. In many cases, climate and soil conditions in the Central Basin (encompassing much of Equateur and Haut-Zaire in the north of the country) are ideal for these export crops, and roughly two thirds of the production of rubber and cocoa as well as half of

Table 3. Production of Export and Industrial Crops  
(thousands of tons)

Year	Sugar	Coffee	Cocoa	Tea	Tobacco	Seed Cotton	Rubber	Palm Oil <sup>1</sup>	Quinine <sup>2</sup>
1979	48	87	3.5	4.8	1.6	19	22	98	6.0
1980	48	89	4.2	4.4	1.9	29	21	93	5.9
1981	47	93	4.6	4.8	2.9	21	18	106	6.0
1982	52	93	4.5	4.5	2.8	24	17	94	5.9
1983	52	84	4.2	4.7	1.5	27	16	85	5.2
1984	61	89	4.4	5.0	1.9	21	14	93	4.7
1985	56	90	4.5	4.8	2.4	22	13	89	4.8
1986	61	95	6.3	4.7	3.2	19	13	86	7.0
1987	68	97	5.4	3.4	2.7	17	12	--	7.0
1988	70	99	6.2	3.1	2.8	16	12	--	6.5

<sup>1</sup> Excluding village production.

<sup>2</sup> Tons of bark.

Sources: Service d'Etudes et Planification, Situation Actuelle de l'Agriculture Zairoise, January 1987; unpublished data. SOCFINCO/ZTE, 1987.

palm oil production takes place in Equateur. Tea is grown exclusively in the Kivu region (North-Kivu and South-Kivu), and nearly all of the quinine production is in Kivu as well.

The principal industrial crops are sugar and cotton. There are three sugar plantations in Zaire: Kwilu-Mgongo, in Bas-Zaire; Kiliba, in Kivu; and Lotikila, in Haut-Zaire. Cotton is grown fairly widely throughout the country, with production taking place both in the north (Equateur and Haut-Zaire) and in the east and south (Kivu, Shaba, and Kasai Oriental).

## 1.2. Livestock

Livestock (excluding poultry) are possessed by a minority of smallholders. Most common are goats (estimated, in 1988, to number in excess of 3.3 million), followed by cattle (1.6 million, two-thirds of which are in the traditional sector, mostly in the eastern part of the country), sheep and pigs (900,000 each). The stock of poultry has been estimated at over 22 million. In the southern band survey mentioned earlier, 40 percent of the households surveyed had goats, with an average of about 4 head; while poultry were held by three quarters of

Table 4. Export and Industrial Crop Production by Region in 1988  
(thousands of tons)

Region	Cotton	Rubber	Sugar cane	Coffee	Cocoa	Tea	Tobacco	Quin- quina	Palm Oil
Kinshasa	0	0	119	1	0	0	0.1	0	4
Bas-Zaire	0	0.7	184	1	1.4	0	0.2	0	9
Bandundu	0	0.6	110	6	0.1	0	0.2	0	27
Equateur	2.8	7.5	83	27	4.4	0	0.1	0	108
Haut-Zaire	2.6	1.9	83	36	0.3	0	0.3	0.2	31
Kivu	4.5	0	174	21	0	3.1	0.3	6.3	13
Shaba	2.6	0	46	0.3	0	0	0.6	0	7
Kasai Oc.	3.4	0	55	3	0	0	0.5	0	13
Kasai Or.	0.3	1	64	4	0	0	0.4	0	9
<b>Total Prod'n</b>	<b>16.2</b>	<b>11.7</b>	<b>918</b>	<b>99</b>	<b>6.2</b>	<b>3.1</b>	<b>2.8</b>	<b>6.5</b>	<b>221</b>

Source: SEP (unpublished data)

the surveyed farms, with an average of 8 birds. A third of the cattle production, as well as some pig and poultry production in the areas surrounding Kinshasa and Lubumbashi, is done on a commercial basis.

Overall, annual domestic production of livestock products is estimated to be in excess of 80 thousand tons. Just over a third of this total is beef production, while pork accounts for over a quarter of the total and poultry represents a fifth. Domestic production covers nearly two thirds of the country's meat and poultry consumption, with the balance consisting of imports (43 thousand tons per year). Per capita meat consumption is estimated to be about 4.2 kg per year, well below the FAO norm of 25 kg per year. This low level of consumption in large part reflects the substantial decline in real incomes that has taken place since the 1970s.

Livestock raising takes place in various locations throughout Zaire, with differences occurring with respect to type of animal and, in some cases, sector of production. Cattle are most highly localized, being found primarily in North-Kivu and the Ituri subregion of Haut-Zaire, and also in Shaba and Bandundu. Pigs are most prominent in the Kinshasa area (including Bas-Zaire and Bandundu), while poultry and goats may be found throughout the country. While all three types of animals are produced in the traditional sector, there is also commercial production of pigs and poultry that takes place in the areas surrounding Kinshasa and Lubumbashi. Sheep are also produced in the traditional sector, and most sheep are found in the south and east of the country.

### 1.3. Forestry

Zaire possesses nearly half of Africa's tropical forests. The bulk of Zaire's forest resources are in the Central Basin (including much of Equateur, Haut-Zaire, and northern Bandundu), while the Miombo woodlands in Shaba constitute an important part of the remainder. More limited commercially viable forests are also found in Bas-Zaire and in Kasai Occidental. Of its total exploitable forest area, Zaire currently has approximately 1.5 percent under development and only 10 percent granted in concessions to forestry enterprises.

Wood production from Zaire's massive forest reserves presently amounts to approximately half a million cubic meters. This represents but a tiny fraction of potential output. Following stagnation of production for several years, wood production declined by 30 percent from 1984 to 1987. Over the same period, exports of wood have increased by 7 percent to nearly 150 thousand cubic meters. The GOZ would like to see annual production eventually reach 6 million cubic meters of wood, and even this figure is only a small fraction of what the forest could sustain with proper management. The forestry activity that is taking place is dominated by five companies (SIFORZAL, AGRIFOR, IZB, FORESCOM, and SOKINEX) that together are responsible for 90 percent of production. Extraction of wood is concentrated in Equateur, Haut-Zaire, Bas-Zaire, and Bandundu.

Most of the wood that is produced is consumed domestically, while roughly 30 percent of production is exported. Wood exports typically account for five to ten percent of the total value of agricultural exports. The forests also serve as a source of firewood and charcoal, and it is estimated that 25 to 30 million cubic meters of wood are harvested annually to meet domestic energy requirements.

The various wood harvesting activities are primarily associated with different forest resources. The commercial lumber industries that extract exotic lumber for furniture manufacture utilize the rainforest of the central basin. Firewood and charcoal are extracted primarily from the transitional forest south of the rainforest, the gallery forested savanna south of the transitional forest and from the eastern montane forest. In addition to lumber, fuelwood, and charcoal the transitional, gallery and montane forests are also being cleared for agricultural production. In fact it is this clearing of these forests for fuelwood, charcoal and agriculture that poses the greatest threat to mismanagement of Zaire's forest reserves (Goodson, 1988; DAFECN, 1989). Deforested "halos" of 150 km already surround Kinshasa and Lubumbashi with smaller halos around smaller cities. The food production areas in Bandundu and in north and south Shaba are also experiencing a continuing loss of forest.

#### 1.4. Fisheries

Zaire has less than 20 miles of coastline near Moanda on the Atlantic Ocean, but its rivers and lakes provide abundant opportunities for fishing. Fish are an important part of the diet. Since most fishing is artisanal, figures on fish production are uncertain. However, it has been estimated that roughly half of fish production comes from the country's rivers, and the Rift Valley lakes (Kivu and Tanganyika) are also an important source of fish (USAID, 1982).

There is a considerable gap between estimated and potential production, particularly with respect both to the Rift Valley lakes and marine fisheries. There is also potential for fish farming, and since the late 1970s the Peace Corps and USAID have been active in promoting fish farming in various locations throughout Zaire.

## 2. Factors of Production

### 2.1. Natural resources

#### 2.1.1. Land use patterns and major ecological zones

Zaire is a land abundant country with approximately 2.3 million square kilometers of area. Of this total, over one third is thought to be suitable for agriculture. However, it is estimated that only about three percent of the total land area is presently under cultivation, with another two percent or less in grazing. Table 5 below provides an overview of land use in Zaire. More than three quarters of the country's area is covered by forests and woodlands.

Zaire can be divided into four major biogeographical regions: 1) the central basin of the Zaire River; 2) the transitional woodlands to the north and south of the central basin; 3) the tropical humid montane of eastern Zaire; and 4) the gallery forested savanna region along the southern border with Angola and Zambia.

The central basin is an area of about 750,000 km<sup>2</sup> and is comprised of the closed canopy rainforest of the Zaire River basin, of which a third is periodically flooded. This region possesses a largely untapped reserve of exotic and commercial grade lumber. The region is sparsely populated by indigenous farming and hunting and gathering cultures, and supports a very limited commercial timber industry. The forest receives between 2000 to 3000 mm of rainfall per year and is supported by soils generally classified as Oxisols using the USDA Soil Taxonomy system. Owing to the highly leached and residual mineral nature of the soils, the forest biomass is the reservoir for most of the biologically essential nutrients. The forested area not subject to flooding is generally suitable for perennial tree crop production and many palm oil, coffee, and cocoa plantations are located in this zone. Annual crop production, especially for food crops, is unsuited to the region due to loss of the mineral nutrients upon forest clearing resulting in a loss of organic matter and nutrient leaching.

North and south of the rainforest are transitional woodland forests characterized by an open canopy covering at least 40 percent of the land surface. These regions have less rainfall (1200-2000 mm) than the Central Basin, but in a bimodal distribution that permits two cropping seasons per year. They support a large proportion of the country's human population owing to the availability of forested, relatively fertile soils for cropping. Within these regions are the agricultural production areas that provide food for both Kinshasa and the mining regions in Kasai and southern Shaba. The agricultural

Table 5. Current Land Use in Zaire

Category of land use	Area (million hectares)	Percentage of total area
Forests and woodlands	132	56
Agriculture (including cropland and improved pasture)	10	4
Forest fallow and shrubland	30	13
Lakes and major rivers	8	3
Other (roads, urban areas, nonproductive land)	54	23
<b>Total</b>	<b>234</b>	<b>100</b>

Source: Compiled from FAO, 1986, and Hines, 1988.

Note: Component percentages may not add up to corresponding totals due to rounding.

production technology is based primarily on shifting cultivation that involves forest clearing and burning followed by cropping for two to three years before abandonment due to decreasing soil fertility. Complete regeneration of forest cover requires 15 to 20 years, although fallow periods of 7-8 years are reportedly minimal to re-establish soil fertility (Jurion and Henry, 1969). Uncontrolled burning of the inter-forest savanna prevents the accumulation of organic matter in those soils and limits their agricultural value. In areas of high population density, cropping and wood harvesting pressures have caused considerable loss of original forest, and in some cases have reduced fallow periods between cropping cycles to as little as three years. Reduced fallow periods result in lower yields (per land area) and encourage farmers to increase crop production area to maintain total crop production.

The tropical Montane region lies east of the central rain forest along the eastern border with Uganda, Burundi, Rwanda and across Lake Tanganyika, Tanzania. This high altitude region supports a dense humid upland forest and is the most densely populated rural area on the country's most fertile soils (volcanic origin). Rainfall is plentiful (2000 mm) and falls in a bimodal distribution pattern. This area is suited to cultivation of a wide variety of crops. It is the center of production for arabica coffee and cinchona (quinine) and also produces a large proportion of the country's bananas, beans, potatoes, and peanuts. The high human population densities have put considerable pressure on the land resources for both agricultural crops and fuelwood. Overcutting of the forest, short fallows, and steep hillside farming have caused severe degradation of both soil and forest resources.

The gallery forested savanna region south of the forested transition zone extends along the southern border with Angola and Zambia. This region receives 800 to 1500 mm of rain per year in a monomodal rainfall distribution pattern, permitting only one planting season. It consists of open woodlands of drought tolerant trees that can withstand the 4 to 7 month dry seasons. The higher plateaus have isolated gallery forests dispersed throughout a grassy savanna. Areas of marsh land are found in the Upemba depression south and west of Lake Mweru. This region is sparsely populated except around the urban areas which support the extensive mining interest with labor and services. This region is a net importer of food from the transition forest to the north and from Zambia to the south. Maize is the primary agricultural crop and is produced on both relatively large modern sector farms and smaller traditional shifting cultivation farms. Increasing population pressures in the traditional sector similar to the other food crop producing areas of the country and the generally poor acid sandy soils of this region in particular, have resulted in similar practices of shorter fallow periods between cropping campaigns and the utilization of ever increasing areas for cultivation. The gallery forests are being cut to supply the demand for fuelwood and more fertile agricultural soils.

### 2.1.2. The natural resource base

An understanding of the demands human activities place on the natural resource base is important in development planning and intervention so that short-term gains are not traded for long-term decline. Resource management, often perceived as reducing the extraction or other consumptive uses of resources, in some cases conflicts with short-term economic gains. This conflict may be real when measured in terms of individual profits for a small segment of the population. However, effective management of renewable resources is necessary to avert more widespread hardships for a large part of the population in the long term. Sustainable development incorporates evaluation of the hard truths of resource exploitation, degradation, exhaustion, and replenishment (USAID, 1981).

Present traditional agricultural production practices in the major food producing regions of the montane and transitional woodland zones are generally unsustainable under the pressures of population growth. The shortening of fallow periods to 3 years is insufficient for natural replenishment of the essential plant nutrients (World Bank, 1989). The consequences of this phenomenon are many (cf., Fresco, 1982, 1986; Shapiro, 1990). Yields per land area are declining, requiring more land (generally more marginal) to be brought into production. Crops tolerant of a poorer nutrient base are increasingly grown in spite of their poorer quality for human nutrition (cassava). Cultivation of degraded soils results in higher plant densities (as farmers attempt to sustain and increase production), less soil cover, and greater soil erosion. Degraded soils are slower to re-establish the natural progression to mature stable ecosystems, and early interruption of the process further degrades the resiliency of the whole resource base (premature plant death from repeated cutting inhibits natural reseeding).

In areas of Zaire where the resource base is under pressure, the introduction of incomplete technology packages has further accelerated the loss of soil fertility (DAFECN, 1988). Improved varieties that result in higher yields increase production and profit margins, thereby allowing farmers to sell their output to markets supplying urban areas. This in turn increases the net loss of soil nutrients from the local ecosystem. Higher yields and soil nutrient mining have encouraged increased encroachment into more fertile forest soils necessary for obtaining higher crop production. The lack of mineral inputs to replace those exported in the marketed crops results in an unsustainable agricultural ecosystem. The decline in transitional forest and increase in degraded soil has in some cases resulted in declining yields and increased share of the land area being planted to nutritionally poor cassava (Fresco, 1986). Increased dependence on cassava production and consumption relative to other staples is therefore an indicator of degradation of the natural resource base.

The production of export and industrial crops, other than cotton, places much less pressure on the natural resource base due to the cultural practices employed. Most of these crops are perennial, and with small mineral inputs and good ground cover they establish their

own system of plant nutrient cycling and do not require an ever-increasing amount of mineral fertilizer. The majority of production of export and industrial crops is carried out by large companies that import mineral inputs to offset those exported in the harvested production. Coffee is produced increasingly by small farmers in the Equateur, Haut-Zaire, Kivu, and Bandundu areas, with minimal inputs. Coffee production does not fit into shifting cultivation methods. It produces poorly when not given periodic mineral inputs, but still affords the soil surface protection from erosion and a sanctuary from food crop demands.

The demands for energy have also placed considerable pressure on the natural resource base. Zaire extracts over 80 percent of its energy from fuelwood, an astounding statistic considering that Kinshasa, the Shaba mines, Kivu and numerous smaller areas receive energy supplied from hydroelectric generation. Increasing fuelwood costs (in real terms) and increasing fuelwood imports into the larger cities in spite of decreases in real incomes among purchasers is evidence of decreasing local supply and increasing transportation costs. This demand for fuelwood has further exacerbated the destruction of the transitional forests and denuded the savanna of its gallery forests. Uncontrolled burning of the deforested lands inhibits the natural regenerative process necessary for secondary forest establishment.

The exploitation of hardwood lumber in the rainforest of the Central Basin is believed to be minimal. The lack of efficient transportation has severely limited the exploitation of this vast resource. Four international lumber companies are presently operating in the region and utilize both river and trucks to transport lumber and whole logs for export through the deep water port at Matadi. Reforestation in cut regions apparently is not practiced, but the removal rates of wood per hectare are sufficiently low to prevent serious land degradation except along roads. It is believed that numerous small "pit sawyer" operations on the periphery of the rainforest are producing both rough lumber and charcoal. These are generally not clear-cut operations and are seen as less of a threat to the natural resource base than the clear-cutting of gallery and transitional forests for agricultural purposes. Future demands for exotic lumber from the rainforest as other world supplies are depleted and the general lack of overview and control of these operations by the GOZ may lead to greater and possibly irreversible degradation of the rainforest area similar to damage incurred in Brazil, Malaysia, and Indonesia. The Zaire rainforest possesses a broad diversity in both flora and fauna and several international donors and concerned organizations (World Wildlife Fund, World Resources Institute, International Institute for Environment and Development) are stressing the need for additional inventories of the resources and more strategic planning and finances for sufficient sustainable utilization of the forest into the next century.

### 2.1.3. Land tenure

#### 2.1.3.1. Legal framework

The laws governing land ownership have been modified several times from those inherited from the colonial administration at independence. The first of these reforms, the Bakajika Law of 1967, stated that all land belongs to the State, which can give land titles or land use rights to individuals according to occupancy rights and specified administrative procedures. This law was again revised in a series of legislative acts between the years 1971 and 1974. In late 1971, a constitutional amendment was passed that provided that "the Zairian land (soil) and subsoil, as well as their natural products, shall belong to the State." The rights to lands that were not put into development uses were automatically revoked without payment of damages. In effect, for individuals who had developed the land, their rights became less than full ownership. The State retained the power to grant concessions to individuals.

On July 20, 1973, Zaire again passed legislation, this time entitled "Law Providing for a General System of Property, Land and Immovable System, and Securities System." Under this law ownership rights of property previously acquired by a Zairian and developed were converted into a "right of perpetual concession"; land rights previously acquired by a foreigner were converted into a "right of ordinary concession"; and land rights previously regulated by customary tenure also became State lands with "rights of enjoyment" granted to the village. This legislation was an important part of the zairianization measures that expropriated land and property from expatriates and redistributed the land to Zairians.

The 1971 and 1973 laws provided the legal basis for Zairian authorities to absolve the legal rights of foreign individuals to have perpetual rights to land, and remove land from their control even though it had been developed in plantations under concessions that conformed to previous law. This experiment in zairianization failed because the new owners by and large did not have the management skills, experience and ability, or the access to foreign exchange needed to operate the plantations. Even though the former developers of the plantations have been invited to return, few have accepted the inherent risk. This experience illustrates the importance of land tenure to development, and the need to grant secure tenure to the new group of market-oriented farmers so that they have access to credit to reinvest in the productive capacity of the land.

#### 2.1.3.2. Distribution of land

Within the traditional sector the predominant system of customary land tenure is rights of use of the land by the clan (extended family) or the community (Kivu is an exception, with a unique and more highly centralized land-distribution mechanism). Distribution of land within this sector is typically done each year at the local (village) level by the "land chief," an inherited position. Historical patterns of land use, in addition to gifts to the land chief, serve as a guide for

current land distribution. Hence, smallholders do not have ownership in the land that they cultivate, but effectively they do have use rights so long as the land continues to be used (including fallow) by the clan. A study in Bandundu found that every square inch of land was accounted for even though not suitable for farming, and that the boundaries between village groups were well known and respected (Riddell, 1985).

Access to fertile, forested farmland is becoming more of a problem, especially in the relatively densely populated areas of Kivu, Bas-Zaire, the Kasais, and Bandundu, where the beginnings of a land market are starting to evolve. In the Bandundu region a growing class of farmers exogenous to the traditional customary tenure system, and who are producing for the market, is emerging. They are being given parcels of land (5-10 ha) by the regional GOZ authorities who register the title at their level after the "land chief" in the area has given his approval. This particular landholder group has no legal right to land under Zairian law, which requires that concessions be registered, and approved in some cases, with central GOZ authorities. Given the unstable policy environment towards land tenure, it is important that this class of farmers be given more secure rights so that they have the incentive to make longer term investments on the land.

Land tenure policies, under which the state is the ultimate proprietor of all land, might be argued to constrain agricultural development by hindering efforts to make permanent improvements to land (since the improver cannot be assured of retaining control over that land). This is a constraint in Kivu, where the land tenure system is unique and puts considerable discretionary power in the hands of one individual, the local chief. Under this system, smallholders have little incentive to invest in tree crops, because they cannot be assured of retaining control of the land for a period sufficiently long to recoup their investments. The granting of customary use rights to land elsewhere in the country, as well as the long-term concessions that are given to agro-industrial enterprises and modern-sector plantations, give some sort of guarantee to most farming groups. However, the kind of uncertainty created by measures such as zairianization as well as the structural constraints on agricultural production and marketing appear to be a much greater constraint than land tenure policy on the willingness of investors to commit funds to agricultural development.

## 2.2. Human resources

### 2.2.1. Population distribution

Zaire, which is roughly the size of the U.S. east of the Mississippi River, has a total population estimated at 35 million. Zaire is the most populous nation in Central Africa and the fourth most populous on the continent. The crude birth rate is estimated at 48 per 1000 and the crude death rate at 16 per 1000, resulting in an annual rate of natural increase of 3.2 percent. At this rate the population of Zaire will double in about 22 years. The total fertility

rate is 6.2, which means that the average woman in her reproductive lifetime will bear approximately six children (USAID, August 1985).

Not surprisingly, the areas of greatest population density are those that are most capable of supporting agricultural production activities, i.e., the transitional zones north and south of the Central Basin, and the montane forested region of eastern Zaire. Of these areas, the montane region has the greatest population density, 42.5/km<sup>2</sup>, followed by the transitional zone in Haut Zaire (28.7/km<sup>2</sup>) and the transitional zone south of the Central Basin. As noted earlier, the southern band of Zaire includes approximately 40 percent of the country's population, and most major urban centers.

Between 1970 and 1986 the population of Zaire increased by about 60 percent. Food production has more or less kept up with this growth, mainly through an expansion of the planted area. Food imports have made up the difference, with the exception of maize where imports have actually decreased. Table 6 below gives an overview of population growth in Zaire and also provides data on the shifting distribution of the population as between rural and urban areas.

Since 1970 the overall population growth rate has been 3 percent per year, but the urban population has grown quite rapidly while the rural population has grown only very slowly. From 1970 to 1984, average annual urban population growth has been in excess of 10 percent, compared to 0.6 percent annual growth of the rural population. The rural share in the total population dropped from 85 percent to 60 percent. The main reason for this appears to have been rural to urban migration, particularly of young men. This has resulted in a very slowly growing rural population that has managed to increase commercial food production by roughly 50 percent over the period in question. These increases in production are thought to have occurred primarily through expansion of cultivated area. It is possible that some yield increase has taken place, particularly through the use of improved seeds. Unfortunately, national agricultural statistics do not allow a reliable breakdown of the rate of production increase into a planted area and a yield component.

Regarding the future, the forecast of a further increase in population of 60 percent over the next 15 years means that the rural population, which has not only been growing quite slowly since 1970 but may even stabilize in the future (cf., Saint Moulin, 1977), must further increase area planted, devote more time to agricultural work, and adopt new technology which improves yields considerably. At present, one adult rural person has to feed about three other people. By the end of the century, this ratio will probably increase to 5 to 1, while in another 25 years it could rise to 10 to 1. This poses a major challenge to agriculture in Zaire. Increases in food production will have to come more and more from increases in productivity per unit of labor and land, as labor constraints and available fertile farmland will more and more force farmers to increase yields rather than expand production area.

Table 6. Population Estimates, 1930-1984

Year	Total population	Rural population Number	%	Urban population Number	%	Population density/km <sup>2</sup>
1930	8,803,513	8,433,766	95.8	369,747	4.2	3.9
1940	10,353,909	9,336,010	90.2	1,017,899	9.8	4.6
1950	11,331,793	9,169,396	80.9	2,162,397	19.1	5.0
1960	14,217,732	10,805,412	76.0	3,412,320	24.0	6.3
1965	16,562,503	15,018,192	89.0	1,825,187	11.0	7.3
1970	19,286,207	16,442,700	85.1	2,863,507	14.9	8.5
1975	22,582,230	16,105,091	71.3	6,477,139	28.7	10.0
1980	26,377,260	17,366,917	63.8	9,010,343	34.2	11.7
1984	29,671,407	17,951,141	60.5	11,720,266	39.5	13.1

## Sources:

- 1930-1960: Ngondo a Pitshandenge, Evolution et caracteristiques de la croissance demographique en Republique du Zaire de la colonisation a nos jours, Sept. 1974, Table 3, p. 38.
- 1965-1970: Joseph Boute, "La population regionale du Zaire de 1956 a 1975," Cahiers Economiques et Sociaux, vol. XVIII, no. 1, 1980.
- 1975-1984: Departement du Plan, Perspectives Demographiques Regionales, 1975-1985, 1978, pp. 18-19.
- 1984: Institut National de la Statistique, Departement du Plan, Combien sommes-nous? Resultats Provisoires du Recensement Scientifique de la Population, 1er Juillet 1984, Dec. 1984, Table 1, p. 19.

N.B. For 1984, the total population figure is from Institut National de la Statistique, 1984; while the breakdown of that population between rural and urban components is based on the projections in Departement du Plan, 1978.

There is growing evidence that in areas near urban centers and accessible to urban markets, the pressure on forested land for fuelwood and cropping is leading to resource degradation. In much of rural Zaire shortage of land is not yet a major constraint, however, these areas are isolated from urban markets by poor rural infrastructure. In Bas-Zaire and parts of Kivu land tenure is a problem and a land market is developing. In Bandundu there is developing a growing class of immigrant farmers on informal land concessions, producing for the Kinshasa market. There is still room for increasing agricultural production through area expansion, but the cost of opening up new areas for production includes the destruction of forest and the degradation of the soil resources. Overall, then, the persistent 3 percent rate of population growth, combined with the high degree of urbanization and slow growth of the rural population, will force the agricultural sector to focus its attention on higher productivity per unit of labor, which in most cases will go hand in hand with higher productivity per unit of land.

## 2.2.2. Social characteristics

### 2.2.2.1. Ethnic composition

Zaire is an ethnic mosaic, with more than 250 distinct tribes having been identified. By and large Zairians are Bantu people. Among the major ethnic groups are the Bakongo, who live in Bas-Zaire and Bandundu, and the Baluba, who live in Kasai Occidental, Kasai Oriental, and Shaba. There are numerous other groups, however, with considerable variation in size and geographic coverage. Four major languages are spoken in the country: Kikongo, spoken by the Bakongo in western Zaire; Tshiluba, spoken by the Baluba in central Zaire; Swahili, spoken in the south (Shaba), east (Kivu), and northeast (Haut-Zaire); and Lingala, spoken in Equateur and Kinshasa and also used as the national language by the Zairian army.

### 2.2.2.2. Family size

Farm families average between 6 and 7 members, approximately evenly divided between adults (those aged 15 and over) and children. There is, of course, substantial dispersion around this average. The single most important determinant of farm size is the pool of household labor resources (adults) available for agricultural work. Hence, within the traditional sector, there is considerable variation around the average farm size of 1.5 ha or less. Household labor is far and away the principal labor input to production, although a number of farmers also use other workers in their farming activities (via trading of labor with extended-family members and/or with other villagers, and -- to a lesser degree -- use of salaried labor). A variety of studies suggests that given the technology presently being utilized, labor is the principal constraint to increased agricultural production.

### 2.2.2.3. Health and nutritional status

Malaria is the leading cause of death in Zaire. Measles accounts for about 12 percent of the deaths of pre-school children, ranking second to malaria. The infant mortality rate is currently estimated at 114 per 1000 live births. Maternal mortality is also high, largely as a result of childbirth and the deleterious effects of maternal malnutrition and endemic diseases (especially malaria). Acute respiratory infections and diarrheal diseases are also major causes of morbidity and mortality. Life expectancy at birth remains under 50 years. The rapid population increase in Zaire dictates a need for a corresponding increase in the delivery of health services. A study of the effects of disease on the productive capacity of the rural labor force would undoubtedly reveal considerable loss of productivity.

Malnutrition is widespread. Estimates of nutritional status in Zaire indicate that overall calories consumed per capita per day are comparable to or slightly higher than elsewhere in sub-Saharan Africa, and slightly lower than in low-income countries generally (see Table 7 below). Differences between Zaire and other low-income countries are more readily apparent with respect to daily per capita protein consumption: protein consumption in Zaire is estimated to be only 60 percent of protein consumption for all low-income countries. An estimated 40 percent of the children under five are chronically malnourished, while 6-10 percent are acutely malnourished. The National Nutrition Planning Center (CEPLANUT), developed through the collaboration of the GOZ and USAID, estimates that more than 50 percent of the morbidity and mortality of the Zairian population is directly or indirectly attributable to malnutrition.

### 2.2.2.4. Education

Farmer education levels are generally quite low, with high proportions of both men and women farmers never having attended school. Thus, for example, the Southern Band survey mentioned earlier found that among male household heads, fully 22 percent had never attended school, while 46 percent had attended primary school without completing it and another 10 percent had completed primary school. Hence, only 22 percent of these individuals had been exposed to any

Table 7. Supply of Calories and Protein per Day (per capita)

Year	Zaire		Sub-Saharan Africa		Low-income countries	
	Calories	Protein	Calories	Protein	Calories	Protein
1965	2188	36	2094	-	-	-
1973	2302	39	-	-	-	-
1985	2154	-	2024	-	-	-
1987	2151	33	-	-	2339	55

Source: World Bank, Social Indicators of Development, 1987.

secondary schooling at all. This situation will likely change in the future, since school enrollment rates have increased substantially over the past twenty years or so. However, it should also be noted that one area of concern regarding human resources in Zairian agriculture relates to rural outmigration, particularly by males. This outmigration is often tied to receipt of schooling and efforts to secure employment in urban areas that is more remunerative than work in agriculture.

### 2.2.3. Household employment and income

#### 2.2.3.1. Employment and labor allocation by gender and by age

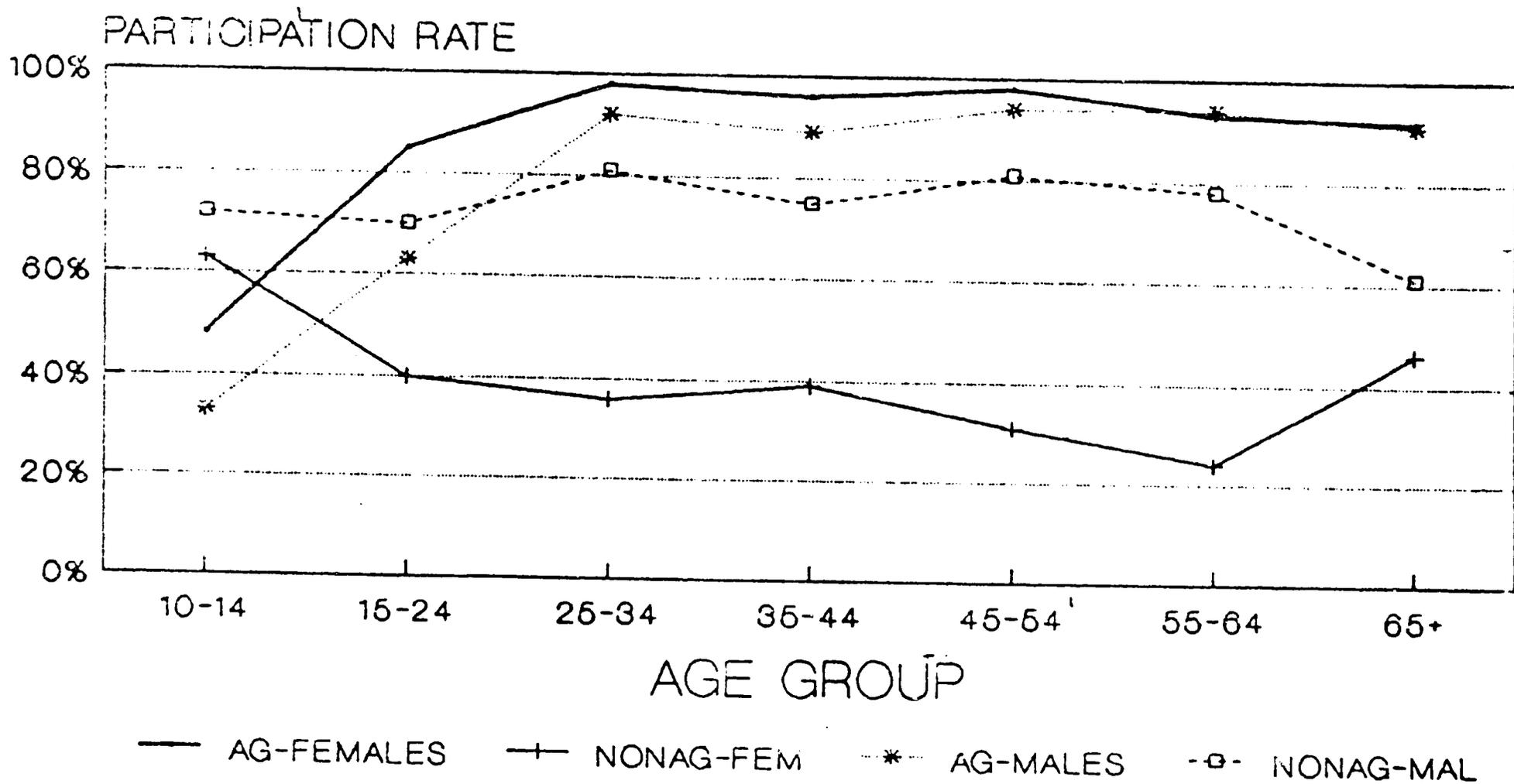
It is estimated that Zaire's agricultural sector provides employment for roughly 70 percent of the country's population. Nearly all rural households (as well as some urban households to a more limited degree) are active in agriculture. In contrast with the situation in the urban centers, open unemployment is not a problem in the traditional agricultural sector. However, seasonal underemployment is present in rural areas, particularly among men.

Participation by adults in agricultural activities is virtually universal among women and nearly so for men. The Southern Band survey found that 93 percent of adult women and 81 percent of adult men participated in agricultural work; and these figures include 15-24 year olds, whose participation was distinctly lower than that of those aged 25 and over. More detailed data from the survey, showing the patterns of participation in agriculture as well as in non-agricultural activities by age and sex, are shown in Figure 1 below. While these data do not indicate the intensity of participation, they do suggest that women are more heavily involved in agriculture than men, while men are more active than women in non-agricultural pursuits.

A recent study by Huybens and Tollens (1989) presents data on labor utilization in a traditional rice-producing village near Yangambi (Haut-Zaire) in the rainforest. It was found that 60 percent of all agricultural activities were done by women. The most important task determining agricultural production was the clearing of new fields, which in 91 percent of the cases was carried out by men. In a 1985 study of smallholder farmers in the Bandundu region Eele and Newton found that men spend only 16 percent of their time on work in the field and women only 18 percent (Eele and Newton, 1985).

A particularly unproductive use of farmers' time is the practice of "cultures imposees;" the forced labor in collective fields that is sometimes required by local GOZ authorities. This forced, unpaid labor is a carry-over from colonial days, and it seems fairly widespread in many regions of the country. It is an exceptionally inefficient food production system. Collectivities in the Bandundu region where "cultures imposees" fields are required under FRAAL have been reported to produce only 25 percent of the yields that a woman could produce from her own privately managed fields (1.5 vs. 6 tons per hectare).

**FIGURE 1**  
**Participation in Agricultural and Nonagricultural Activities, By Age and Sex**



agricultural activities include hunting, fishing, artisanal work, school, functionary, misc. other.

The collectivities enforce the practice through a fine system for non-compliance that accounts for approximately 50 percent of the total revenue of the collectivities.

All microeconomic studies done in Zaire point to an important, seasonal, gender-specific labor constraint. In general, women are responsible for production of food, processing and marketing, while men tend to concentrate on land clearing, production of commercial crops and livestock. This division is not sharp, because women handle certain activities related to commercial crops such as picking coffee berries and vice-versa for men with respect to food crops. The activities typically carried out by women are: planting, crop maintenance, harvesting, on-farm transport, processing and marketing. In these tasks, they are often assisted by children. Since so much labor, in particular women's labor, goes into post-harvest processing, food preparation, transport, water fetching, etc., light mechanization of these activities in order to release labor for field activities is of high social and economic value.

There also seems to be an increasing division of farm income by gender because male farmers and the women on a farm have different objectives and opportunities. The main objective of women farmers is to sustain the family, in particular the children, and buy needed food supplements, health services and education for the children. Male farmers aim at constructing the compound, acquiring a radio or bicycle, paying dowry, acquiring a second wife, participating in family affairs and in recreational activities, etc. Sometimes they contribute to health and educational expenses of the family but they rarely buy food or clothing for the children (cf., Huybens et al., 1987).

Overall, then, there is considerable evidence suggesting that women's inputs into agricultural production exceed those of men. In this regard, the World Bank (1987, p. 199) has noted that "General estimates indicate that the division of labor is about 10-20 percent for men, 60-80 percent for women and 20-30 percent for children."

#### 2.2.3.2. Farm and off-farm income

Although the agricultural sector provides employment for more than two thirds of Zaire's labor force, it is low-income work: the World Bank estimates rural per capita income (as of 1985) to be only about \$80, and this figure is thought to represent approximately half of the national average. Thus, rural per capita income is not only substantially lower than incomes in the small modern urban sector of employment, but it is also less than incomes of many urban informal-sector workers. Hence, incentives are present for continued rural-urban migration, and the pattern of income differences by sector undoubtedly is an important factor helping to account for the slow growth of the rural population over the past 15 years or so, while the urban population of Zaire has been increasing very rapidly.

Off-farm activities play an important role for many households in helping to increase household purchasing power. Studies in the Central

Basin indicate that only a third of total person hours per week is devoted to agricultural production. (IFPRI-research report 74, June 1989). The studies point to the high remuneration of other activities relative to agricultural production. Indeed, a number of recent studies suggest that time allocated to agricultural work constitutes only a minority of total labor time, indicating that off-farm activities and non-agricultural work are important elements of how Zairian smallholders survive.

There is considerable local variation in some of the activities that represent sources of off-farm income, reflecting different opportunities for such activities in different areas. Thus, for example, in some areas hunting is an important activity of men that provides animal protein and increased purchasing power, while in other areas opportunities for hunting are much more limited. Similarly, fishing, in which both men and women participate, is an activity whose feasibility is dictated by the immediately surrounding environment. Somewhat less frequent, but relevant for particular parts of Zaire (e.g., Kasai Oriental), are diamond and gold prospecting. In the same vein, there is limited off-farm employment available in some areas of the country (e.g., the Central Basin) in the form of employment in the plantation sector, although low wages in that sector frequently result in labor shortages.

Other non-agricultural and off-farm activities are more widespread. Food processing (particularly processing of cassava) as well as marketing of farm production are significant activities of women. Food processing is particularly prevalent in the areas surrounding Kinshasa, often consisting of production of fufu and chikwange for sale. Charcoal production is another activity that generates revenue, and that is widespread in the areas surrounding Kinshasa and other urban centers. Finally, brewing of traditional alcoholic beverages (e.g., banana beer, palm wine) is another off-farm activity that has a very wide geographic scope.

### 2.3. Production technologies and other agricultural inputs

#### 2.3.1. Production technologies

Food production in the traditional sector is carried out using very simple technology. Land is cleared using the slash and burn method, and this is followed by hand plowing. Capital inputs typically consist of a small number of rudimentary tools (e.g., hoe, machete, axe). Use of fertilizers and pesticides is extremely limited, and most often takes place in areas served by agricultural development projects. Use of improved seeds is somewhat more widespread, but even here there is substantial scope for expansion within the traditional sector.

Export and industrial crops, when grown by smallholders, are typically grown under similar conditions -- i.e., with minimal inputs other than land and labor (cotton is an exception, with cotton companies often providing extension and other assistance to smallholders). Similarly, smallholder livestock production, consisting

principally of goats and to a lesser extent sheep and cattle, also is carried out in a minimalist fashion, with animals most frequently left on their own and without medical attention or specialized feed.

Production in the modern sector often takes on a very different character. That is, not only is the size of agricultural exploitations quite different from the traditional sector, but in many cases so also is the technology used. Thus, for example, there is plantation production of export and industrial crops that takes place using fertilizers, improved seeds, pesticides, power equipment, and modern cultural methods. Under these conditions, yields obtained are usually substantially higher than those obtained in smallholder production (cf., Table 8). Similarly, there is also modern-sector livestock production that takes place where animals have access to animal feed and to veterinary care.

Table 8. Yields of Export and Industrial Crops (kg per hectare)

Crop	Average current yields		Potential yields	
	Small farms <sup>1</sup>	Plantations	Small farms <sup>1</sup>	Plantations
Coffee				
Arabica (dried washed beans)	90-200	700	500	1000
Robusta (dried berries)	100-500	850	700	1500
Tea (dried leaf)	680	1200	1200	3500
Cocoa (dried beans)	90	225	300	1300
Rubber (sheets)	100-300	500-1000	300-1000	1800
Oil palm				
Palm oil	200	1000-1500	300	3500
Palm kernels	100	300	100	600
Sugar (brown sugar)	-	4500	-	9000
Cotton (seed cotton)	325	-	1000	-
Tobacco (dried dark tobacco)	1200	-	1700	-

<sup>1</sup> The small-farm sector includes both traditional smallholders as well as the more commercially oriented small farmers. Where one figure appears, this represents average yields across these two types of small farms; two figures indicate the differences between the two farm types.

Source: World Bank, Agriculture Sector Memorandum, September 26, 1988, Table 3, p. 61.

At the same time, however, it must be acknowledged that the modern technology of production just described does not accurately reflect the entire modern sector. In many cases, shortages of foreign exchange and limited access to financing investments in rehabilitation of older plantations, coupled with difficulties and unreliability in obtaining inputs, result in modern sector production that more closely approximates the technologies found in the traditional sector. In brief, then, there is much greater variability in production technologies within the modern sector than there is within the traditional sector. This variability undoubtedly contributes to two phenomena evident in Table 8: the declines over time in plantation yields for certain crops and the shortfall of actual yields as compared to potential yields.

In considering the prospects for improvements in production technologies, one must distinguish between the traditional and modern sectors. In the short to medium term, the best prospect for improved food crop production in the traditional sector appears to be widespread production and distribution of improved seed varieties. This activity, in turn, presupposes an active and ongoing adaptive research program. Continued USAID funding for agricultural research (RAV) as well as proposed World Bank/FAO assistance to INERA (the national agricultural research system) and continued support for BUNASEM (the national seed office) suggest that this path to improved technologies is a viable one.

By contrast, technological improvements in the traditional sector are much less likely to take place with regard to other inputs. In some cases (e.g., fertilizers, pesticides), this is because the inputs are too expensive and/or difficult to obtain. In addition, the weaknesses inherent in the existing agricultural extension system prevent diffusion of improved cultural techniques.

In the modern sector there is more potential for improved technologies. However, in order to realize this potential it is necessary to bring about substantial improvements in transportation infrastructure so as to enhance the economic viability of use of modern inputs and to facilitate development of reliable channels for input distribution. In addition, the plantation subsector of the modern sector is in serious need of rehabilitation, and this will require access to resources for investment purposes.

### 2.3.2. Farm tools

Small farm tools and implements have been produced in Zaire in recent years by CHANIMETAL, a private firm, and by UMAZ, a Chinese-Zairian joint venture. The quantities produced are quite small, however, and the GOZ is presently seeking private investors to take over the failed UMAZ operation. Some tools are also imported, particularly in development projects and by NGOs. Most of all, farm tools and implements are made locally by blacksmiths from scrap metal. The average number of tools owned by a family is always very small, as shown in numerous village surveys: one or two of each type of tool (hoe, machete, ax, etc.).

It does not appear to be the case that lack of tools and implements is an effective constraint on agricultural production. This does not mean that farm tools made available at subsidized prices or as a gift in projects are not greatly appreciated. The distribution and sale of farm tools and implements is carried out reasonably well by the private sector, although mostly in an informal way.

### 2.3.3. Fertilizers and pesticides

Zaire only imports from 10 to 20 thousand tons of chemical fertilizers per year, most of it for the plantation sector. Typically, fertilizers are only used when distributed at directly or indirectly subsidized prices. In some specific favorable conditions, particularly near major urban centers, and when cultural practices are good, fertilizers can show a high response and may be profitable. They are nearly always profitable for vegetables produced for the city. Unavailability of the most appropriate type of fertilizer at the right time, inefficient techniques of use and low response varieties have in many places hampered fertilizer use.

All chemical fertilizers have to be imported; lime is available locally at the cement factories, but at steep prices. The FAO with Belgian financing has supported the Programme National Engrais (PNE) since 1972. It is now operating in six regions: Bas-Zaire, Bandundu, Shaba, Kivu, Haut-Zaire and Equateur. Operations include demonstration plots and the sale of fertilizers at subsidized prices. The PNE receives fertilizers for its programs from Belgium (2,000 tons per year), Japan (occasionally), the United Kingdom (occasionally) and via a loan from the ADB. PNE also has an extension system to demonstrate fertilizer use and collaborates in on-farm trials with RAV. Its extension agents are from the DORD and receive additional training for PNE demonstrations. PNE also distributes limited quantities of seed, particularly maize.

PNE distributes about 5,000-10,000 tons of fertilizers a year, which is up to half of total consumption in Zaire, the balance going to estate agriculture and commercial maize farms in Shaba. They have collected a large amount of fertilizer response rates for different crops/regions over the years which are stored in a central databank. With the counterpart funds from the sale of fertilizers, they also import on their own, although this has not been a very successful activity. In addition, they have been involved in fertilizer distribution to large commercial enterprises and farms (which they were not supposed to support but were unable to fend off).

Normally, fertilizers are not explicitly subsidized except for 1983-1984 and 1987 when the GOZ applied a 60 percent subsidy to counter the effects of the devaluation on fertilizer prices. However, as the local Z cost of fertilizers is computed at the historic exchange rate applicable at the time the fertilizers are bought, there is a large implicit subsidy because of continuing inflation and progressive devaluation. Thus, PNE resorts to effective subsidization to maintain farmer demand for fertilizers.

Until recently, imports of fertilizers were not subject to duties and transportation is charged at a preferential rate. With the recent (1988) reform of import tariffs, a minimum tariff of 10 percent is now applicable across the board, and fertilizers are no exception. On top of that comes 3 percent CCA (turnover tax).

PNE relies on a ratio of at least 2:1 between (a) extra crop revenue to be expected from using the recommended fertilizer-mix and dosage, and (b) the extra costs of that recommended amount of fertilizer. This ratio is judged by PNE to be sufficient to induce farmers to accept the additional labor cost and risk, including uncertain delivery, and uncertain sales of the products. However, the required incentive ratio is probably well above 2:1. PNE maintains that in most cases, at modest fertilizer application rates the ratio is above 2:1 and hence, they conclude that fertilizers are usually profitable. But up to now, the private sector has shown no interest in the distribution and sale of fertilizers to smallholders. Private firms in Kinshasa (Kinchim, Hoechst, BASF, Engrais Rosier) supply fertilizers on request for the large plantations but they make no effort to organize fertilizer distribution for smallholders. The private sector has shown little interest in fertilizer marketing because it cannot recover full costs and make a profit comparable to that in other ventures. It can be said that the very existence of PNE, selling as it does at subsidized prices, undermines any private sector efforts to supply fertilizers to smallholders. In any case, commercial demand for fertilizers for plantations and smallholders is still quite limited.

Once hybrid maize varieties are used on a large scale in Zaire, particularly in the Shaba region, fertilizer use is probably going to take off as hybrids usually respond very well to high doses of fertilizers. Such fertilizers will probably come from South Africa and Zimbabwe, benefitting from cheap return freight rates on the copper train to Durban and Port Elisabeth.

PNE would collapse without donor support and funding, as is the case with most projects in Zaire. Fertilizers are a promising input in Zaire, but probably not in the short to medium term, except in the vicinity of urban centers for high value crops such as vegetables or for tobacco.

Zaire does have a potential for the production of ammonia fertilizers near the Inga hydroelectric dam. It also has large phosphate deposits near the coast at Moanda (cfr. UNIDO reports) and potassium deposits near the border with the Congo in Bas-Zaïre. A 1973 study by Donald McCune of the Tennessee Valley Authority (IFDC) highlights the scope and potential of Zaire for fertilizer production and use. Subsequent studies by IFDC cite low demand for fertilizer as a major constraint to development of an indigenous manufacturing capacity. In light of more recent demographic movements, production demands on the agricultural sector and the plans of the World Bank to strengthen the extension service, farmer demand and fertilizer usage

education should perhaps be readdressed. IFPRI is planning to conduct a study in Zaire on fertilizer utilization policies.

Pesticides are mainly used in plantation agriculture, on coffee and cotton. For these last two crops, insecticides are required to produce high quality products and achieve high yields. There is very little pesticide use on food crops, except for storage (but even here usage is very limited). The private sector, mainly local representatives of the large multinational agro-chemical companies, supplies Zaire with these products.

#### 2.3.4. Seeds

Before 1960, improved seeds were produced in 20 Centres Agricoles Permanents du Service de l'Agriculture (CAPSA) which were in touch with INEAC (the colonial agricultural research system) for the procurement of foundation seed. In addition, new varieties were tried out in the "stations d'adaptation locale" (SAL). After independence, most CAPSAs and SALs ceased to function. Some projects, notably the World Bank's PMKO and USAID's North Shaba maize project (PNS) produced and distributed their own seeds. But nationally, improved seed production and distribution was in disarray.

The GOZ, with support from the FAO and the World Bank, launched the National Seed Program in 1982. This was implemented in 1984 by the creation of the Bureau National des Semences (BUNASEM). The aims of BUNASEM are to: (i) control seed quality, (ii) coordinate seed production and distribution; (iii) facilitate access of improved seeds to farmers; and (iv) supply foundation seed to seed farms.

BUNASEM now has seed farms in every region, usually former CAPSAs where seed is produced for their own account; they also contract for seed production with the private sector.

Part of the problem confronting BUNASEM is the fact that the demand for improved seeds is not really known. There have also been quality problems with some of the seeds produced by BUNASEM; and in certain cases, they have not been able to deliver the requested quantities. BUNASEM is also very dependent on donor resources (over \$15 million) and it is not clear how it will reach sustainability. The GOZ also imports annually 800-1,000 tons of hybrid maize seeds (SR-52) from Zimbabwe and Zambia for the large commercial maize farms in Shaba, in particular Gécamines Développement. This to some extent undercuts the sustainability of BUNASEM.

The distribution of BUNASEM seeds occurs mainly via PRAAL and donor-supported projects. PRAAL has as one of its major objectives the distribution of improved seeds and planting material in areas where there are no donor-supported projects.

BUNASEM ranks high in the GOZ strategy to increase agricultural production. But large donor and GOZ funds will be required to sustain it. It faces huge obstacles of transportation, organization, and lack of qualified seed production and certification staff. The

decentralization of its operations, which is a prerequisite for reaching small farmers, may easily put it in disarray. It is still a fragile institution which needs to gain experience and maturity before it becomes self-sustaining.

Before the creation of BUNASEM in the early 1980s, improved seeds were not readily available in Zaire except in area development projects such as PNS. INERA could only supply seeds in small quantities and of questionable quality.

BUNASEM's strategy is to rely on the private sector for the marketing of seeds whereby BUNASEM assumes part of the cost. In USAID's Central Shaba Project, seed production and distribution is being tried via private companies. The ultimate objective is full cost recovery and a sustainable, viable private seed production and distribution system. Realizing this objective will depend very much on the superiority and profitability to the farmers of the varieties developed by RAV, particularly for maize.

Thus, serious attempts are being made by BUNASEM and by USAID to get private sector involvement in seed production and distribution. It is to be expected that viable, sustainable private seed companies in Zaire will emerge with the development of superior hybrid maize varieties adapted to Zairian conditions. CIMMYT estimates that these varieties must surpass open pollinated ones by at least 30 percent in Africa in order to sustain private seed companies on a purely commercial basis.

#### 2.3.5. Veterinary products and livestock inputs

A veterinary laboratory operates in Kinshasa and Lubumbashi, with support from the Belgian government. The labs supply vaccines for various diseases and types of livestock.

Veterinary products, in particular insecticides used in dipping tanks, and drugs against East Coast Fever, Trypanosomiasis, etc. are imported in fairly large quantities and distributed by local representatives of the multinational companies that manufacture them. The cost of these products in Zaire is relatively high and there have been serious complaints of imitations of brand name drugs being sold in Zaire at cut-rate prices. Such products are usually less effective and originate from Italy, Eastern Europe and the Far East, entering Zaire through Angola.

Intensive pig and poultry production near the major urban centers is conditional upon the availability of appropriate concentrated feeds. During colonial times, such feed mills were created as part of the large milling companies in Kinshasa and Lubumbashi. With zairianization in 1973-74, most of these mills went broke, in particular the large MEUNERKIN feed mill in Kinshasa. Since then, many smaller feed mills have been constructed, usually as part of an intensive livestock production venture. Examples are the feed mill at DAIPN-Nsele, the feed mill at CDI-Bwamanda in Ubangi and Kinshasa, the JVL feed mill at Kolo, the MADAIL feed mill, the MIDEMA feed mill in

Kinshasa, and the many small one or two container-sized feed mills in intensive poultry firms. There are an estimated 30 to 40 such firms near Kinshasa and in Lubumbashi. In Lubumbashi, Gécamines Développement has the largest feed mill together with DAIPN-Lubumbashi.

Two years ago, Belgium agreed as part of the "plan directeur" to provide logistics and T.A. to the poultry firms near Kinshasa and Lubumbashi, but no implementation has begun and apparently, the project has been shelved. Recently, a large feed mill has been constructed as part of the ACOMAR-Kinshasa flour mill, a private enterprise producing maize flour, cookies, sweets, etc.

In 1985, Louis Berger International Inc./BUPAP carried out a study on the livestock feed industry in Zaire on behalf of the World Bank. They also made an inventory of the poultry and pig farms near Kinshasa and Lubumbashi (2 volumes).

Almost all the by-products from wheat milling by MIDEMA at Matadi are exported to the E.C. because of duty and levy free access given to Zaire as an ACP country. In 1987, these exports amounted to 41,702 tons and only 3,677 tons were used locally for animal feed (Conjoncture Economique 1988, P. 306).

Although the GOZ is requesting donor support for construction of an animal feed mill in Kinshasa, analysis indicates that the private sector is sufficiently active in this area and responds to market opportunities. Donor efforts to construct a new feed mill would be counterproductive to the initiatives already undertaken by the private sector. Support to the private sector in the form of CIPs for the import of feed additives, spare parts and supplies is probably the most cost effective and sustainable way to strengthen the animal feed industry.

## B. Economic Factors

### 1. Agriculture in the Economy

#### 1.1. Contribution of the agricultural sector to GDP

In recent years the agricultural sector has been the principal contributor to Zaire's GDP. This is shown by the data in Table 9, indicating the contribution of different economic sectors to GDP. Agriculture has the highest contribution of any sector in four of the six years covered by the table, and its average share of 31.5 percent well exceeds the average share of 24 percent for the mining/extractive sector. Indicative of the generally low levels of income earned in the agricultural sector is the fact that although agriculture provides employment for more than 70 percent of the labor force, it accounts for only just over 30 percent of GDP.

Zairian agriculture includes both a commercial component and a noncommercial (subsistence) component. The contribution to GDP of subsistence agriculture exceeds that of commercial agriculture, but during the 1980s commercial agriculture grew more rapidly than subsistence agriculture. Hence, while subsistence agriculture accounts for roughly 60 percent of agriculture's contribution to GDP compared

Table 9. Contribution of Different Sectors to GDP  
(Percentage distributions of value added by sector)

Sector	Year					
	1982	1983	1984	1985	1986	1987
Agriculture - commercialized	13	13	14	11	13	13
- subsistence	22	21	18	16	16	18
Total agriculture	36	35	32	27	28	31
Mining, extraction	12	19	25	31	33	24
Manufacturing	2	1	2	2	2	1
Other goods	4	4	3	3	3	4
Commerce (trade)	21	20	19	17	16	18
Other services	20	17	16	15	14	17
Misc. other <sup>1</sup>	5	4	4	4	4	5
Total	100	100	100	100	100	100

Source: Bank of Zaire, Rapport Annuel 1988, Table 4, p. 69.

<sup>1</sup> Includes import duties and noncommercialized construction.

Note: Component percentages may not add up to corresponding totals due to rounding.

to about 40 percent for commercial agriculture, it is apparent from Table 10 that in the last few years commercial agriculture has been growing in importance relative to subsistence agriculture. Overall (i.e., including subsistence agriculture), it is clear from the data in the table that production of food crops represents the lion's share of agriculture's contribution to GDP.

Focusing specifically on commercial agriculture, one finds that the bulk of value added in commercial agriculture (typically 60 to 70 percent) is attributed to marketed food production, 70 percent of which is food crops (the remainder of marketed food production is evenly divided between livestock and fish). Agriculture for export ordinarily accounts for 25 to 30 percent of total value added in commercial agriculture, while roughly 10 to 15 percent of this total value added is attributable to agro-industrial production for domestic consumption.

Table 10. Components of Agriculture's Contribution to GDP  
(Percentage distributions of value added by subsector)

Subsector	Year					
	! 1982 !	! 1983 !	! 1984 !	! 1985 !	! 1986 !	! 1987 !
Subsistence agriculture	! 63 !	! 61 !	! 57 !	! 59 !	! 55 !	! 57 !
Commercial agriculture	! 37 !	! 39 !	! 43 !	! 41 !	! 45 !	! 43 !
Commercial agriculture :	! !	! !	! !	! !	! !	! !
Agriculture for export	! 5 !	! 5 !	! 12 !	! 11 !	! 17 !	! 12 !
Agro-industrial prod'n <sup>1</sup>	! 5 !	! 8 !	! 7 !	! 5 !	! 4 !	! 5 !
Marketed food production	! 27 !	! 26 !	! 24 !	! 25 !	! 23 !	! 26 !
Marketed food production:	! !	! !	! !	! !	! !	! !
Food crops	! 19 !	! 18 !	! 17 !	! 18 !	! 17 !	! 19 !
Livestock	! 4 !	! 4 !	! 4 !	! 4 !	! 3 !	! 4 !
Fish	! 4 !	! 4 !	! 3 !	! 4 !	! 3 !	! 3 !
Total	! 100 !	! 100 !	! 100 !	! 100 !	! 100 !	! 100 !

Source: Bank of Zaire, Rapport Annuel 1988, Table 4, p. 69, Table 6, p. 71.

<sup>1</sup> For domestic use.

Note: Component percentages may not add up to corresponding totals due to rounding.

## 1.2. Exports and imports

Agricultural exports show considerable volatility from year to year. For example, during the period from 1982 through 1987, the value of agricultural exports increased dramatically in two years, increased modestly in another year, fell very sharply in one case, and fell moderately in another. The share of agricultural exports in total exports has been in the neighborhood of 10 to 14 percent throughout most of the 1980s, with the exception of 1986 when coffee stocks were drawn down and coffee exports doubled to take advantage of high coffee prices on world markets. Despite this short-term boost from coffee, Zaire -- like many other developing countries in the 1980s -- has experienced overall declines in the prices of its principal agricultural exports and hence a decrease in foreign exchange earnings from agriculture. Table 11 shows the percentage distribution of export receipts from agricultural products by commodity, and it documents coffee's predominance among agricultural commodities as a source of foreign exchange.

Food imports have been fairly stable during the 1980s as a share of total imports, at around 20 percent. Since total imports have been increasing in value, this means that the value of food imports has also been increasing. During this decade there has been a substantial decline in imports of maize and sharp increases in imports of rice, wheat, sugar, meat, and fish.

Table 11. Export Receipts from Agriculture, by Commodity  
(Percentage distributions)

Commodity	Year					
	1982	1983	1984	1985	1986	1987
Coffee	65	78	75	75	84	70
Tea	1	1	2	1	*	1
Cocoa	3	2	2	2	2	2
Palm oil and related products	5	3	7	8	1	1
Rubber	5	4	4	3	2	5
Wood	12	7	4	5	5	11
Quinquina	-	-	3	3	3	7
Misc. other	8	6	3	2	3	3
Total	100	100	100	100	100	100

\* less than 0.5 percent

Source: Bank of Zaire, Rapport Annuel 1988, Table 89, p. 205.

Note: Component percentages may not add up to corresponding totals due to rounding.

## 2. Macroeconomic Policies

### 2.1. Historical perspective

When Zaire gained independence in 1960, it was technically ill-prepared for self-government. The first seven years following independence were marked by violent political strife, leading to a collapse of institutions, a breakdown of physical and organizational infrastructure and economic disruption.

Upon the restoration of political order under President Mobutu, the economy grew at an impressive rate following a commodity boom when copper prices were high. Domestic and foreign private investment soared, and the government embarked on ambitious public investment programs such as the Inga hydroelectric dam, the Inga-Shaba high voltage power-line, and the Maluku steel complex. Plans were made to double copper production before 1980. The first petroleum crisis in 1973, the collapse of copper prices, the disruption of the Benguela railway through Angola, and finally the zairianization and nationalization measures of 1973/74 hurt the economy deeply by starving it of foreign exchange (causing acute shortages of essential goods) and by sparking an exodus of both capital and managerial manpower.

Over the period 1975-82, the terms of trade continued to decline with ensuing balance of payments deficits, shrinking GDP and a mounting debt burden. The IMF entered into action with a stabilization program, standby credits and control of the Bank of Zaire operations. Zaire's performance record in implementing such programs was uniformly poor.

In 1982, general economic liberalization came into effect followed by the Mobutu plan for economic recovery and stabilization, as suggested by the IMF. Zaire embarked on a structural adjustment program, including devaluation and reform of the foreign exchange system, trade liberalization, debt rescheduling, and cutbacks in public sector expenditure. From 1983 to 1986, Zaire was able to meet most of the performance criteria established by the IMF with regard to monetary and fiscal indicators, despite a deterioration in the terms of trade by almost 20 percent.

However, the record was far from satisfactory vis-a-vis structural adjustment. Despite the comprehensive set of liberalization policies, revitalization of the economy was anemic. The shortage of foreign exchange associated with ever-increasing foreign debt-servicing obligations and continued high demand for imported consumer goods led to a contraction of imports for investment and productive purposes. The result was a further deterioration of the nation's capital and infrastructural bases. Output growth in the agricultural and industrial sector remained disappointing and the domestic manufacturing sector continued to operate at well below capacity. Overall economic growth remained negative in per capita terms.

It is against this background that political pressures mounted to abort agreements with the IMF and with donors. Budgetary expenditures soared, civil service salaries were almost doubled and exchange controls emerged. The IMF suspended its standby arrangements in 1987. High copper export revenues offset the sharp reduction in balance of payments assistance.

From 1986 to 1988, the exchange rate was again seriously overvalued, inflation surpassed 100 percent and the economy performed poorly. In 1987-1988 the GOZ entered into lengthy discussions with the IMF, the World Bank and the bilateral donors in which in the end it reaffirmed its commitment to its economic liberalization program. Zaire's debt-servicing obligations were rescheduled and fresh donor funding was made available.

In November 1988, the GOZ reappointed Kengo wa Dondo as Prime Minister. He had overseen the successful 1983-86 adjustment program. In 1989, the GOZ laid the groundwork for a new adjustment program and reached agreement with the IMF and World Bank on a Policy Framework Paper to guide a program of structural adjustment over the next three years. This program emphasizes reducing government budget deficits, restructuring and improving the management of the public sector, further elimination of distortions in trade policies, cost recovery in fuel pricing and improving the climate for the growth of the private sector.

With tight monetary policies and renewed budgetary restraint, the exchange rate stabilized and inflation declined. It is also in 1988 and 1989 that major bilateral donors cancelled part of the outstanding foreign debt, first Canada followed by France, Belgium, the USA and Germany. Such cancellations are conditional on strict adherence of Zaire to the IMF program. As in recent years foreign debt servicing has represented 40 percent or more of current government expenditures and is more than four times the GOZ investment budget, cancellation of the debt by donors may create the needed room in the budget for productive investment and open the road to more sustained economic growth. For 1990, the budget savings because of the debt forgiveness and reduced interest payments will amount to about 30 million dollars, about half of the total investment budget of the GOZ in 1989.

## 2.2. Market liberalization and current agricultural policy

From independence until the early 1980s, Zaire (like many other African countries) pursued a set of macroeconomic policies that on balance had adverse effects on the agriculture sector. These policies included, among others, maintenance of an overvalued exchange rate, low official producer prices for food crops, high export duties and cumbersome bureaucratic procedures for agricultural commodities, numerous internal local taxes on production and marketing of agricultural goods, and substantial public borrowing leading to a very heavy debt service burden which in turn severely limited the availability of foreign exchange.

Ideally, macroeconomic policy should seek to create conditions favorable to investments and to growth of the agricultural sector. These conditions include control of inflation, availability of foreign exchange, fiscal policy that provides investment incentives, tariff policies and procedures that encourage exports and the development of local enterprises, and an efficient public administration. By the early 1980s, it was evident that the set of macroeconomic policies in place was hindering, not facilitating, growth and development in the Zairian economy.

Beginning in the early 1980s, Zaire has implemented a number of macroeconomic policies seeking to promote market liberalization. These policies have had important effects on the agricultural sector. More specifically, in May of 1982 a policy of price liberalization was adopted, under which price and marketing controls were eliminated. In September of 1983 there was a substantial devaluation of the zaire (which went from an official exchange rate of 5.9 zaires to the dollar to a rate of 30 zaires to the dollar), and movement to a flexible exchange rate regime. These policies were implemented by the GOZ with assistance from the IMF. In addition, the World Bank is also working with the GOZ under a structural adjustment program to assist in the implementation of further macroeconomic reforms.

Among other objectives, price liberalization was designed to encourage competition among traders and abandonment of the frequent practice of treating official government prices for agricultural products (which were supposed to be price floors) as price ceilings. Thus, higher farm gate prices and ultimately increased production may be seen as principal objectives of the price liberalization measures.

A number of studies have been carried out in an effort to ascertain the effects of price liberalization. While the coverage of these studies is only partial, and the absence of good baseline production data makes the task of assessing the effects more difficult, there are some tentative conclusions that may be drawn. For example, the data in Table 12 below on producer prices for key food crops document the sharp increase in real prices that took place immediately following price liberalization.

Table 12. Real Producer Prices for Major Food Crops  
(in zaires/kg, 1975 prices)

Year	Maize	Rice	Cassava	Peanuts
1979	3.8	5.5	3.8	5.5
1980	3.7	5.2	3.7	5.2
1981	3.5	4.4	3.5	3.9
1982	10.5	10.1	10.5	7.3
1983	9.5	9.8	7.2	7.1
1984	6.1	7.6	10.7	---
1985	5.0	11.0	8.0	---
1986	3.0	7.0	6.0	---

Sources: Institut National de la Statistique, 1984.  
Service d'Etudes et Planification, Situation Actuelle de l'Agriculture Zairoise, January 1987.

At the same time, as seen above in Table 1, official data on food crop production indicate that the increases in output following implementation of the price liberalization measures were relatively modest (the weaknesses of the official data mentioned earlier are worth bearing in mind here). It appears that small farmers have responded to price incentives wherever the environment was conducive to trade, i.e., where farmers have access to transport infrastructure in reasonable conditions and where there is competition among traders in the purchase of agricultural produce (as is usually the case in the absence of transport difficulties). However, problems with transport infrastructure and equipment in many parts of the country limit farmers' access to markets and higher prices. Hence, the World Bank, in its Agriculture Sector Memorandum of September 26, 1988, concludes that "These reforms appear to have had a positive impact on economic performance in general and the performance of the agricultural sector in particular, although the sectoral response has been weaker than expected" (p. 7). This mixed result is due in large part to the existence of a number of other constraints on the agriculture sector - constraints that will be discussed explicitly below.

In theory, the devaluation of the zaire currency that took place in 1983 and subsequent floating of the currency, in conjunction with price liberalization, should have served to increase the real prices received by producers of export and industrial crops. This realignment of exchange rates thus may also be viewed as seeking to stimulate increased production of export crops. The positive effect on producer prices for various export and industrial crops is evident in Table 13 below (note that during the period covered by the table, retail prices in Kinshasa increased by 559 percent). However, in contrast to the

Table 13. Producer Prices for Export and Industrial Crops  
(in zaires/kg, current prices)

Year	Coffee		Cocoa	Seed cotton	Tea	Palm fruit
	Arabica	Robusta		(1st quality)	(greenleaf)	
1981	5.0	1.5	3.0	1.2	0.15	0.1
1982	6.5	2.1	5.0	1.8	0.28	0.1
1983	11.0	4.0	11.5	3.5	0.7	0.2
1984	23	15	19	9	1.0	1.0
1985	72	16	25	10	1.9	1.4
1986	65	24	30	11.5	4.5	1.3
1987	65	40	50	12	8.0	2.5
Pct. Increase	1300	2667	1667	1000	5333	2500

N.B. Retail price inflation in Kinshasa over the period from 1981-1987 was equal to 559 percent.

Source: Service d'Etudes et Planification, Situation Actuelle de l'Agriculture Zairoise, January 1987.

situation for food crops, there is no evidence to indicate that the changes in macroeconomic policy have contributed to increased production. Despite the increases in real producer prices, production data for most crops show output stagnating or else continuing its downward trend. In brief, the constraints on increasing production of export crops are so numerous and pervasive that alleviation of the disincentives to production due to a severely overvalued exchange rate was simply not sufficient to have any notable impact on production and on exports. These constraints will be discussed further below.

The five-year development plan for 1986-90 assigned the following objectives to the agricultural sector:

- a) to reach self-sufficiency in food;
- b) to adequately supply raw materials to the agro-industrial enterprises located in the country; and
- c) to contribute to an improvement in the level of living of the rural population through increased incomes.

Those broad objectives have been retained for the second five-year plan, which is now being prepared.

Zairian policy makers generally believe that global self-sufficiency in food has been attained for the rural population with, however, serious regional shortages and a precarious supply of food staples to the rapidly growing large urban centers of the country. This has resulted in increasing food imports.

More specifically, self-sufficiency is seen as attained for cassava and nearly attained for maize. Large deficits remain for rice, wheat, sugar, livestock and fish. The goal of complete food self-sufficiency is unrealistic and not in the best economic interest of Zaire. Although the goal of food security with respect to food crops has been referred to in a recent policy document, it is ill conceived and poorly defined as it is limited to the supply side only. It means nothing more than resolving transportation problems, assuring input supply and bringing effective agricultural extension.

A new 50-page agricultural policy document dated June 1989 is now available. It is very much a repetition of the policy statements contained in the first five-year plan. The document highlights nine policy areas:

- 1) geographic concentration of development activities (in development poles - foyers de développement)
- 2) increase in the size of traditional operations
- 3) general improvements in productivity
- 4) continuation of the price liberalization policies adopted in 1982
- 5) the development of private sector services in agriculture with respect to inputs and extension
- 6) improvements in the institutional framework
- 7) increased financial resources for the sector
- 8) improved marketing policy
- 9) equitable land tenure policy

The policies outlined to attain the objectives are similar to those of the 1986-90 plan for the first four items. Items 5 to 9 are new additions. The additions are clearly inspired by the World Bank's September 26, 1988 Agriculture Sector Memorandum.

Given the size of the country, geographic concentration of development actions has always been necessary in areas where soils are of at least average quality and population densities are sufficient for the generation of an agricultural surplus large enough to warrant investments in rural infrastructure and services to farmers.

An increase in the size of traditional operations will not be possible without some form of mechanization. Several microeconomic studies have highlighted the severe labor constraint during peak periods, particularly as it affects the work of women. The document remains totally unclear on how to overcome such constraints. Under the same heading, the creation of small and medium-sized enterprises in the agricultural sector is also to be encouraged.

General improvements in productivity are rightly seen as the key to reductions in the cost of production, processing and marketing, to higher rural incomes and to lower consumer prices. Emphasis is put on temporary government aid through subsidized credit and/or input supply.

The GOZ considers agricultural production and marketing as the responsibility of the private sector. The GOZ sees its own role in the maintenance and extension of infrastructure and in the creation of an environment favorable for agricultural production through the provision of extension services, agricultural inputs, agricultural research, agricultural credit and the preparation and monitoring of projects.

With respect to price liberalization, it is the intention to make crops more profitable to producers. Domestic agricultural production will also be protected against dumping from the world market. Already, import duties have been imposed on livestock except for offals (50 percent), sugar (40 percent) and bread flour (30 percent). Agricultural inputs such as fertilizers qualify for the minimum overall import duty which is 10 percent. The COGEPAR/ZTE study (1987) on the competitiveness of the agricultural sector provided the intellectual framework for the imposition of import duties.

Private sector involvement with input supply and agricultural extension is now an objective of agricultural policy but it is not clear how this will be realized. An improvement in the climate for growth of the private sector may in itself not be sufficient to get private operations involved with fertilizer marketing, seed production and agricultural extension. Explicit government incentives may be needed to induce participation in such activities.

For industrial and export crops, the strategy is based on the important comparative advantage which Zaire has for coffee, cocoa,

tea, rubber and quinquina. The following elements comprise the strategy:

- the elimination of institutional constraints (foreign exchange allocation, export constraints, official price listings) and technical constraints (research, extension, transport, improved planting material, etc.), and an association of public and private interests.
- the encouragement of replanting of plantation crops.
- the creation of smallholder plantations where this option is possible.

For raw materials for agro-industry such as cotton, palm oil, sugar and tobacco, the strategy includes the elimination of technical constraints (inadequate extension, lack of new cotton varieties, poor state of feeder roads) and institutional constraints (insufficient marketing credit, monitoring and management, multiplicity of taxes).

The strengthening of the institutional framework for agriculture is in line with USAID's and the World Bank's agricultural sector management and institutional development projects. Increased financial resources for the sector will have to come from debt relief (which will create breathing space in the GOZ budget) and from the donor community. Greater reliance is also put on the private sector. Improved marketing policy for food crops comprises better information gathering such that public authorities can better respond to the real needs of farmers and traders. This concerns in particular the availability of trucks, fuel and marketing credit. Improved facilities need to be created for the assembly and storage of food products in rural areas, for bulk transport to urban centers and for more orderly marketing in the large urban centers through the creation of wholesale markets, handling, storage and packaging facilities, better market information services and the use of approved weights and measures at the retail level. Finally, improved land tenure regulations will be put into effect to avoid conflicts between traditional farmers and agro-industrial estates.

### 2.3. Other structural adjustments

In addition to the price liberalization and devaluation measures, the GOZ is presently pursuing a structural adjustment program that seeks to address remaining constraints at the macroeconomic level. The program is being carried out in collaboration with the World Bank. A number of measures that are expected to improve the policy environment for the agricultural sector have been adopted or are currently being pursued. These measures include, among others:

- \* preparation of and adherence to a core investment and public expenditure program, with increased allocations for the agriculture sector;

- \* reform and simplification of export procedures, and suppression of certain taxes (e.g., export taxes funding the Fonds Agricole, turnover tax/CCA on agricultural credit);

- \* fiscal reform procedures, including adoption of a more uniform set of import tariffs in order to obtain an overall level of nominal protection of 30 percent;

- \* improvement in investment conditions, including introduction of regular revaluation of company assets and elimination of the taxation on asset revaluation;

- \* improvement in the mechanisms for funding agriculture; and

- \* initiation of a project to improve the management of the public administration.

At this stage it is still too early to determine whether these activities being pursued under the structural adjustment program will indeed have a notable impact on agricultural production. However, it is clear from the preceding discussion that the 1980s has witnessed a very sharp turnaround in Zaire's macroeconomic policy environment, and the policies that have been implemented and that are currently being implemented should ultimately have distinctly beneficial effects on the agriculture sector.

With structural adjustment and the austerity measures affecting the GOZ budget, local governments have increasingly had to look for their own sources of income. They were allowed to impose taxes, particularly on trade, resulting in an administrative impediment to marketing. There are reported cases where such taxes add up to a prohibitively high amount. However, this seems to be rather the exception.

Both economic and non-economic factors have intervened to prevent farmers from benefitting fully from economic liberalization. Also, economic liberalization has revealed that there are other production and marketing constraints that limit farmers' supply response to higher farm prices, in particular stagnant or declining real purchasing power in urban centers. Strong economic growth would undoubtedly be the single most important economic factor to favorably influence agricultural production and marketing.

Tariffs on imports are now between a "fourchette" of a minimum of 10 percent to a maximum of 50 percent. To this must be added the CCA (turnover tax) of 18 percent. Domestic production is now well protected from dumping, particularly for the Kinshasa market. Other urban centers in Zaire are more naturally protected from imported food because of high transport and marketing costs.

Regarding tariff reform, import duties have been reduced and export duties on agricultural products removed except for taxes on copper, cotton and crude oil. These measures should eliminate distortions in the incentive structure by removing excessive

protection for some industries and protecting some agricultural products, e.g., livestock, sugar, maize flour, rice.

In the financial sector, liberalization of credit allocation and of interest rates by the banking sector has been implemented since 1987. However, the Bank of Zaire did not increase its discount rate in line with inflation.

#### 2.4. Agricultural sector equity issues

As indicated by the increase in real producer prices noted above, the macroeconomic policies that were adopted during the 1980s appear to have had modest beneficial effects on the rural population as a whole. However, these effects are not evenly distributed throughout the rural population. Rather, they will be most evident in those areas where smallholders have relatively good access to urban markets (e.g., in many parts of the southern band) and hence are most likely to benefit from competition among traders encouraged by the price liberalization measures. Planned improvements in the transportation infrastructure (including rural feeder roads) should serve to widen the benefits of these macroeconomic policies to a greater proportion of the total rural population.

At the same time, during the 1980s urban real per capita incomes have continued a decline that began earlier during the 1970s. As indicated by the data in Table 14 below, real food prices at the retail level have increased since the early 1980s. This is due to the removal of price controls coupled with growth in urban food demand that exceeded the growth in supply (production plus imports). Overall, then, it appears that the macroeconomic policies of the 1980s have succeeded in reversing the urban bias that characterized the policy package that had been in place previously.

Table 14. Retail Food Price Index - Kinshasa  
(in real terms)

Year	Cereals	Starchy foods	Pulses
1979	97	118	101
1980	73	76	94
1981	84	74	104
1982	106	86	102
1983	126	106	112
1984	123	113	115

Source: Institut National de la Statistique, 1984.

### 3. Agricultural Marketing

#### 3.1. Commodity prices

Research from the Bandundu food crops marketing study (K.U. Leuven) indicates that, on average, producer prices for cassava over the period October 1987-September 1988 were only 25.4 percent of the Kinshasa retail market price. For maize and groundnuts, the percentages are 32.1 and 36.8, respectively. Moreover, the distribution margin in Kinshasa (i.e., the price spread between unloading of cassava cassettes in semi-wholesale markets and retail markets) is on average 31.7 percent of the retail price. For maize and groundnuts, the figures are 15.5 percent and 21.7 percent. The distribution system for maize via large scale millers appears to be quite efficient.

For cassava, the major food staple in Kinshasa, distribution seems to be inefficient. More research is needed to explain such a large margin but it appears that the large number of small scale intermediaries and the losses which are incurred because of inadequate drying at the producer level (fungus infestation) are responsible for it. Government and donor action to reduce the large distribution margin for cassava in the Kinshasa market is a top priority. This could take the form of a centralized wholesale facility, near the access point of trucks from Bandundu region, with unloading, drying, packing and storage facilities and a more efficient selling mechanism.

Provision of market information would contribute to more transparency in agricultural markets, increasing competition and reducing marketing margins. Together with improvements in transport and communication networks and an easing of the marketing credit constraint, economic liberalization will ensure a reduction of marketing margins.

#### 3.2. Income elasticity of demand for food

According to the J. Houyoux (1986) household budget survey in Kinshasa, income elasticities of demand for food are as follows:

Elasticity higher than one:

1. Alcoholic drinks	1.84
2. Non-alcoholic drinks	1.47
3. Fruit	1.35
4. Dairy products	1.23
5. Meat	1.09

Elasticity lower than one:

6. Cereals	0.96
7. Nuts	0.88
8. Sugar	0.57
9. Grain legumes	0.52
10. Fish	0.52
11. Vegetables	0.36
12. Spices	0.15
13. Starchy foods	0.10

The lowest income groups spend 70 percent of their income on food; the highest still spend almost 50 percent. Food is the most inelastic component of the family budget. Within the food budget, several items are quite elastic such as fruit, dairy products and meat. Starchy foods, mainly cassava, still show low and positive income elasticity. There appear to be no inferior goods at present levels of income. Thus, when real incomes go up, the consumption of all food products basically goes up, although cassava the least. This is illustrated in Table 15 below from the Houyoux study showing an index of household expenditure for four food categories according to six income categories in increasing order.

### 3.3. Produce distribution systems

One area where there is still little solid information available is the degree of competition among traders at the farmgate level. By itself, this is a difficult topic to measure and analyze. The fact that many traders offer the same price to the farmer, as is frequently the case in Bas-Zaire and Bandundu, is no proof of collusion or lack of competition. In a perfectly competitive market, all farmers in the same market are price takers and will receive nearly the same price, the price being settled by the invisible hand of supply and demand. The fact that traders are also frequently in contact with each other and discuss prices amongst them is also no evidence of price rigging. The free exchange of market information is part of the competitive model. The best guide to assess the degree of competition is the structure of the trading sector. If there are a large number of traders, with no traders being dominant in terms of size of operations, competition will be assured. At least in Bas-Zaire and Bandundu, this seems to be the case.

Competition is further enhanced by some farmers taking the products of the village to the Kinshasa market themselves. They rent space on a truck and enter the food marketing chain. Free entry and exit is also evidence of a competitive market. Farmers engaging in marketing are called "lutteurs" (wrestlers) or in the official jargon, they are engaging in commercialization "par colis." It is a widespread phenomenon and it is proof of effective competition in food marketing. One of the major advantages of marketing "par colis" is that the

Table 15. Food Consumption Indices by Level of Income, Kinshasa

Level of income	Starchy foods	Fish	Cereals	Meat	Food total
1	100	100	100	100	100
2	139	129	163	158	147
3	163	169	292	211	198
4	152	176	338	261	219
5	173	235	540	490	318
6	214	328	691	752	456

Source: Houyoux, 1986.

transport costs only need to be paid at the point of unloading, i.e., when a few bags have been sold. Thus, there is no credit constraint in this form of marketing while shipment by ONATRA or private boats requires full down payment of the transport fare before shipment is made. The same applies when a complete truck is hired.

### 3.4. Domestic consumption

It is estimated that smallholder farmers in Zaire sell only about 25 percent of their food production. This may range from 75 percent in parts of Bas-Zaire and Kwilu to 10 percent in isolated parts of Equateur and Haut-Zaire.

In the Bandundu surveys of the DMPCC/K.U. Leuven, it was found that the marketed surplus is on average about half of production: 52 percent for maize, 55 percent for groundnuts, and 42 percent for cassava. Average annual sales per household were 221 kg for maize with 24 kg purchased, 120 kg and 38 kg respectively for groundnuts and 3,650 kg and 334 kg respectively for cassava. Domestic consumption amounted to an average of 2.21 kg of maize, 0.96 kg of groundnuts and 12.8 kg of cassava per person and per month. These figures bear witness to the enormous importance which cassava plays in domestic consumption. In Shaba and parts of Kasai, this role is assumed by maize and in some of the humid areas of Zaire in the dense rainforest, by plantains.

Per capita consumption figures for the major food items in the cities are found in Houyoux et al. (1986). In 1986, the consumption pattern in Kinshasa was as follows (in kg per person and per month for a total of 16.93 kg consumed):

- cereals	2.99	- fish	1.06
- starchy foods	5.10	- spices	0.34
- sugar	0.44	- meat	0.82
- grain legumes	0.51	- alcoholic drinks	1.54
- nuts	0.04	- milk	0.24
- vegetables	2.41	- oil	0.85
- fruit	0.26	- soft drinks	0.34

Cereals and starchy goods (cassava) amount to about half the total consumption in weight. The consumption of sugar and meat is still very low in Zaire, reflecting the lack of purchasing power of the population. Protein intake, either from grain legumes or from animal origin, is very limited and points to a nutritional imbalance in the diet. In the Kivu region, particularly in South Kivu near Bukavu, kwashiorkor and other nutritional deficiencies are endemic among the Bushi population in the densely populated areas. In the North of Zaire, goiter and cretinism are endemic because of lack of iodine exacerbated by cyanide intoxication because of the consumption of improperly fermented bitter cassava.

In conclusion, very little is known about the domestic consumption of agricultural commodities in quantitative terms in rural areas. It is hoped that the surveys to be undertaken by Cornell

University and by the SPCSA in the framework of the "Social Dimensions of Structural Adjustment Project" of the World Bank and UNDP will highlight the nutritional situation of the population in light of the structural adjustment program.

### 3.5. Food import distribution

The statistics on food imports differ according to the source which is consulted. Thus, the figures in Table 15 below need to be interpreted with caution.

Most of the food imports are oriented towards Kinshasa and Lubumbashi. In terms of import value, livestock products come first with an annual value between \$25 and 30 million, followed by fish (\$20 to 25 million), wheat (commercial imports), wheat flour, sugar, rice, and maize. If concessional (PL 480 and other) wheat imports are added to the commercial wheat and wheat flour imports, they become the first item in import value.

Table 16. Food Imports, 1982-1987 (thousands of tons)

	1982	1983	1984	1985	1986	1987
Maize	68	51	50	36	58	67
Wheat and flour in wheat equivalent						
- Commercial	69	95	118	113	207	156
- PL 480	53	55	83	93	51	71
- Other concessional	15	11	22	6	5	23
Total wheat	137	161	223	212	263	250
Rice						
- Commercial	30	32	32	42	63	31
- Concessional	3	3	3	0	0	51
Total rice	33	35	35	42	63	82
Malt					50	46
Beef and offals	12	12	23	31	30	23
Poultry and offals				22	17	22
Fish	6	57	53	107	111	79
Sugar	9	25	23	23	33	50
Powdered milk				10	9	5
Canned tomatoes and paste				10	8	5

Sources: Conjoncture Economique, various years; La Politique Agricole, DOA, June 1989; Agriculture Zairoise: Programmation des Actions 1988-1992, DOA, January 1988; and USAID, PRM Office.

Compared to the seventies, the imports of maize and maize flour from Southern Africa have decreased. Such imports reached nearly 200,000 tons in the early seventies. Although there are still sizeable unrecorded imports from Zambia, it is believed that these have decreased considerably since the subsidies on the production of maize and consumption of maize flour have been abolished and the exchange rate adjusted to more realistic levels in Zambia.

It is also to be expected that the imports of beef and poultry products from the E.C. and Argentina will decline as a result of the introduction of an anti-dumping import duty of 50 percent. However, the import of offals will continue (import duty of only 10 percent).

The large imports of fish concern mainly frozen and dried fish from Greenland, the Scandinavian countries and Eastern Europe including Russia. There is limited commercial demand in developed countries for these fish (e.g., horse mackerel) except for the production of fishmeal. A lot of fish imports in cold storage come from Eastern European and Russian boats fishing off the coasts of Angola and West Africa. Thus, in 1986, OFIDA recorded 74,400 tons of frozen whole ungutted fish imported from unknown countries, i.e., from international waters. Such fish sells in local markets well below the price of domestically caught fish. Livestock products and fish in cold storage are mainly imported through one firm, Groupe DAMSEAUX, which also ensures most of the road traffic between Kinshasa and Matadi (TRANSMAC-ORGAMAN).

Rice imports are also increasing steadily, mainly from Thailand and to a lesser extent, Uruguay and Taiwan. There are also some PL 480 concessionary rice imports. Rice is considered a convenience food and its consumption is increasing rapidly particularly in rural areas which are well integrated in the marketing system, e.g., Bas-Zaire.

Sugar imports are expected to decrease because of the imposition in 1988 of a 40 percent anti-dumping tax. Sugar imports are traditionally from the E.C. and Southern Africa (Malawi, Zambia, Zimbabwe, South Africa), and also from neighboring Congo.

#### 4. Market Infrastructure

##### 4.1. Market facilities

The marketing of food crops and export crops is now almost exclusively left to the private sector. Most studies that have been done on the subject conclude that there are fairly competitive markets, apart from some cases of locational monopsony or oligopsony.

Typically, marketing costs are very high because of high collection costs as a result of low population densities, transport over long distances, poor state of feeder roads and river navigation, shortage of and high cost of marketing credit, long delays between first purchase and final sale of the product, cumbersome administrative procedures and high export taxes in the case of export crops.

The efficiency of food crop marketing is hampered by an almost total lack of marketing infrastructure at the collection centers and at the semi-wholesale and retail levels in urban centers. As a matter of fact, Zaire does not have organized wholesale markets for food products. All this contributes to long delays in loading and unloading, congestion, stoppage of marketing operations during the rains, high product losses and deterioration of product quality, lack of transparency in the marketing process and lack of public marketing information.

In addition to the above-mentioned constraints, the efficiency of export crop marketing is hampered by a lack of stability in the rules and regulations governing export operations and the repatriation of foreign exchange, resulting in a lack of confidence and a poor climate for investment.

Presently, the GOZ is streamlining and simplifying its administrative procedures for export. With support from the World Bank and bilateral donors, the GOZ is planning institutional reforms and developing subsector strategies which will promote private investment in perennial crops and ease foreign exchange, credit and transport constraints for industrial and export crops.

Regarding rural infrastructure and the private sector, large agro-industrial companies are required to provide a full range of rural infrastructure services to their employees. This includes housing, electricity, water supply, postal service, health services, local transportation, shops with consumer goods, etc. They usually maintain road infrastructure in their area of operations, under contract with the Office des Routes and against payment. In many cases, local and regional authorities request additional services, which the private sector is reluctant to provide since they have no direct incentive to take over responsibilities which are normally assumed by the state. Small-scale traders and private companies usually escape such obligations and have no commitment to the creation or maintenance of rural infrastructure.

#### 4.2. Transportation facilities (roads, rails, rivers, and trucks)

Zaire's transportation network is made up of a series of regional road networks connected by a combination of navigable rivers and railways that form the country's major transport arteries, extending from the port of Matadi, through Kinshasa and then to the North, East and South. In colonial days, the transport system was mainly set up to facilitate import and export, not to promote regional integration. Thus, North-South transport systems are poorly developed.

Colonial road maintenance was based on a system of cantonniers or forced-labor road maintenance gangs, to be provided by the local authorities. The system worked well and roads were reportedly in good shape, but the system was understandably unpopular and bound to break down with independence. Many rural people equated independence with freedom from enforced labor on the roads and cash crops and thus, it

is not surprising that imposed cash crops like cotton or rural road maintenance have suffered greatly since those days.

Roads are classified into four categories as shown in Table 17:

Table 17. The Highway Network

Category	Length (km)	Traffic (%)
National roads	20,706	86
Main regional roads	20,200	11
Secondary regional roads	19,100	2
Local roads or rural roads	85,000	1
Total	145,000	100

Source: World Bank, Agriculture Sector Memorandum Background Papers, 1988, Table 10.1, p. 112.

Since independence, responsibility for rural roads has been shifted about among various institutions. It started out with the local authorities, as in the colonial period. In 1980, responsibility was transferred to the DOA and the Rural Roads Directorate (since disbanded) of the Office des Routes carried out an annual roads maintenance program that covered 48,000 km. However, they lacked managerial capacity and funds to do the job adequately. Responsibility was then transferred to the regional governors and development projects, as part of the drive for regionalization. The development projects, NGOs and private companies managed to handle road maintenance better than the Office des Routes directly, although performance was uneven as budget constraints limited the amount of work they could do. The Office des Routes concentrated on the national and regional roads and kept them in relatively good condition, in part thanks to donor funding. The World Bank has in the past concentrated its efforts on the Office des Routes and has financed six projects since 1969, the last one in 1986 (sixth highway project) for \$85 million.

The Office des Routes was created in 1971 and now employs 8 thousand people, including 300 engineers. It is relatively well organized and well equipped. Since 1987, its finances have been insufficient to maintain performance, because the petroleum companies did not pay the road tax on gasoline and diesel oil as scheduled. The delay in adjusting the road tax to inflation and the increase in the unpaid bills of public enterprises to the petroleum companies have caused the shortfall in remittances to the Office. As a result of that, IDA suspended the Sixth Highway Project. In early 1989, the funding of the Office des Routes resumed through the road tax when fuel prices were doubled and indexed.

IDA's Sixth Highway Project was expected to increase the Office's management capability in operations and planning and to increase the private sector's role in earth road maintenance and rehabilitation,

especially on a 4,000 km sub-network of regional roads. The structural adjustment program also contains an emergency rural roads improvement component, to be carried out by the Agricultural Roads Service (Service National des Routes de Desserte Agricole, or SNRDA).

In January 1987, the GOZ created SNRDA under the DORD to take charge of all rural road rehabilitation and maintenance. Because SNRDA is new and inexperienced, the Office des Routes has retained responsibility at the local level for paying contractors, technical supervision and control. Most of the work is carried out manually using road brigades (cantonneurs) provided by local entrepreneurs, missions and collectivities which are contracted for that purpose. SNRDA is financed from a special rural road tax levied on sales of motor fuel. This was expected to reach 1,200 million Z in 1988. It is a tax similar to the roads tax that finances the Office des Routes. The Regional Road Commissions made up of GOZ and private sector representatives and assisted by SNRDA and the Office des Routes select the roads to be repaired and advise on the awarding of contracts. UNDP has financed a large study designed to improve rural roads. CADIC/Scott, Wilson & Kirkpatrick carried out the study. The World Bank is considering implementation of the proposals contained in the study under a Second Transport Sector Rehabilitation Project.

Improving transportation in Zaire is invariably cited as the most essential precondition for increasing agricultural production. However, the constraints on agricultural production are more numerous and complex than simply transport. There may be more cost-effective ways of raising agricultural production than building and maintaining roads, e.g., improved seeds or cuttings. However, roads need to be passable and bridges, ferries, etc. need to be operational. Thus, a minimum of road maintenance is always required and there is a trade-off between the money spent on maintaining roads and seed distribution, extension, credit for trucks, etc. Transport investment, even rehabilitation, is expensive and competes for funds with direct investments in agriculture and in transport capacity.

The DMPCC/K.U. Leuven study also shows that local and regional exchange systems are quite important. Roughly half of cassava production goes into local and regional consumption, the other half being transported out of Bandundu region. Cassava prices in the south of Kwango, an important diamond-mining area, are nearly as high as in Kinshasa although at a similar distance from the main producing area in Kwilu but connected by a very poor road system.

In some areas of Zaire where trypanosomiasis is not widespread, animal traction is a viable means of short distance transport (e.g., in the savanna areas of Kasai and Shaba). It can stimulate local artisans (making yokes), and reduce labor constraints on farms. It is also better adapted to bad roads than vehicles and requires no foreign exchange. USAID should consider the introduction of animal traction in its Central Shaba project, particular in savannas with low tsetse fly populations. This may help to reduce some of the transportation constraints, particularly as they affect rural women.

USAID is experimenting with river transport in its area marketing project in Bandundu. Zaire's river system is probably an underexploited resource for the evacuation of agricultural products, and a resource which needs much more attention and investment. However, there are also many constraints with river transport such as high capital costs to enter this transport mode, lack of security and control, high financial costs as it is a slow mode of transport, inadequate docking facilities inland and at the urban centers, port charges and taxes. From the experience gained, USAID should be in a good position to develop a policy with respect to the extension of river transport. As with everything in Zaire, interest and adoption by the private sector will be the key performance criterion.

Experience in the North Shaba project has shown that mechanical road maintenance, contrary to common belief, is usually cheaper than manual maintenance. A combination of both is probably most cost effective and provides a good deal of local employment.

Transport costs in Zaire are invariably high; however, poor road maintenance is only partly responsible for this. High financial costs, shortages of trucks and spare parts, fuel costs, low density of production and high collection costs, spoilage, long distances and inadequate marketing infrastructure in rural and urban centers all contribute to inefficiencies and in the end, high costs.

The development of sustainable road maintenance systems, the improvement of the transport network and the reduction in the costs of transport are priority concerns for agricultural development. USAID is addressing these in its area development projects and in its transport sector assistance program. These concerns rank high in USAID's development strategy for Zaire, and they will be a major focus of the sectoral grants.

## 5. Financial Services

### 5.1. Banks and other financial intermediaries

The formal financial sector consists of the Banque du Zaire, the central bank; ten commercial banks of which two are state owned; the Société Financière de Développement (SOFIDE) and the Banque de Crédit Agricole (BCA), both development banks; the Société Nationale d'Assurances (SONAS), the national insurance company; the Institut de Sécurité Sociale (INSS), the national institute for social security; the Caisse d'Épargne du Zaire (CADEZA), a savings bank; and a network of cooperative savings and loans institutions, the Coopératives d'Épargne et de Crédit (COOPECS).

The ten commercial banks have a network of 116 branches across the country, 23 of them being situated in Kinshasa. Only four of these banks are actually represented throughout the country, i.e., the Banque Zaïroise de Commerce Extérieur, the Banque Commerciale du Zaïre, the Union de Banques Zaïroises and the Nouvelle Banque de Kinshasa. The clientele of the commercial banks is recruited mainly in the modern sector of the economy, concentrated in the urban areas. In

1985, 71 percent of deposits originated from enterprises, the balance from private persons. The agricultural sector provided only 4.2 percent of deposits while the commercial, industrial and services sectors (including transport) accounted for 68 percent of deposits. A report prepared by FAO consultants in 1986 contends that as much as 98 percent of the financial needs of the agricultural production sector may have been met through self-financing (UNDP/FAO, 1986).

The two state-owned commercial banks are the Banque Zairoise de Commerce Extérieur (BZCE), a successor to the Banque du Peuple which in the seventies was accused of fraud and which was eventually dissolved, and the Nouvelle Banque de Kinshasa (NBK), a successor to the Banque de Kinshasa which went bankrupt. The NBK is now managed by the labor union UNTZA. The BZCE has as its mandate also to develop a financial market in Zaire, in particular a stock exchange and a system of credit-insurance. In recent years, parastatals and governmental institutions have had to open accounts with the state-owned banks and shift their deposits from the privately-owned banks. This has created an element of instability in the private banking sector.

SOFIDE, established in 1970, is the only bank in Zaire created specifically for general development financing.<sup>1</sup> It has successfully established itself as the main development lending institution in the country. Many of its investments over the past 10 years have been for the rehabilitation and modernization of industrial capacity and for agricultural and transport projects. The minimum loan SOFIDE handles is now fixed at the equivalent of \$20,000. Since 1976, SOFIDE has operated an agricultural development division (SOFIDAG). Between that date and 1984, lending for agricultural, forestry and fisheries projects represented 45 percent of SOFIDE's overall lending portfolio. In 1985, lending to agriculture fell to less than 15 percent of all credit, while by 1987 the figure was back up to 44 percent. Currently, SOFIDE is really the only institution providing any medium- and long-term credit for agricultural development. Agricultural credits from SOFIDE have gone mainly to the modern sector and to agro-industries. Recently the Fonds Africain de Développement provided a line of credit through SOFIDE for the purchase of trucks for agricultural marketing, incorporating a formula for sharing the foreign exchange risk.

Between 1980 and 1983 SOFIDE, in collaboration with FAO and UNDP, conducted a series of trial studies for agricultural credit for small farmers. Credit in the form of seeds, fertilizers and small tools was distributed in 7 villages (750 producers) near Mbanza-Ngungu (Bas-Zaire) between 1981 and 1983. Average repayment was 99 percent of loans. No further trials have been staged, nor has the idea been pursued. It is not clear why not, but these studies could form the basis of any future investigations.

SOFIDE has in the past received several lines of credit from the World Bank, the European Investment Bank, the C.C.C.E., the Belgian

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<sup>1</sup> The discussion of SOFIDE and the BCA is based in part on the World Bank's Agriculture Sector Memorandum, Vol. 2 (Background Papers), Ch. 8: "Credit and the Agricultural Sector," August 1988.

government, etc. It has received eight loans from the World Bank group (IDA, IFC).

The BCA, established in 1982, was given a very broad mandate to further economic development by supporting the creation, extension and modernization of enterprises set up in Zaire in the agriculture, fishery and livestock sectors, as well as in those sectors serving agriculture. Between its creation and the end of 1986 it financed 185 projects for a total value of Z 405 million representing 9 percent of the applications BCA received in that period. In 1986, BCA's lending represented only a modest 5 percent of all credit made available to the agriculture sector from the formal financial sector.

BCA's lending has been limited by its low level of capitalization. At the time of incorporation, BCA's potential total capitalization was the equivalent of almost \$22 million; however, at the end of 1986 its equity was only a little more than \$1 million. Moreover, until recently, it had only one office, situated in Kinshasa, making it very difficult to attract deposits from the agricultural community. The loans made by BCA since its inception have been located in all regions of the country, but nearly half of the loans have been for the Bas-Zaire, Bandundu, and Kinshasa regions. At the end of 1985, 75 percent of deposits came from the tax feeding the Fonds de Convention de Développement and from the Fonds Agricole, a tax on agricultural exports, both of which have now been abolished. In 1986 USAID agreed to loan 50 million zaires (\$420,000) from its counterpart funds for the funding of medium-term credit while recently the German credit agency KfW agreed to a 2.5 million DM (\$1.4 million) line of credit. The Belgian government agreed in 1988 to provide 250 million zaires to the BCA from its counterpart funds.

In 1987-88 the BCA set up offices in Lubumbashi and Kikwit and it is participating in the establishment of a local bank in the Kivu region (Caisse Populaire de Crédit Agricole). It also undertook the initiative to establish a linkage with the Union Centrale de Coopératives d'Epargne et de Crédit (UCCEC) since it hopes to reinforce its regional presence through an agreement with the COOPECs according to which the cooperatives would progressively become the principal institutions for mobilizing rural savings and extending agricultural credit at the local level.

In 1986, BCA financed 84 projects in the agricultural sector for a total of 224.9 million Z; in 1987, 102 projects were financed for 347.7 million Z. Of these, 92.6 percent were for short-term commercial and campaign credits, 6.6 percent were for equipment and 0.04 percent for agricultural inputs. This distribution reflects the fact that BCA loans are overwhelmingly oriented to short-term activities. In addition, a frequently heard complaint is that loan applications take excessively long to process, usually several months.

BCA is now a mixed capital company and is looking for foreign participation in its capital.

The only way for the BCA to resolve its problems is to boost its subscribed capital, its deposits and the volume of its credit portfolio, while maintaining fixed costs at their present level and charging positive real rates of interest. The progress BCA makes in consolidating its relationship with the COOPECs will be a key element in determining its success. However, C.E. Cuevas (1988) warns of the risk involved in linking up two weak institutions, UCCEC and BCA.

The CADEZA, a savings bank that was created in 1950, is with its 72 regional offices in principle well-placed to launch a major effort to mobilize domestic savings in the interior since it accepts accounts with more modest initial deposits than do most other banks. It has, however, accumulated major losses over the past years and is continuing to operate only because of support from the Bank of Zaire. For practical purposes, CADEZA is bankrupt.

The Savings and Loan Cooperatives, COOPECs and COOCECs will be discussed below under Private Organizations, PVOs and NGOs.

## 5.2. Availability of agricultural credit

Credit for the agriculture sector comes principally from Zaire's commercial banks, as well as from SOFIDE and the Banque de Credit Agricole (see Table 18 below). Forty percent of the total lending of the commercial and development banks between 1982 and 1986 went to the agriculture sector. However, the formal banking sector provided credit to only two main groups of agricultural borrowers: agro-industrial enterprises that could put up collateral such as real estate, and companies and individuals involved in the purchase of coffee, food crops, and cotton and in the production of sugar cane.

As indicated in Table 18, there has been a sharp increase in credit to the agricultural sector since the beginning of the 1980s. During the last five years covered by the table there was a doubling of credit in real terms. Much of the increase has gone to seasonal crop marketing, which remains the principal type of credit extended by the commercial banks to the agriculture sector. Despite this increase crop marketing credit is still inadequate and credit for production is in very short supply. Overall, the World Bank has argued that "the shortage of credit is a chronic and widespread problem particularly for the modern sector leading to reduced agricultural growth" (Agriculture Sector Memorandum, September 26, 1988, p. 36). The Bank also notes that in Zaire's inflationary environment, credit tends to be directed toward trade financing where turnover is fast and profit margins relatively high. Hence, credit for productive activities is increasingly squeezed out.

Until June 1987, the Government provided a preferential rate of interest for agricultural credit, although there was no special source of funding for this subsidy. Beginning in July 1987, it abolished the preferential rate in favor of a uniform rate designed to encourage commercial banks to lend to agriculture on the basis of the same criteria they applied to other customers. To mitigate the impact of this increase in the cost of credit on the agriculture sector, the

## 18. Credit to the Agriculture Sector

## A. Millions of zaires

Source	1980	1981	1982	1983	1984	1985	1986
Commercial Banks (food crop credit)	376.3 (45.0)	455.9 (80.0)	647.0 (240.0)	1086.5 (535.6)	1774.2 (1676.6)	2101.1 (1397.2)	3624.4 (1862.1)
Banque de Credit Agricole	-	-	-	1.9	58.1	115.2	225.0
Fonds de Convention de Developpement	44.4	87.1	119.1	255.1	693.0	447.0	484.0
Fonds Agricole	13.7	11.3	14.1	10.4	169.5	193.1	-
SOFIDE	26.2	-	49.4	129.0	149.9	230.0	332.0
Total	460.6	554.3	829.6	1482.9	2844.7	3086.4	4665.4

## B. Percentage Distributions

Source	1980	1981	1982	1983	1984	1985	1986
Commercial Banks (food crop credit)	82 (10)	82 (14)	78 (29)	73 (36)	62 (59)	68 (45)	78 (40)
Banque de Credit Agricole	-	-	-	*	2	4	5
Fonds de Convention de Developpement	10	16	14	17	24	14	10
Fonds Agricole	3	2	2	1	6	6	-
SOFIDE	6	-	6	9	5	7	7
Total	100	100	100	100	100	100	100

\* Percentage equals 0.1.

Sources: Bank of Zaire, SOFIDE, BCA, FCD reports.  
UNDP/FAO, Rapport Assistance Preparatoire au Secteur du Credit Agricole, December 1986.

Note: Component percentages may not add up to corresponding totals due to rounding.

government abolished the 18 percent turnover tax (CCA) on the interest paid on agricultural credit. The resulting effective increase in agricultural interest rates was 3-5 percent against a potential increase of 10 percent (on the basis of prevailing rates in June 1987), had the preferential rate been abolished without the accompanying CCA measures.

### 5.3. Access to financial services

Large-scale plantations rely mainly on the commercial banks for short-term credit. For medium and long-term credit for the rehabilitation and development of plantations, they rely (reluctantly) on external financing or on SOFIDE, but exchange rate risk has kept many away over the last decade. Credit facilities specifically geared to the plantation sector, with its long gestation periods, have not been available and this is one of the many reasons why there has been so little investment.

Small- and medium-scale agricultural enterprises have difficulty getting funds from the banking system because usually they cannot offer any guarantee of repayment. They should be the main focus of the BCA. In order to support the development of small-scale enterprises, the World Bank in 1987 approved a credit of \$22.5 million over three years for a small enterprise development project, the Bureau d'Encouragement au Développement des Petites Entreprises (BEDEPE). Half of this credit will be channeled through the commercial banks, the remainder will be distributed by SOFIDE, the BCA and eventually by the COOPECs once their legal status has been regulated.

Most smallholder farmers have virtually no credit needs, given their traditional system of agriculture and lack of effective agricultural extension. Within agricultural development projects, experience has shown that credit provided in conjunction with extension and tied to specific agricultural inputs has given the best results, particularly where marketing of the final product is assured. Group guarantees for credit repayment have also been successful as has reimbursement in kind after harvest, particularly when market organization is poor.

The GOZ now puts emphasis on the expansion of agricultural credit for agricultural production and marketing. The equity capital of BCA will be increased via PIP financing and several donor-supported projects have a large credit component, in particular the E.C. project APEC for Kinshasa, Bas-Zaïre and Kivu designed to strengthen small and medium-sized agricultural enterprises (PMEA and PMEE). One of the major stumbling blocks is however the credit ceilings imposed by the Bank of Zaïre to curb inflation.

To summarize, then, credit in agriculture has essentially served urban-based traders involved in crop marketing and some of the larger agro-industrial companies. Smallholders and the growing numbers of commercially-oriented farmers have little access to the formal credit network. Credit has been largely of a short-term nature, and oriented more towards trading activities than to direct production activities.

There is some indication (e.g., ceilings on credit established by the Bank of Zaire) that the agricultural sector could support increased use of marketing credit. In addition, longer-term credit in support of rehabilitation of the modern plantation subsector has the potential to be quite effective (in conjunction with additional complementary policies in support of the subsector), but is presently virtually nonexistent.

## C. Institutional Factors

### 1. Public Institutions

#### 1.1. Policy making

Several times in the past, the GOZ declared agriculture the priority of all priorities, the latest public declaration dating from 1981. There is a general belief that agriculture is of high importance in the country's economic development. However, this has never been reflected in the national budget. Despite a contribution to GDP on the order of 30 percent or more, direct budget expenditure of the DOARD is typically less than 2 percent of the overall budget. Of course, other government departments also have expenditures which affect the agricultural sector, in particular the Office des Routes and the Department of Transportation, INERA, SOFIDE, BCA, etc. Moreover, public finance statistics are very weak in Zaire and budget figures have to be interpreted with caution. There is also always a gap between approved funds as they appear in the budget and the actual disbursement. In other words, increased budget allocations are not a guarantee of increased funding.

For many of the problems of inadequate government support for the agricultural sector in Zaire, the severe economic crisis and structural adjustment policies are invoked as excuses or at least as explanations. Although it is true that the public sector in Zaire has been cut back and that government budgets are tight, the percentage allocations of the overall government budget that go to agriculture are extremely small. Clearly, on its own resources, the GOZ can do very little for the agricultural sector. Moreover, when external funding for major projects for food crop development ends, as in the case of the PNS project or the Bank-supported PMKO project, the requirements for local recurrent funding to maintain the activities are well in excess of the availability of local financial resources, resulting in a rapid breakdown of the range of services provided to farmers.

Two directorates in the DOA are concerned with policy analysis, agricultural planning, and statistics: the Studies and Planning Service (SEP), which includes the agricultural statistics division, and the Directorate of Markets, Prices and Campaign Credit (DMPCC).

SEP was created in the early 1970s as a direct result of USAID's insistence on the creation of an agricultural economics capacity in the Ministry of Agriculture. An identification mission for that purpose took place in 1973, resulting in the creation of the Bureau d'Etudes (now SEP) of the DOA. This happened at the same time that an agricultural economics department was opened in the Faculty of Agriculture at Yangambi. That department remained in existence until 1982 when it had to be closed because all the Zairian teaching staff had left.

From the beginning, USAID played a leading role in the creation, expansion and consolidation of SEP through T.A., local currency

financing of its operations and a massive training effort of its staff. Approximately 70 Zairians have been or are being trained in the U.S. at the Master's or Ph.D. level, furnishing SEP with a core staff of well-trained agricultural economists. In addition resident training and on-the-job training has taken and is taking place. Training is still prominent in SEP to ensure that the amount of training furnished is sufficient to make up for staff attrition.

In fact, qualified Zairian staff of SEP have moved to positions of high responsibility in the GOZ and abroad. The present agricultural policy and planning project which USAID is financing in SEP is the fourth of its kind for the purpose of increasing the institutional capacity of the GOZ and in order to develop and implement coordinated agricultural policies and investment plans.

SEP has an important role to play in policy formulation. Its staff's expertise is recognized, and as a result SEP is regularly consulted on policy questions by the DOP, the Office of the Prime Minister and the Office of the Presidency. SEP is now carrying out agricultural policy and project related studies which were formerly contracted out to consultants.

While previous assistance to SEP has helped establish basic educational and analytical capacities, much remains to be done to have a viable policy and planning service. Until now, most of the work has been on basic commodity and regional reports and planning. The challenge now is to do more analytical rather than descriptive analysis. This is required for more effective planning and policy making in the government.

Sound economic analysis of policy alternatives requires reliable data collection and analysis. This capability is not yet fully operational at SEP although, with assistance from USAID and FAO, some progress has been made over the last five years. The problems have included a lack of priorities, too much data being collected without appropriate methodologies, inadequate supervision, and long-winded and incomplete processing with the results not always being consistent. Too many data-gathering efforts in the past have been overly ambitious, not taking into account the enormous logistical, management and infrastructure deficiencies in Zaire. SEP needs to improve its capacity to gather and process appropriate and reliable agricultural statistics in a timely matter.

The DMPCC was created in 1981 as a follow-on institution to the ONPV (Office National des Produits Vivriers -- the National Board for Food Products) which was a state food marketing organization. It is responsible for the monitoring of markets, mainly the collection of marketing information, prices and the requirements for marketing credit. Since the general economic liberalization in 1982, the role of the DMPCC has been limited to information gathering and the analysis of agricultural markets. From 1981 to 1986, T.A. was provided by the FAO in addition to one Belgian technical advisor. The regular collection of price data on semi-wholesale and retail markets in

Kinshasa was initiated in the early 1980s. Several surveys were undertaken with BEAU of the Ministry of Public Works on road traffic into Kinshasa from Bas-Zaire and Bandundu and on the need for urban market planning. Studies were done on the needs for storage and processing capacity for agricultural products, on the requirements for marketing credit and on the export prospects for several commodities, such as fruit and vegetables.

Since 1987, a team from the University of Leuven in Belgium, financed by the Belgian government, has been studying food supply to the Kinshasa market. Surveys are undertaken in Bandundu and Bas-Zaire on production, marketable surplus, prices and marketing conditions together with the collection and analysis of price data on Kinshasa's semi-wholesale and retail markets. USAID has been funding part of the local currency cost of the surveys via CPF. For the surveys, there is a very close collaboration in the field with the Division of Agricultural Statistics from SEP as the DMPCC does not have a survey capacity in rural areas. In general, this collaboration has worked well. The same sample is used as that of the Permanent System for the Collection of Agricultural Statistics and the marketing surveys are piggybacked on the annual general surveys of the Division of Statistics, thus fostering integration and consistency of data sets.

## 1.2. Research

Agricultural research in Zaire is characterized by an administrative fragmentation and a multiplicity of structures, statutes and ways of financing. Under the Department of Higher and University Education and Scientific Research, there are the following institutes engaged in agricultural research:

- INERA (under this Department since 1983)
- Centre Régional d'Etudes Nucléaires de Kinshasa (CRENK)
- Centre de Recherche en Sciences Naturelles (CRSN)
- Institut de Recherche en Sciences de la Santé (IRSS)
- Centre de Recherche Agro-Alimentaire de Lubumbashi (CRAAL)
- Centre d'Etudes des Substances Naturelles d'Origine Végétale (CESNOV)
- Faculte de Medecine Vétérinaire de l'Universite de Lubumbashi
- Institut Facultaire des Sciences Agronomiques de Yangambi (IFA)
- Institut de Recherche Agronomique et Zootechnique (IRAZ-CEPGL)

Under the DOA, agricultural research is conducted by:

- RAV and the following commodity-based programs:
- Programme National Mais (PNM)
- Programme National Manioc (PRONAM)
- Programme National Légumineuses (PNL)
- Programme National Riz (PNR)
- Programme National Engrais (PNE)
- Bureau National Semencier (BUNASEM)
- Bureau de Projet ITURI (BPI)
- Projet Maraichage et Pisciculture (PMP)
- Projet Mais Kasai Oriental (PMKO)
- Projet de Développement Rural Intégré de Kabare (Kivu-Sud)

Under the Department of Land, Environment and Nature Conservation:

- Programme "Man and Biosphere" (MAB)

Under the Presidency:

- Programme d'Etude des Ressources Terrestres par Satellite (ERTS)

Under the parastatal Gécamines Développement:

- Centre de Recherche sur le Mais

The private sector also conducts agricultural research:

- Centre de Binga (SCZ-PLZ) for oil palm
- Pharmakina et Kinaplant for cinchona

Food crops research is mainly carried out by RAV, while research on perennial crops is the focus of INERA and private plantation companies.

#### 1.2.1. Historical Perspective

In December 1933, INEAC (Institut National pour l'Etude Agronomique du Congo Belge) was created as a successor to the Régie des Plantations de la Colonie which managed experimental plantations for the government. INEAC comprised research stations in Zaire, Rwanda and Burundi and had a large degree of autonomy. Its financing came from a royal endowment, the governmental budget, contributions from the private sector and proceeds from the sales of seeds and planting material. Its 1959 budget exceeded \$10 million and the professional staff surpassed 200 researchers on 37 stations and research centers, of which 32 were in Zaire. Yangambi near Kisangani on the Zaire River was the headquarters and main research station.

By 1960, INEAC had acquired a reputation as probably the best tropical agricultural research center in the world at that time. Its major breakthrough occurred in 1939 when the hereditary mechanism of hybrid oil palm was discovered (crossing of Dura X Pisifera type in order to obtain the high yielding Tenera type), enabling a doubling of oil palm yields. This spread rapidly to Nigeria, Malaysia and Indonesia, these last two countries having benefited the most from the work of INEAC. It should not be forgotten here that the oil palm is an indigenous African plant species which was imported in Asia.

#### 1.2.2. From INEAC to INERA and RAV

The demise of INEAC in the turmoil of the post-independence period is well known. In 1970, there were plans to rehabilitate INEAC and it was renamed INERA, the Institut National pour l'Etude et la Recherche Agronomique. In the early 1970s, Belgium had very ambitious plans to relaunch INERA from Yangambi. Zairianization abruptly stopped

Belgian support and because of shortages of human, financial and management resources, INERA remained a huge, non-performing research organization with large overhead costs. In the meantime, PNM in 1972 and PRONAM in 1974 were started in the DOA to address some of the more urgent problems in maize and cassava production.

The supervisory ministry (tutelle) of INERA has changed frequently. Initially it was under the Office of the Presidency, then under the Office of the Prime Minister, followed by the Ministry of Agriculture and Ministry of Scientific Research, before finally becoming part of the Ministry of Higher Education and Scientific Research in 1983.

In 1983, RAV was conceived to revitalize the national commodity programs for maize, cassava and grain legumes and a high-level inter-ministerial study group was established to analyze the problems of agricultural research and make recommendations. The study group, which worked under the guidance of the President's office, was assisted by ISNAR and received financial support from USAID.

In December 1985, RAV was formally created under the joint tutelle of the DOA and the Department of Scientific Research. RAV was created as a project in the DOA, under the authority of the Ministry of Agriculture for implementation and under the authority of the Ministry of Scientific Research for the programming of research. A convention was signed with INERA on November 27, 1984 to use INERA stations as a research base and to promote relations as good neighbors.

The ISNAR report was published in February 1985. The report identified problems in three interrelated areas - human, financial and institutional - as being fundamental to INERA's poor performance. It concluded that they needed to be addressed simultaneously, with emphasis on structural and organizational issues and administrative improvements.

USAID in 1985 diagnosed three obstacles to change at INERA on the occasion of the visit of the Presidential Agricultural Task Force to Zaire:

- (i) national pride in the institution that had acquired an international reputation for excellence has inhibited consideration of more modest approaches which could be realistically considered;
- (ii) nostalgia on the part of the Belgian Cooperation has led to proposals that seek to reestablish the institution as it once was; and
- (iii) INERA's reputation among donors as a bottomless pit capable of absorbing unlimited resources and as having a limited outlook for eventual establishment of the institution as a sound productive entity.

INERA makes very little contribution to agricultural research in Zaire because of:

- (i) lack of financial resources;
- (ii) infrastructure and equipment which has been allowed to run down;
- (iii) isolated research stations, without modern facilities, with large overhead costs and unable to attract good staff;
- (iv) inadequate, unrealistic and overambitious administration and research program;
- (v) lack of an overall framework to coordinate research in Zaire; and
- (vi) lack of commitment from the GOZ to agricultural research and to agriculture.

The main recommendations of the ISNAR report were:

- (i) on the administrative level, to transfer INERA's headquarters from Yangambi to Kinshasa and to organize management practices;
- (ii) to reduce INERA's research stations from 20 to 9 and evaluate the research potential of these 9;
- (iii) to restrict Yangambi's operations to agricultural research, trim its infrastructure to fit research needs, and evaluate future needs and costs;
- (iv) to establish a research program committee within INERA's Direction Generale, also with responsibility for hiring staff; and
- (v) to improve links with other relevant departments.

The broad solution which was proposed is a unification process which culminates in the ultimate integration of the national programs in INERA, after INERA itself has been profoundly reformed.

In September 1985, the GOZ approved the study group's recommendations. Some progress has now been made on the implementation of these recommendations, although follow up has been very slow. The transfer of INERA's headquarters to Kinshasa and development of an action plan to restructure agricultural research became conditions of the Structural Adjustment Credit negotiated with the World Bank in 1987. The bank is now taking an active role in the coordination of donor support for INERA's restructuring and in the drawing up of a long-term master plan for agricultural research with phased implementation. In this, they are supported by FAO/UNDP which is providing a senior technical adviser (from CIRAD, France). USAID has

financed an extensive financial audit of INERA and financially supports self-help measures which induce policy changes such as the transfer of headquarters from Yangambi to Kinshasa, the procurement of office and field equipment and vehicles.

### 1.2.3. The World Bank/FAO project

The proposed World Bank project on agricultural research has a national scope and in a first phase will focus mainly on establishing a research and institutional framework, management support, priority activities, staff training and minimal investment needs for research facilities. The tentative financing plan has a total budget approaching \$50 million, of which \$20 million will be from IDA, \$5 million from UNDP, \$20 million from other donors (Italy, Belgium, Canada), and \$5 million from the GOZ.

The problem with the restructuring of INERA as supported by the World Bank and other donors is that organization, administration and infrastructure development take precedence over a clear indication of substantive research priorities. Future research content, crop mix, regional coverage, balance between food crops and export crops, between large and small farms, etc., are vital issues which need to be addressed in a master plan.

INERA is only viable and sustainable if tight priorities are set and adhered to which will keep the overall effort manageable and which will lead to concrete, location-specific results for high priority areas. Substance and aims should determine organization, infrastructure development, and financing of INERA, not vice versa. A national master plan is being drawn up covering all crops, livestock, etc., on a national scale.

The best scenario that could develop and of which USAID is supportive is one where a pragmatic division of labor leads INERA to focus and develop its research capacity on cash crops (cotton), export crops and animal husbandry, including the rotation with food crops; while RAV continues to concentrate its efforts on the basic food crops, including farming systems research and long-term resource sustainability. If in addition to this division of labor, INERA can be brought under the tutelle of the DOA, integration of the two will be made all the more easy. In such an integration, the commodity-based national programs can and should still maintain their autonomy. It is in this respect encouraging that INERA also plans to create national commodity-based research programs, linked to extension, with sufficient autonomy to inspire donor confidence and cost effectiveness.

In the best scenario, with or without a change in tutelle of INERA, a time frame of 5 to 10 years will be necessary to carry out the needed adjustments. It took nearly 3 years to complete the ISNAR study. It took another 3 years to implement the recommendations and the implementation is still under way. There are no short cuts. The building of sustainable institutions is a slow, evolutionary and costly step-by-step process which may take decades rather than years.

This should not discourage decision makers and donors. The important thing is step-by-step progress towards a sustainable national institution.

In this respect, the position which the national authorities at the highest level of the DOA and INERA defend is still the position taken in the ISNAR report of 1985 (p. 25), i.e., a unification process which ultimately culminates in the integration of the national programs in INERA after INERA itself has been profoundly reformed. The authorities also agree that the reform process at INERA has only just begun. They are also confident that with World Bank and other donor financing and competent leadership at INERA, rapid progress can now be made.

The key to the long-term viability of agricultural research in Zaire lies in showing the GOZ that agricultural research and the dissemination/outreach of its findings is a vital component of accelerated economic growth in the economy. If the GOZ is serious about agriculturally-based economic growth and self sufficiency in food, its commitment to agricultural research must be guaranteed by increased financial support. It is only in this way that a sustainable national agricultural research capacity can be created.

#### 1.2.4. Recommendations

1. It is recommended that USAID continue to finance self-help measures at INERA which induce policy changes which lead towards a unification process and a sustainable national institution in the long term.

2. It is recommended that USAID take an active role in the donor coordination group which meets regularly at INERA; cost effectiveness, division of labor, prioritizing, substance and aims should be the major themes brought up by USAID, not national coverage nor infrastructure development.

3. USAID has a comparative advantage in the training of agricultural scientists in the USA. It is suggested that USAID assume leadership in this area. To that effect, USAID could make some fellowships for M.S. and Ph.D. training available to INERA as part of the World Bank project.

#### 1.3. Education

The educational system in Zaire trains agricultural personnel at three levels:

A2 and A3 agricultural technicians are trained at technical agricultural schools and agricultural secondary schools which are under the Ministry of Primary and Secondary Education.

A1 agricultural technicians or graduates (gradués) receive training at the Instituts Supérieur d'Enseignement Agricole (ISEA) at Bengamisa (Haut-Zaire) and at Mondongo (Equateur).

There are also four Higher Institutes for Rural Development (I.S.D.R.) in Zaire: at Bukavu, Mbandaka, Tshibashi and Mbeo near Idiofa. They offer a three-year curriculum and a degree of graduate (gradu ) in rural development. Since October 1988 the I.S.D.R. Bukavu has offered a licence (licenci ) degree after two more years of study.

Training of A0 agricultural engineers takes place at the Faculty Institute of Agriculture (Institut Facultaire d'Agronomie, or IFA) at Yangambi. The A1 and A0 training institutes are under the Ministry of Higher Education and Scientific Research. Data on the number of diplomas awarded are shown below in Table 19.

Like much of the rest of the government, higher education in agriculture has been undergoing a series of changes. In 1971, three colleges of agriculture located at each of the three universities in Zaire (Kinshasa, Kisangani, Lubumbashi) were merged into a Faculty Institute of Agriculture (IFA) at Kinshasa. Subsequently in 1973, this unit was moved to the equatorial forest at Yangambi, occupying a portion of the physical facilities of INERA-Yangambi. With this move, IFA was originally organized under the administration of the closer University of Kisangani, located 100 km from Yangambi. In 1976, IFA became an administratively autonomous unit.

Table 19. Diplomas Awarded, Agricultural Education, by Level and Year

A2 and A3	1982	1983	1984	1985	1986
Agriculture	879	810	1150	1660	1550
Horticulture	6	17	10	9	11
Veterinary					
Science	121	83	48	113	193
Food Industry	7	14	8	8	10
Nutritional Science	--	--	--	5	7
<b>Total</b>	<b>1013</b>	<b>924</b>	<b>1216</b>	<b>1795</b>	<b>1771</b>

A0 and A1	1980	1981	1982	1983	1984	1985
A0 Yangambi	34	6	--	82	16	50
A1 Bengamisa	98	28	45	50	62	35
A1 Mondongo	31	20	23	19	33	26

Source : Commission Permanente des Etudes, Kinshasa, October 1986.

IFA at Yangambi has many resources: plantations, physical infrastructure (60 large brick homes and well-built academic, research and administrative buildings with room to expand if needed), a beautiful, non-distracting rural setting, etc. However, the constraints facing Yangambi have been devastating. From 1973 to 1977, the Belgian, Canadian and German Cooperations provided generous assistance, followed by the Rockefeller Foundation and UNDP, but to no avail. The lack of a good all-weather road to Kisangani, the lack of electricity and running water, and the lack of operating funds coupled with low salary scales for the Zairian staff have resulted in the departure of most of the expatriate and Zairian professional staff.

There is a shortage of laboratory supplies, books and professional journals, field equipment and vehicles. The absence of transportation to bring in basic family supplies or to get to the outside world encourages a feeling of oppressive isolation. Over the years, it has become abundantly clear that IFA is not a sustainable institution at Yangambi. The Faculty of Agriculture should be located in a more amenable area such that it can use the public facilities offered by a large urban center such as Kinshasa, Lubumbashi or Kisangani. The present situation at IFA-Yangambi cannot continue much longer as it is clearly a dead-end street.

The World Bank is presently financing a \$12 million project at the Ministry of Higher Education and Scientific Research (PRESU-Projet de l'Enseignement Supérieur et Universitaire). This is the first stage of a planned major involvement of the Bank with higher education in Zaire. The objectives of the present project are to improve management in the Ministry, to do manpower planning for Zaire up to the year 2000 and beyond, and to study in detail the constraints and needs facing 11 institutions of higher education in Zaire, including IFA and the two ISEAs. Out of this will come projects which will then be considered for financing by the Bank.

#### 1.4. Extension

Agricultural extension in Zaire suffers from many of the problems which are common in a number of developing countries in Africa. These problems are:

- low pay, lack of motivation, low status of the extension service, distrust from the farmers.
- multiple tasks: extension, tax collection, crop imposition, agricultural statistics, party duties.
- lack of logistical support: means of transport, office supplies, extension materials.
- lack of overall coordination and organization, duplication of effort and conflicting messages being extended (e.g., cotton versus food crops).
- lack of a backlog of farmer proven, tested varieties and recommended cultural practices, resulting in an absence of clear themes and messages for extension.

These constraints are formidable and cannot be easily overcome. There appears to be no shortage of extension staff in Zaire. In a survey undertaken by the DORD in 1988, a total of over five thousand extension agents were counted, including 3 percent of whom were at the A0 level, 2 percent at A1, over 10 percent at A2 and 85 percent at A3 and lower levels. Most of these individuals are in the 31-40 year age group (40 percent) followed by the 41-49 cohort (34 percent).

During the colonial period, all extension personnel (of which there were 500 Belgians) were part of the territorial administration, except for the cotton agents financed by the private cotton companies. This gave the extension service considerable powers to coerce, impose fines and jail sentences and to force adoption of improved seeds and cultural practices, in the name of the general "education" of the "irrational" farmers. The same occurred in the French colonies in Africa and to a much lesser extent in the anglophone countries. Much of this colonial spirit still prevails in the extension service. Extension is always mixed up with civic duty, patriotism, discipline, vigilance and basically the state thinking it knows what is best for the farmers. It is thus not surprising that there is an element of coercion in PRAAL, with PRAAL fields being picked and laid out by the extension agents. Farmers have always known this form of benign paternalism from the state and usually tend to go along with it, except in certain isolated cases, particularly in the cotton areas.

In the early eighties, the World Bank supported a cotton extension project in the Ubangi subregion that was cofinanced by Belgium. This project completely failed. From 1984 on, Belgium financed cotton extension in Maniema, North Shaba and Sankuru with a modified training and visit extension system. Up to four T.A. experts were in the field, but they have now all been withdrawn.

Over the last thirty years, there have not been any general attempts to revive the extension service. However, most donors made efforts in their area development projects to upgrade and support the extension service. In the same projects, a separate extension service was set up only loosely tied to the governmental service. Most donors also relied on NGOs for their outreach activities. There was generally a consensus that a nationwide overhaul and restructuring of the extension service was a nearly impossible task that was bound to absorb a lot of funds with only marginal impact. The fact that extension was also in a Ministry separate from the DOA (i.e., the DORD) with which they had less experience also held back certain donors.

The recently developed Africa strategy of the World Bank puts great emphasis on the operation of agricultural services of which upgrading of extension is the centerpiece. The World Bank's philosophy is to introduce Benor's (Benor and Harrison, 1977) concept of training and visit extension in 32 countries of Africa in a big way. His approach has already worked well in India and Indonesia: it is said that it has also begun to work well in Kenya, Côte d'Ivoire, and Burkina Faso. The World Bank considers Benor's approach a management system for agricultural services which includes credit, marketing, input supply and research. In this sense, it is a more systematic

approach to agricultural modernization. In countries where agricultural research is too weak, as in Zaire, it goes together with the strengthening of agricultural research. Adoption of the training and visit method (T&V) of extension is a precondition for Bank financing in extension.

The academic community is rather skeptical regarding the chances for success of T&V extension in Africa for the following reasons:

- Unless there is on-the-shelf, farmer-proven improved technology available, T&V will fail. There is doubt that such a backlog exists.
- T&V has proved its effectiveness in Asia, particularly for irrigated rice in monocropping. As most farming systems in Africa include intercropping and have a high degree of complexity, it is not clear that T&V is adapted to this reality.
- The basic tenet of Benor's philosophy is that farmers need to increase production to cover their own home consumption. However, in most countries (including Zaire) the challenge is to feed the rapidly growing urban population, which requires attention to rural infrastructure, in particular roads, marketing development and price policy.
- Other constraints which weigh heavily on the agricultural sector are not addressed by T&V, such as the disproportionate share of women's work, the lack of rural infrastructure and effective input delivery systems, labor scarcities, credit constraints, inadequate government policies, etc.

The GOZ and the Bank have now decided to start a pilot agricultural extension project in Zaire in three different areas where there is already a significant extension effort underway, thus capitalizing on past efforts:

- N. and S. Ubangi with Gemena as headquarters
- The area around Bumba in the Mongala subregion with rainfed rice as the focus
- Kwango-Kwilu with Kikwit as headquarters (successor to the Bank's CODAIK project)

A fourth area will be added soon in Kasai Oriental or Occidental, probably based in Tshilenge and Kabinda, or in North Shaba, and focusing on maize and cotton (successor to the PMKO project or to the North Shaba project).

At the same time, the DORD has created a National Extension Service (Service National de Vulgarisation). UNDP will provide T.A. to the National Extension Service with 3 experts and logistical support over 5 years (\$750,000 in 1989). The Bank's involvement at this stage is limited to \$1.5 million for the pilot phase but a commitment over a period of 15 years is planned. The contribution from the GOZ is budgeted at 185 million zaires.

The Bank places its strengthening of agricultural extension in an "Agricultural Services Operation Project." The project thrust is as follows:

- improve regional extension services to small farmers to increase food production, beginning in selected priority regions and using NGOs and the private sector.
- establish an extension management system.
- substantially trim and restructure the present extension service.
- rehabilitate veterinary services and promote smallstock, dairy and meat development.

Already 250 extension agents have been trained in Ubangi, in collaboration with C.D.I.-Bwamanda and a private cotton company (Coton-Zaire). INERA, BUNASEM and PNE are also involved. In principle, all crops and livestock will be included but emphasis will be on food crops. Input supply is not part of the project but will have to be provided by specialized services such as PNE and BUNASEM.

In conclusion, the World Bank is probably not taking into account sufficiently the stage of institutional maturity and absorptive capacity of Zaire (and other sub-Saharan countries) in its transfer of what is essentially an Asian model of extension. However, certain elements of the Benor approach (e.g., the discipline, organization, extension based on well-defined themes, etc.) may prove to be successful.

#### 1.5. Staffing and human resources

Nobody seems to be able to state how many civil servants are employed by the Ministries of Agriculture and Rural Development. Personnel records containing only the barest of information have not been updated in several years. The lower limit seems to be 11,000 and the upper limit 19,000. The most frequently cited figure is 14,000.

A recent report on the civil service (Département de la Fonction Publique, 1987) puts the total number of agricultural and rural development personnel at 12,000 (8,000 at the DOA, 4,000 at the DORD; 15 percent of the civil servants on the ministries' payrolls were fictitious). The composition of the DOA and the DORD is as follows:

1. Commissaire d'Etat	(2)
2. Secrétaire d'Etat	(2)
3. Secrétaire Général	(2)
4. Directeur	(8)
5. Chef de Division	(92)
6. Chef de Bureau	(570)
7. Attache de bureau de 1ère classe	(1,680)
8. Attaché de bureau de 2ème classe	(992)
9. Agent de bureau de 1ère classe	(2,425)

10. Agent de bureau de 2ème classe	(2,027)
11. Agent de bureau de 1ère classe	(2,373)
12. Agent de bureau de 2ème classe	(862)
13. Huissier	<u>(565)</u>
	11,600

Of this number, 5,732 are classified as technical personnel, subdivided as follows:

	<u>number</u>	<u>percentage</u>
Ingénieurs agronomes (A0)	206	4
Ingénieurs techniciens (A1)	125	2
Licenciés (toutes disciplines) (L2)	133	2
Médecins vétérinaires (A0)	160	3
Gradués vétérinaires (A1)	200	3
Diplômes d'humanités techniques (A2)		
Agriculture	561	10
Vétérinaires	177	3
Moniteurs agricoles (A3) et infirmières vétérinaires	<u>4,170</u>	<u>73</u>
	5,732	100

They are distributed by region as follows:

	<u>number</u>	<u>percentage</u>
Administration Centrale	254	4
Kinshasa	212	4
Equateur	869	15
Bandundu	918	16
Shaba	726	13
Haut-Zaïre	777	14
Kasai-Oriental	421	7
Kasai-Occidental	511	9
Kivu	512	9
Bas-Zaïre	<u>532</u>	<u>9</u>
	5,732	100

In projects and agricultural centers, the distribution is as follows:

a) Projects

1) C.D.	:	40	
2) C.B.	:	80 + 320	(in stations or sectors)
3) ATB1	:	560 + 160	(in stations or sectors)
4) ATB2	:	320	
5) AGB1	:	400 + 280	(in stations or sectors)
6) AGB2	:	320 + 560	(in stations or sectors)
7) AA1	:	80 + 40	(in stations or sectors)
		<u>-----</u>	
Subtotal	:	3,160	

b) Agricultural centers

1) C.B.	:	27
2) ATB1	:	27
3) AGB1	:	54
4) AA1	:	108
		---
Subtotal	:	216

This brings the total to:  $11,600 + 3,160 + 216 = \underline{14,976}$

According to a survey carried out in 1987 by the DORD in preparation for a large agricultural extension project to be financed by the World Bank, the technical personnel of the DOARD is as indicated in Table 20 (next page). This table only lists personnel engaged in agricultural extension or more precisely "encadrement" which has a somewhat larger meaning.

Table 21 below shows percentage distributions of personnel by level of training, overall and for the three higher-level groups shown in Table 20 (D6 and above) as well as for the lowest-level group. Only 5 percent of personnel are in the 21 to 30 year age group, showing both the effect of reduced public service recruitment because of the austerity measures and the structural adjustment policies and the decline of agricultural education in Zaire, particularly in the 1980s. Five percent of personnel are also ready for retirement. Comparison of the two broad educational levels shown in Table 21 reveals that the lesser-educated personnel are distinctly older and much more likely to have been hired prior to 1975. More bluntly, there's an awful lot of dead wood on the payrolls.

Table 21. Staff, inspectors and technical personnel of the Departments of Agriculture and Rural Development, 1987, percentage distributions.

## A. By age group

Level of training	Age Group					TOTAL	No. of staff
	21-30	31-40	41-49	50-55	55+		
D6 and above	6	59	30	4	1	100	784
Less than D6	5	37	35	17	6	100	4,312
TOTAL	5	40	34	15	5	100	5,096

## A. By period of engagement

Level of training	Period of Engagement				TOTAL	No. of staff
	before 1960	1961-68	1969-74	1975-87		
D6 and above	3	19	18	60	100	787
Less than D6	15	25	25	34	100	4,323
TOTAL	13	24	24	38	100	5,110

Source: Table 20.

N.B. Percentages may not add up to 100 due to rounding.

Table 20. Staff, inspectors and technical personnel of the Departments of Agriculture and Rural Development, 1987.

A. By age group

Level of training	Age Group					TOTAL
	21-30	31-40	41-49	50-55	55+	
Agronome		18	6			24
Veterinaires	5	78	12			95
Autres (L2)		25	5	1		31
<b>Sub-Total</b>	<b>5</b>	<b>121</b>	<b>23</b>	<b>1</b>		<b>150</b>
Agronome	2	23	8	1		34
Veterinaires		1	2			3
Techn. en DR + DC	1	22	7			30
Autres (G3)	4	18	6	1		29
<b>Sub-Total</b>	<b>7</b>	<b>64</b>	<b>23</b>	<b>2</b>		<b>96</b>
Agronome	22	153	105	18	7	305
Veterinaires	4	60	63	2		129
Autres (D6)	10	63	25	5	1	104
<b>Sub-Total</b>	<b>36</b>	<b>276</b>	<b>193</b>	<b>25</b>	<b>8</b>	<b>538</b>
Agronome	78	544	555	229	86	1,492
Veterinaires	15	166	168	55	25	429
Autres (PP5/P4)	41	174	117	25	15	372
PP4	30	173	120	36	11	370
PP3	44	447	421	339	94	1,345
Autres	8	71	124	61	40	304
<b>Sub-Total</b>	<b>216</b>	<b>1,575</b>	<b>1,505</b>	<b>745</b>	<b>271</b>	<b>4,312</b>
<b>TOTAL</b>	<b>264</b>	<b>2,036</b>	<b>1,744</b>	<b>773</b>	<b>279</b>	<b>5,096</b>

A. By period of engagement

Level of training	Period of Engagement				TOTAL
	before 1960	1961-1968	1969-1974	1975-1987	
Agronome		2	3	20	25
Veterinaires			2	93	95
Autres (L2)		1		30	31
<b>Sub-Total</b>		<b>3</b>	<b>5</b>	<b>143</b>	<b>151</b>
Agronome		4	4	26	34
Veterinaires		2		1	3
Techn. en DR + DC		3	2	25	30
Autres (G3)		3	6	20	29
<b>Sub-Total</b>		<b>12</b>	<b>12</b>	<b>72</b>	<b>96</b>
Agronome	19	84	76	128	307
Veterinaires	2	38	30	59	129
Autres (D6)	1	12	20	71	104
<b>Sub-Total</b>	<b>22</b>	<b>134</b>	<b>126</b>	<b>258</b>	<b>540</b>
Agronome	334	355	350	469	1,508
Veterinaires	56	142	95	124	417
Autres (PP5/P4)	26	45	106	189	366
PP4	16	82	137	150	385
PP3	144	413	356	426	1,339
Autres	80	55	49	124	308
<b>Sub-Total</b>	<b>656</b>	<b>1,092</b>	<b>1,093</b>	<b>1,482</b>	<b>4,323</b>
<b>TOTAL</b>	<b>678</b>	<b>1,241</b>	<b>1,236</b>	<b>1,955</b>	<b>5,110</b>

Source: Ressources Humaines en Vulgarisation Agricole, Enquête, Département du Développement Rural, 1988.

Agricultural civil servants suffer from the same adverse conditions as all public servants: low motivation because of poor or sometimes no pay, particularly for those located in remote areas. There is also a lack of performance-related incentives and of operating funds to carry out their duties. Training is inadequate and supervision is insufficient. No personnel evaluations have been carried out for several years.

Donor-financed projects, particularly from the World Bank and USAID, offer supplements (primes) that double or triple the regular salary. As not all directorates or divisions at the DOA and DORD benefit from donor-financed projects, this causes tensions and rivalries among staff. Divisions which have no donor-financed projects to top-up salaries tend to become the dumping ground for less-performing and less-able personnel.

The "Etude sur l'Emploi dans la Fonction Publique," as mentioned in the World Bank's Agriculture Sector Memorandum-Volume 2 (p. 74), concluded that nearly 10 percent of civil servants have no formal education whatsoever, while about 66 percent have only secondary school training. Particularly officers in the field suffer from a lack of upgrading of skills and little or no in-service training. The same World Bank document mentions (p. 74) that an FAO (1985) mission concluded that up to 40 percent of the agricultural field staff were too old and should be retired. As there is still a ban on recruitment as part of the austerity measures, early retirement is not practiced. Anyway, it is well known that field staff performs under the authority of regional governors and they are frequently used for political, administrative and other duties not related to their qualifications. Regional inspectors and their staff may be sent to the field to collect taxes on agricultural products or, as occurred on a large scale in Bandundu in 1988, to require purchase of a "carte de planteur" by all farmers. In 1989, it was reported that in Eastern Kasai and Maniema region cotton cultivation in designated areas has again been made mandatory, as requested by the cotton companies (La Cotonnière), with the approval of the regional governors, and the local agricultural field staff is charged with the implementation of this regional directive. However, the cotton office in Kinshasa (CSCO) objects to this practice.

The World Bank through the PAT II project is engaged in a study called: "Etude sur les attributions du Département de l'Agriculture et du Développement Rural." This study on the organization and division of responsibilities between the DOA and DORD has just started.

#### 1.5.1. Recommendation

Particular attention should be paid to the regional agricultural administration. It is proposed that a case study be made of the Shaba and Bandundu regional agricultural administrations in light of the importance of these regions for USAID's agricultural portfolio. In the study, the detailed regional organization of the DOA and the DORD should be described and the human resources available in each unit

should be listed. An assessment should be made of the adequacy of the present organization and human capital stock and proposals should be made for making the public administration for agriculture more effective. Ways and means for strengthening the public administration should be discussed, including the role which donor resources can play.

Such a study should include an inventory (fact finding) and assessment of the agricultural administration comprising:

- Detailed organization and division of responsibilities.
- Staffing at all levels including job descriptions (if they exist).
- Qualifications of all staff.
- Remuneration.
- B.O., B.I. and other budgets at the disposal of the regional agricultural administration.
- Equipment, vehicles and other resources available for the staff, including office quarters.
- Proposals for making the regional administration more effective with the present level of resources and with additional donor resources.

#### 1.6. Agricultural budget and funding

In attempting to assess levels and trends in public expenditures in agriculture, there are several points that should be taken into account. There are two key budgets for the Department of Agriculture: the Budget Ordinaire (BO), which covers recurrent expenditures or operating costs; and the Budget d'Investissement (BI), which is supposed to cover investment expenditures but often also includes some of the operating costs of projects because disbursements from BI are easier to obtain than those from BO. The BO does not include salaries for personnel -- these are paid by the Departement de la Fonction Publique for those who are permanent government employees, and by the DOA from a separate budget for those who are temporary (ordinarily project-affiliated) employees.

In addition, there are other GOZ departments and institutions that have expenditures which affect the agricultural sector. These other institutions include the Department of Transportation and the Office des Routes, INERA, SOFIDE, and BCA, among others. The focus here will be on the two principal budgets of the DOA. One further point of note is that budget allocations are no guarantee of actual funding. That is, actual disbursements of funds most often do not fully reflect the funds that have been approved and authorized in the budget.

Data showing the absolute and relative amounts of the BO and the BI for the Department of Agriculture are shown below in Table 22. Despite the fact that agriculture has time and again been proclaimed to be the priority of priorities, the data in the table make it abundantly clear that this message has never gotten through to those who determine the budget. Overall, BI and BO budgets for agriculture

amount to less than two percent of total public expenditures, and for the period covered by the table, the sum of these two budgets has failed to keep pace with inflation (i.e., there has been a shrinkage of the agriculture budget in real terms).

Agriculture's share of the total BO has declined during the 1980s, when public expenditures have been increasingly squeezed by debt service obligations. The BI for agriculture was quite low until 1987, when it jumped tremendously due to introduction of the Priority Investment Program (PIP) and linkage of the program to the BI. PIP is a three year public investment program that has been adopted by the GOZ, and for the 1988-91 period the agriculture sector is slated to receive just over 9 percent of PIP allocations.

The data in Table 23 (next page) show the breakdown of 1988-91 PIP projects within the agriculture sector. The lion's share of these projected expenditures will go to support production of food crops, with smaller amounts going to support livestock and cash crop production. Very little is allocated to marketing and to extension, and research and seed production are also areas that deserve greater attention.

Table 22. Recurrent and Investment Budgets for Agriculture<sup>1</sup>  
(Budget amounts and agriculture's percentage share)

	Year						
Budget 1988	1982	1983	1984	1985	1986	1987	
<b>Recurrent budget (BO)</b>							
Agriculture	217	202	186	265	308	610	699
Total	7391	12215	19413	33941	65484	106015	152777
Agriculture's share of Total BO (%)	2.9	1.7	1.0	0.8	0.5	0.6	0.5
<b>Investment budget (BI)</b>							
Agriculture	19	32	58	67	64	1556	1941
Total	1190	727	1400	2600	3424	13253	7805
Agriculture's share of Total BI (%)	1.6	4.4	4.2	2.6	1.9	11.7	24.9
<b>BO + BI</b>							
Agriculture	236	234	244	332	372	2166	2640
Total	8581	12942	20813	36541	68908	119268	160582
Agriculture's share of Total BO+BI (%)	2.7	1.8	1.2	0.9	0.5	1.9	1.6

<sup>1</sup> Agriculture is used here to refer to the Department of Agriculture and the Department of Rural Development.

Source: Bank of Zaïre and Budget de l'Etat 1988.

Table 23. PIP Projects in Agriculture, 1988-1991

Type of Project	Number	Cost (million Z)	Percentage Distribution
Food crop productivity	22	7,060	34
Livestock	13	1,921	9
Cash crops	6	1,464	7
Agricultural inputs	2	302	1
Agricultural services	14	2,019	10
Improved technology	4	230	1
Infrastructure, roads	1	1,336	6
Rural water supply	2	2,239	11
Research and seed production	2	2,255	11
Marketing	1	706	3
Research and forestry unspecified		1,413	7
<b>Total</b>		<b>20,945</b>	<b>100</b>

Source: Département du Plan.

There are four different budgets at the DOA and the DORD:

1) The Budget Ordinaire (B.O.): This budget covers recurrent expenditures or operating costs. For the DOA (including animal production) 311 million Z was foreseen in 1989 of which 244 million was for projects. This excludes salaries of personnel of the sous-statut category which are paid directly by the Département de la Fonction Publique and salaries of personnel of the sous-contrat (i.e., temporary) category which are paid by the DOA from a separate budget item which amounted to 707 million Z in 1989.

2. The Budget D'Investissement (B.I.): This is the investment budget of which the Programme d'Investissement Prioritaire (PIP) makes up over 90 percent of the total. For the DOA, the total B.I. for 1989 is budgeted at 1,866 million Z of which 1,745 million Z is for PIP. Many operating costs of projects are included in the B.I. because disbursement is much easier.

3. The Budget pour Ordre: This is really a slush fund at the discretion of the Commissaire d'Etat. He decides what this budget is to be spent on but he can only spend the Budget pour Ordre when there are receipts in this budget. Officially, the Budget pour Ordre deals with the financial operations carried out by the Government for third parties.

4. The Budget Annexe (B.A.): This is the budget for projects and for parastatals and covers salaries as well as operating costs. Other specific budgets for agriculture existed in the past and were abolished under pressure from the IMF/World Bank in 1987.

In addition, there are four other budgets relevant to agriculture that are of note:

5. Fonds de Conventions de Développement (FCD): This was a budget created from contributions of the private sector in the form of taxes on beer and drinks, cement, sugar, etc. These taxes were subsequently eliminated. The remainder of this fund is now with the Banque de Crédit Agricole.

6. Fonds Agricole: This amounted to a tax on agricultural exports, mainly coffee, and was a discretionary fund in the DOA. It had available about three times the funds released for the B.I. for the DOA in 1986 (i.e., 183 million Z for the Fonds Agricole versus 64 million Z for the B.I. released). This tax has since been eliminated.

There are still two special funds for the agricultural sector which are financed directly from parafiscal taxes. The World Bank is applying pressure to channel these funds directly to the central treasury but up till now, these funds still go to the respective departments.

7. The National Reforestation Fund: This fund gets its proceeds from a tax levied on logging by the forestry companies. In 1988, this amounted to 66 million Z or the equivalent of 47 percent of the B.I. allocated to the Department of the Environment.

8. The Rural Roads tax: Revenues are generated from a rural roads maintenance tax levied on sales of motor fuel. This is expected to reach 1,200 million Z in 1988. It is a tax similar to the roads tax that finances the Office des Routes.

#### 1.6.1. The Budget of the DOARD for 1989

##### A. B.O.

DOA	288.1 million Z + 19.3 million Z (animal production)
DORD	224.0 million Z
TOTAL	531.4 million Z or 1.5 percent of the GOZ Budget Ordinaire

To this should be added 707 million Z for the salaries of sous-contrat personnel of the DOA and 39 million Z for the DORD. The B.O. of the GOZ in 1989 amounts to 36.3 billion Z.

##### B. B.I.

DOA	1.9 billion Z: 1.7 billion Z for PIP (1.5 billion Z for PRAAL; the Conseil Legislatif approved 2.6 billion Z)
DORD	2.0 billion Z
TOTAL	3.9 billion Z or 19.2 percent of the GOZ Budget d'Investissement

The B.I. of the GOZ in 1989 amounts to 20.1 billion Z.

Recently, the allocations for agriculture have risen to more appropriate levels under the investment budget (PIP), although until 1987, the sector rarely received more than 3 percent of the investment budget.

In the past, the Government has tried repeatedly to increase the resources available to agriculture. Several times in the seventies and eighties, agriculture was designated as a priority sector and programs were drawn up such as the 10-year national development plan of 1970 or the three-year development plan 1982-1984. No effective mechanisms were developed to translate them into action plans as the financial resources were not made available from either the investment or the recurrent budget.

Given the importance of agriculture in Zaire in terms of its potential as a source of accelerated economic growth, employment and income generation, the GOZ should probably spend 10 to 20 percent of public sector funds in agriculture. Strongly increased domestic resources for agriculture would undoubtedly foster sustainability of donor-financed agricultural projects and would create an environment in which agricultural supporting services and infrastructure would nurture rapid agricultural growth with a good deal of equity.

Part of the explanation why the GOZ budget for agriculture is so small in absolute and in relative terms is the limited size of the total GOZ budget and the large part in it which is taken up by public debt servicing.

#### 1.6.2. The GOZ budget in 1989

The total annual domestic budget of the GOZ is quite limited for a country of 35 million inhabitants. For 1989, the total budget is estimated to be 333 billion Z or roughly one billion dollars (\$29 per inhabitant). As only a fraction of the budget is in fact released, the money actually spent is even less. This, of course, is related to the shortcomings of tax and duty collection. There are only about 11,500 regular taxpayers in Zaire, including all private companies. Only three civil servants at the DOF are charged with the enlisting of new taxpayers. Thus, the taxable base in Zaire is very small.

Gécamines contributes more to government finances than all income and profit taxes combined (for 1989, 83.3 billion Z against 73.6 billion Z). Public debt service (15.3 billion Z internal debt and 87.2 billion Z external debt) takes up 30.8 percent of the total estimated government expenses in 1989. Table 24 (next page) gives a breakdown of the 1989 budget of the GOZ.

One striking feature is that the two budgets which really matter to the Ministry of Agriculture and to all other Ministries (i.e., 36.3 billion Z for the B.O. and 20.1 billion Z for the B.I., together adding up to 56.4 billion Z), make up only 17 percent of the total budget of 333 billion Z. To this amount should be added the salaries of all civil servants "sous-statut" which amounts to 61.4 billion Z or 18.4 percent of the total budget.

## Table 24. Summary of the GOZ Budget for 1989

	Proposed by the Conseil Exécutif	Adopted by the Com. Economique et Financière
<b>I. <u>Prévisions des Recettes</u></b>	<b>31.698.580.554</b>	<b>329.071.873.954</b>
<b>1. <u>Recettes courantes et excpt</u></b>	<b><u>283.000.000.000</u></b>	<b><u>299.167.765.400</u></b>
- OFIDA	86.880.000.000	91.497.178.111
- Contributions	73.570.000.000	76.494.295.676
- Gécamines	83.300.000.000	88.500.000.000
- Pétroliers	15.750.000.000	18.461.730.000
- Recettes non fiscales	21.000.000.000	21.714.561.613
- Remboursement Prêts et Av.	500.000.000	500.000.000
- Recettes exceptionnelles	2.000.000.000	2.000.000.000
<b>2. <u>Recettes pour Ordre</u></b>	<b><u>28.698.580.554</u></b>	<b><u>29.904.108.554</u></b>
<b>II. <u>Prévisions des Dépenses</u></b>	<b><u>332.698.580.554</u></b>	<b><u>350.071.873.986</u></b>
<b>A. <u>Dépenses Courantes</u></b>	<b><u>264.541.580.554</u></b>	<b><u>269.892.586.986</u></b>
1. Rémunérations	66.329.038.916	68.269.750.391
2. Dette Publique	102.592.000.000	102.592.000.000
- intérieure	(15.347.000.000)	(15.347.000.000)
- extérieure	(87.245.000.000)	(87.245.000.000)
3. Fonctionnement	114.978.961.084	118.978.961.084
- Dotations	17.409.610.355	18.909.610.355
- Services Centraux	34.732.212.946	36.332.212.946
- Services Régionaux	940.957.263	940.957.263
- Dépenses Centralisées	17.547.134.731	17.547.134.731
- Frais Financiers	22.918.000.000	22.918.000.000
- Interventions Econ.	8.727.490.148	9.227.490.418
- Budgets Annexes	12.703.555.371	13.103.555.371
<b>B. <u>Dépenses en Capital</u></b>	<b><u>20.100.000.000</u></b>	<b><u>30.327.053.925</u></b>
<b>C. <u>Dépenses pour ordre</u></b>	<b><u>28.698.580.554</u></b>	<b><u>29.904.108.554</u></b>
<b>III. <u>IMPASSE</u></b>	<b><u>21.000.000.000</u></b>	<b><u>21.000.000.000</u></b>

The recurrent budget of the DOA has never exceeded 1 percent over the last five years. However, the budget for infrastructure (transport and public works) has not reached 2 percent since 1984, and the education budget (all levels) and public health budget have also been very small in recent years (cf., Table 25 below). Indeed, it is evident from the table that the principal casualty in the budget as a result of the sharp increase in the debt burden beginning in 1984 has been the education sector.

The heart of the matter is that sovereignty, central and administrative expenses (salaries of all public servants), and debt servicing over the last five years have taken up over 95 percent of the recurrent expenses, leaving virtually nothing for the productive and social sectors. Since 1984, debt servicing has taken up 40 to 50 percent and more of the recurrent expenses.

With debt relief as announced by bilateral donors in 1988 and 1989, some room will be created in the budget for more productive expenditures. For the last six months of 1989, debt forgiveness and rescheduling is projected to add up to a budget saving of 700 million to one billion Z and for 1990 to 12 billion Z (\$30 million). If it is decided to allocate a fair share of this saving, say 20 percent, to

Table 25. Recurrent Expenses in the GOZ Budget  
(percentage distributions by year)

Category	1980	1981	1982	1984	1985	1986	1987	1988
Sovereignty expenses	21.4	16.1	24.2	16.7	11.8	23.4	15.8	18.8
Presidency/Pol. institutions	10.5	10.9	14.5	10.1	7.3	16.7	7.8	9.4
Army	10.9	5.2	9.7	6.5	4.6	6.7	8.0	9.4
Central expenses	7.3	11.7	7.9	23.4	22.0	25.3		
Central admin.	15.7	13.8	21.1	11.5	5.9	5.1		
Public debt	22.6	21.2	14.5	41.6	57.6	42.9		
Infrastructure	4.5	4.7	5.4	2.9	1.0	1.4	1.01	0.68
Transport	0.8	0.7	0.7	0.2	0.0	0.0	0.01	0.08
Public works	3.7	4.0	4.8	2.7	1.0	1.4	1.0	0.06
Productive sectors:	1.5	1.9	2.1	0.8	0.4	0.2	0.64	0.12
Agriculture	1.4	1.8	2.0	0.8	0.4	0.1	0.06	0.07
Mining	0.0	0.1	0.1	0.0	0.0	0.0	0.04	0.05
Social sectors:	27.0	30.6	24.9	3.1	1.3	1.7		
Education	23.7	26.9	20.6	0.8	0.4	0.8		
Health	3.0	3.4	4.0	2.2	0.8	0.8		
Sports	0.3	0.2	0.3	0.1	0.2	0.1		

Source: Banque du Zaire, Rapport annuel and Département des Finances.

the agricultural sector, a marked improvement in the agricultural budget could be realized. The key issue is how domestic political support can be mobilized to invest in the basic agricultural institutions and in agricultural development. This is probably going to be a slow, evolutionary step-by-step process. Donors involved in the debt forgiveness process could put pressure to bear on the allocation of the budgetary saving. In a sectoral approach, USAID could use its leverage to bring the agricultural budget up to a reasonable level.

Donor-supported projects have carried an extraordinary weight in agricultural development and sustainability issues have been an academic exercise in futility. In a sector-based approach of aid giving and in the ensuing policy dialogue, such issues cannot be avoided and need to be addressed. Building commitment -- political or otherwise -- becomes the central issue and a strategy needs to be developed for building commitment. One idea that is proposed here is to tie incremental donor funding for the agricultural sector to matching funds from the recipient government. If this or other strategies do not work, one is obliged to consider the aid effort as of a short-term, humanitarian nature, a device for buying time until the conditions are right for a real human capability/institution building model of development.

Regarding the allocation of funds to agriculture, the study commissioned by the DOP, "Etude sur les dépenses publiques du secteur agricole" (Smits Engineering, 1989), states that the only criterion which is followed is the amount of the total request of the DOARD. Once the total government budget is known, each Ministry supposedly is allocated a share which is proportional to its request. Thus, the Ministry which does not grossly overestimate its budget loses out.

From information gathered it appears that the following guidelines are followed:

- For the B.O., last year's allocation is the principal guide. The DOA has a poor reputation for submitting realistic budget requests. Many divisions do not even bother to make a budget request, given the difficulties with disbursement of the B.O. It is mainly the DOB and to a lesser degree the DOF which decide on the B.O. Apparently, all Ministries in Zaire complain about the limited B.O. which is available. For 1989, it is to be noted that B.O. budget requests of the DOA amounted to only 205.6 million Z while the DOA was in fact allocated 288.1 million Z. The DOA is perhaps the only Ministry which was allocated more B.O. than it had requested, indicating the weakness of DAGP and the DOA.

- For the B.I., of which PIP is the largest share, there exists a 3 year rolling PIP programming (Dept. du Plan, June 1988). There are also quarterly reports made on the disbursements under PIP. World Bank consultants are heavily involved in the PIP programming process. Thus, the World Bank has a large influence on the PIP allocations to agriculture. More specifically, the World Bank is quite effective in barring certain projects from PIP. Several times, they

have made the Mushie Pentane sugar project disappear from PIP as they believe that it is an unprofitable project with a negative internal rate of return. The GOZ has now opted for small-scale sugar processing plants (mini-sucreries).

In addition, circumstances of the moment can play an important role. Recently, President Mobutu announced on the radio an additional 20 billion Z allocation to agriculture, particularly for feeder roads. The DOP knows that it is not possible to honor this commitment. But the presidential announcement will have a marked effect on the 1939 PIP allocation to agriculture which will be close to 10 percent of the total PIP. The Cométat and Secétat of the DOP are heavily involved in the final cut-up of the investment budget.

The "Commission de dépenses en capital" at the DOP is the body which divides up the total B.I. for the different Ministries. This commission is also called "la grande commission budgétaire" and is composed of representatives of the DOP, the DOB, the Presidency, the Conseil Legislatif, and the DOF. There is no representative of the DOA in this commission.

Part of the problem in budget preparation is that the overall envelope or allocation is not known in May-June when the process starts. Secondly, as the release of funds once the budget is allocated is always uncertain, depending on sufficient funds being available at the Bank of Zaire, many budget requests are made totally out of proportion, without due justification. As a result, the whole budget preparation process is not taken very seriously. Even if somebody carefully prepares a budget, with appropriate justification, etc., the allocation and release of funds might be totally arbitrary, thus discouraging a serious, well-intentioned budget preparation process.

Overall, the PIP preparation process seems to be more serious and dependable. Thus, there is a tendency to put everything in PIP, even if the activity is not related to investment. A lot of PIP funds go toward the payment of operating expenses such as travel, missions, etc. PIP also includes a number of "institutional projects" (i.e., where there is no formal project and no outside financing of a unit in the DOA, it is still possible to make up a project for that unit and request PIP financing).

Every year in January-February, the PIP list of projects is revised in the DOP in consultation with the World Bank. For agriculture, SEP and DAGP are involved through the Secretary General's Office of the DOA. For new projects, SEP is the main actor and for existing projects, it is DAGP. Once in the rolling PIP plan, annual financing is assured.

Certain projects (e.g., CECOMAF) have been in the B.I. for the last fifteen years. Even if there is no donor financing in a directorate of the DOA, PIP financing is possible if an "institutional project" is made. However, the allocated funds are usually small. Once listed in PIP, it is easy to stay there. Most projects have a tendency

to become permanent. Sometimes, the DOP transfers a project from PIP to the B.O. without explanation.

#### 1.6.2.1. Recommendation

In order to ensure GOZ financing of USAID-sponsored projects, enlisting in PIP is mandatory. Such enlisting can be assured through negotiation in the mixed commission or as part of or as a covenant to a project agreement.

#### 1.6.3. Importance of PRAAL in PIP

PRAAL is a Zairian initiative, conceived in the upper echelons of the Government and party. It succeeds previous programs such as:

- PAM: programme agricole minimum (1979-1982)
- PAC: programme agricole continu (1983-1985)

PRAAL started in 1987 as centerpiece of the 5-year development plan (plan quinquennal 1986-1990). It is the Zairian action program for agriculture in areas where there are no donor-supported projects. Most of the funds go for the payment of seeds, fertilizers, primes for local agricultural staff (moniteurs agricoles, agronomes de zone,...) and field visits from supervisory staff from the DOARD (missions d'inspection). Although PRAAL is located in PIP, most of its expenses are in fact recurrent expenses. In the DOA work program for 1989, over 90 percent of the activities relate to PRAAL. But PRAAL is poorly connected to donor efforts in the agricultural sector. One has the impression that donors have "their" projects and the GOZ runs PRAAL. In addition, there have been reports of coercion (along the lines of cultures imposees) associated with PRAAL.

In PIP, PRAAL takes up most of the funds. In 1988, out of a total B.I. of 463 million Z paid out, 323 million (70 percent) went to PRAAL. Of the total B.I. which was approved (B.I. accordé), 871 million Z, only 463 million Z or 53 percent was effectively paid. However, for PRAAL, the approved budget was 400 million Z of which 323 million Z (81 percent) was paid. This contrasts sharply with the execution of the non-PRAAL portion of the budget: only 30 percent of non-PRAAL approved funds were in fact paid out.

#### 1.6.4. Disbursement of funds

There are four distinct phases in the procedures for the disbursement of funds:

- engagement
- liquidation
- ordonnancement
- paiement

##### a. Engagement

This is the introduction of a request for payment on a standard form.

b. Liquidation

Is a verification procedure to establish that a payment is consistent with a line item in the budget.

c. Ordonnancement

This is the writing of an order to pay, whereby the expense is properly imputed against a budget item.

d. Paiement

This is the actual payment of the funds.

The procedures are different for the B.O. and the B.I.

(i) B.O.

Engagement and liquidation involve the DOB. For liquidation, a visa or approval of the Secétat of the DOB is necessary and a signature is required of the Secétat of the DOF. Ordonnancement and payment are handled by the DOF.

For operating expenses, the procedure to release funds is long and tedious and dates back to 1969 legislation (loi sur les marchés publics). For expenses less than 7,500 Z, agreement (gré à gré) can be made with a local firm. For expenses between 7,500 and 15,000 Z, limited public bidding (appel d'offre restraint) is required; for expenses above 15,000 Z full public bidding (appel d'offre public) is required. Public bidding is organized by the "Conseil des Adjudications" or the Council on Public Bidding. This discourages most services of the DOA from following this route.

There exists a shortened procedure. For urgent purchases, an exemption can be requested which takes about one month to obtain. A "bon d'engagement" is sent to the DOF. When the "bon" is signed, it is sent together with the invoice to the DOF which pays the bill in about six months. Obviously, no firm in Kinshasa is prepared to wait six months for payment of a bill. Thus, even this "speedy" procedure is not very helpful.

Since 1988, another procedure has been approved by the DOF for small expenses such as office supplies and urgent repairs for office equipment. Funds are made available (mise à disposition de fonds) to the DOA, on average one million Z per month, and the expenditures are justified ex-post.

For institutional projects, the funds are released in one lump sum. This has induced many DOA services to create an institutional project. In fact, most of the directorates are now an institutional project and benefit from this rapid procedure.

Mission expenses are approved by the DOF on request by telephone from the Secretary General's office.

In conclusion, the regular procedures for the release of B.O. funds are not practical, except for mission expenses. The only way for

a directorate to acquire some B.O. funds is to organize an institutional project. The sums involved are quite small and as a result, most services in the DOARD cannot operate adequately without donor financing.

(ii) B.I.

Every two weeks, a "commission plan-finances" meets at the DOP and decides on the release of investment funds in light of the funds available at the Bank of Zaire for investment. This commission is at the level of the Cométat and/or Secétat and allocates the funds in line with the budget and with the urgency of the moment. Once the release of funds is approved by this commission, the DOF transfers the funds to the DOP which in turn puts the funds in the proper project accounts which are usually at the BCA. The heads of projects authorized to withdraw project funds can then request payment, either as a lump sum or as needs arise.

1.6.5. Control and auditing the use of funds

Control on the proper use of the funds withdrawn by project heads and civil servants of the DOARD is not regular and, more seriously, is performed by the same services as those that request funds. The DOP and the DOF regularly embark on control missions, particularly in the field, involving travel and mission expenses. Also the DOA and in particular DAGP are charged with the auditing of accounts, sometimes with SEP. In some cases, expatriates at the DOA are involved in audits.

In principle, the four (out of the ten which are planned) inspector generals in the Secretary General's office are charged with control and inspection. On request of the Secretary General, they carry out such missions, particularly for PRAAL. The regional inspectors with the rank of head of division and under the authority of the regional governor are also involved in inspection.

In conclusion, there is no separation between those who request and receive funds and those who control and audit the accounts. This, of course, is at the source of many irregularities and "rent seeking" activities. There should be an independent auditing organization in the government (cour des comptes) charged with control of the use of public funds.

It is also improper that there is no central paying authority at the DOARD. There should be only one office in charge of paying all bills, expenses, etc. as in most public services around the world. This would greatly facilitate the disbursement of funds and the timely payment of all expenses. Moreover, it would greatly facilitate central control and auditing.

2. Private Organizations

## 2.1. Agro-Industries

Agro-industries are prominent in Zaire's industrial structure. After the extractive industries (mining, petroleum production) and parastatal public utilities (electricity, transport), agro-industrial firms top the list in total turnover.

Of the 50 largest industrial companies in 1987, including parastatals such as GECAMINES (n. 1), SNCZ (n. 4), SNEL (n. 5), ONATRA (n. 6), MIBA (n. 8), PETROZAIRE (n. 10), ZAIRE SEP (n. 12), CMZ (n. 13), AIR ZAIRE (n. 20), REGIDESO (n. 21) and CINAT (n. 44), 18 were typical agro-industrial companies such as the breweries and soft drink companies [BRALIMA (n. 7), UNIBRA (n. 9), BRASIMBA (n. 18), SBK (n. 28), CIB (n. 33)], the tobacco companies [TABAZAIRE (n. 11), BATZAIRE (n. 22)], the flour mills and bakeries [MIDEMA (n. 15), QUO VADIS (n. 32), UPAK (n. 50)], the diversified food and soap manufacturers related to palm oil production [MARSAVCO (n. 19), PLZ (n. 23), AMATO (n. 39), SORGERI (n. 46)], sugar companies [CIE SUCRIERE DE KWILU-NGONGO (n. 29)], forestry companies [SIFORZAL (n. 34)], and plantation-ranching companies [SOCIETE DES CULTURES (n. 47), JVL (n. 48)]. Two parastatals are also agro-industrial companies, DAIPN (n. 40) and GECAMINES DEVELOPPEMENT (n. 45). Other companies use agricultural raw materials such as the textile mills [HASSAN (n. 14), SOTEXKI (n. 27), SOLBENA (n. 35), CPA ZAIRE (n. 36), and UTEXAFRICA (n. 41)], or the tire manufacturer GOODYEAR (n. 30). Thus, of the 50 largest industrial companies in Zaire, over half or 26 are directly or indirectly related to agriculture (Conjoncture Economique, December 1988, pp. 287-289).

Most agro-industries in Zaire are to some extent vertically integrated and diversified. They were usually established during colonial times and in many cases own a lot of real estate in the interior and in the major cities. Income from urban real estate helps carry them through periods of low profitability. Most also have at least one exportable commodity which assures them a minimum of foreign exchange. Because of the uncertain investment climate since the zairianization measures in 1973-74, very little new investments have been made and most of the plant and equipment is old.

Hereafter, the textile companies and the tire manufacturing company will not be discussed.

### 2.1.1. The plantation companies

There are a number of large, diversified, vertically-integrated plantation companies which date back to the colonial period. The most prominent one is PLZ (Plantations Lever au Zaire), founded in 1911, which employs over 13,000 people and has 27,594 ha of plantations. PLZ was the only plantation company which escaped zairianization, officially because they had always continued to invest since independence and had made a determined effort to put Zairian staff in management positions. PLZ produced 31,871 tons of palm oil in 1987, almost half of the national production, in ten different plantations. They also produce rubber, tea and cocoa.

The second largest plantation company is the "Société de Cultures au Zaïre" with two large plantations at Binga and Bosondjo in the Equateur region. They produced 15,015 tons of palm oil in 1987 and also rubber, coffee and cocoa. The third largest company is Groupe Agro-Pastoral (GAP) which was recently acquired by the African Holding Company owned by the Blattners. GAP groups together about 15 different companies, the most important plantation companies being SCAM in Tshela, BUSIRA-LOMAMI, COMPAGNIE DU COMMERCE DE BANDUNDU (CCB), and COMPAGNIE DES PRODUITS (CCP).

There are 17 other smaller companies producing from 2,000 to 4,000 tons of palm oil and some coffee and/or cocoa.

#### 2.1.1.1. Palm oil

There are a total of 59,442 ha of plantations in production and 8,510 ha which are yet to come into production (of which about half, or 4,865 ha, is for PLZ). Export of palm oil is now prohibited and some refined oil from palm oil originating from Malaysia and Indonesia via Singapore is now available on the Kinshasa markets. PLZ processes palm oil into various kinds of soap, table oil and margarine.

#### 2.1.1.2. Rubber

There was a total of 40,624 ha planted in 1988 with 29,223 ha in production, 3,145 ha not yet in production and 8,256 ha abandoned. Total production of rubber has stabilized around 13,000 tons, about 2,000 tons of which are being used for local production of tires and other rubber products (GOODYEAR). About one fifth of the existing plantations are abandoned for lack of local labor (rubber tappers). The largest producers are PLZ followed by GAP, Cultures Zaïroises and Société de Cultures. Rubber produced in Zaïre is of relatively poor quality, rubber smoked sheets, while most of the rubber now produced in the Far East (Malaysia, Indonesia) is of the crumb processing technology.

#### 2.1.1.3. Cocoa

In 1988, a total of 11,258 ha were in production and 1,800 ha were new plantations not yet in production. The largest producers are PLZ, GAP and SCIBE-ZAIRE. This last company is also managing the state-owned CACAOZA plantations financed by the E.C. in the 1970s. There are also a large number of small producers.

The ADB and the African Development Fund finance an important cocoa project near Bengamisa. It comprises 3,750 ha of industrial plantations and 1,750 ha of smallholder plots (projet CABEN), but planting has been running behind schedule.

#### 2.1.1.4. Coffee

Coffee production is concentrated in three regions: Equateur, Haut-Zaïre, and Kivu. The importance of the Kivu region has been

growing over the past ten years, and the importance of the plantation sector in Zaire's coffee production has been declining. At present, it is estimated that the plantation sector accounts for 40 percent of total planted area and 60 percent of production. There are perhaps 300,000 ha under cultivation for coffee. The principal plantation companies involved in coffee production are CELZA, SCIBE, Domaine de KATALA, PLZ, and UNIBRA. There are six major coffee processing factories in Zaire -- five in Kivu and one in Haut-Zaire. Most factory equipment is modern, having been installed after 1976, but maintenance has been a problem.

#### 2.1.1.5. Tea

Tea is grown in the mountainous parts of Kivu above 1,500 m. There are 2,656 ha in production and 608 ha not yet in production. Most of the new plantations were established in the sixties and seventies with E.C. financing. The largest producer (one third) is PLZ, and other major producers are BUTUHE (managed by PLZ), IRABATA and the Société de Plantations de M'BAYO.

#### 2.1.1.6. Cinchona

Four companies control all cinchona production in Zaire and one company, PHARMAKINA, controls all of the processing. There are only five companies worldwide that control all production and processing.

#### 2.1.2. The forestry companies

The bulk of the forestry companies are located in the central basin of Equateur, Haut-Zaire and northern Bandundu. The dense forests of the Central Basin contain over two hundred species of trees. Over fifty percent of the total volume of wood is marketable. Total production in 1987 was 315,000 m<sup>3</sup> of which 112,000 were exported as logs, sawwood and veneer.

SIFORZAL, a joint Zaire-DANZER enterprise, is the principal forestry company. It accounts for half of Zaire's forestry production. The company is managed by DANZER, a German forestry company, works five sites in the central basin and presently has over 1,700 employees.

SOCOBELAM, a joint Zaire-American company, is the second largest producer in Zaire followed by FORESCOM, a state-owned enterprise (after the zairianization) managed with the assistance of the Canadian Government, AGRIFOR, Industrie Zairoise des Bois, SOKINEX and SOKIBOIS.

#### 2.1.3. The food, drink and tobacco companies

Among these, the breweries, flour mills, bakeries, tobacco and sugar companies are the most important.

### 2.1.3.1. The breweries

The breweries (6 companies) are prominent among the agro-industries. They use large quantities of locally-produced maize and rice. They manage to produce beer with a minimum of imported malt and use some sorghum as a substitute. One large brewery company, UNIBRA, has started a diversification program acquiring plantation and agro-industrial companies. Apart from beer, they produce cookies, baby food, plastics, kitchenware and utensils, textiles, charcoal, coffee, etc. and sell general merchandise in rural areas as a complement to the buying up of coffee, cotton, maize, rice, etc. Recently, the consumption of beer has been stagnating because of a combination of higher relative price of beer, higher taxation, and stagnant purchasing power of the population. The two largest breweries, BRALIMA and UNIBRA, also own a lot of real estate in Zaïre.

### 2.1.3.2. The tobacco companies

They used to import most of their tobacco from Zimbabwe but, over the last decade, because of a shortage of foreign exchange, they have set up tobacco plantations surrounded by smallholder tobacco growers from whom they buy on contract and to whom they provide extension services. One of the companies now has an exportable surplus of tobacco which serves to import specific types of tobacco for special blends. It is apparent that the vertical integration of tobacco companies to include production by smallholders to whom they provide T.A. has been a success.

### 2.1.4. The flour mills and the bakeries

The largest flour mill is located at the port of Matadi and is a subsidiary of Continental Grain Co. (MIDEMA). Large quantities of wheat are imported in the form of P.L. 480 shipments and milled by MIDEMA. There is, however, stiff competition from commercial (subsidized) flour imports from the E.C.

There are four large industrial bakeries in Kinshasa which dominate the market (QUO VADIS, UPAK, BKTF and PANIZA). There are also a large number of small artisanal bakeries and specialized bakeries for special bread and pastry.

The major maize flour mills are located in Shaba and in particular in Lubumbashi. GECAMINES-Development is a major operator. Private companies active in maize milling are AMATO and TARICA.

### 2.1.5. The sugar companies

Zaire has three large sugar estates. The largest and oldest one (1925) is the Kwilu Ngongo estate in Bas-Zaire which produces about 60,000 tons of brown-gray sugar per year from cane plantations which are not irrigated. The plantation is located in a fertile valley where the company has a large land concession. A \$26.4 million loan from the World Bank in 1981 enabled a replacement of old equipment of the mill and an extension of the plantation. The Compagnie Sucrière de Kwilu-

Ngongo also owns the largest soft drink company (CIB) and produces alcohol for drinking and for industrial uses and carbonated gas and other gases for industrial use (oxygen, acetylen).

The second largest producer is the Kiliba estate (1958) in Kivu's fertile Ruzizi valley near Lake Tanganyika. They produce 10,000 to 15,00 tons of raw sugar per year and supply the east of the country. The third and only post-independence sugar estate is at Yawenda-Lotikila opposite Yangambi, in the middle of the rain forest. This plantation was created in 1984 as the largest Chinese agricultural project in Zaire. A 2,500 ha plantation was established together with a processing plant. Technical problems at the mill, a stem borer infestation in the cane fields and low sugar content of the harvested cane have necessitated GOZ subsidies to keep the estate alive. It is a prime example of a technical failure, the estate being located in an unsuitable area near the equator with relatively low solar radiation because of frequent clouds. Sugar production in 1986 was only 2,600 tons.

Consumption is very low - an average 3 kg per person per year - mainly because of lack of purchasing power. Until 1984, domestic sugar production covered local consumption. Thereafter, imports gradually increased. Zaire now imports sizeable quantities of sugar, 20,000 to 30,000 tons, principally from the E.C., the Congo, and Malawi. An anti-dumping tax of 50 percent protects domestic sugar production and is supposed to enhance its profitability.

All three existing sugar companies in Zaire are in financial difficulties. Sales barely cover operating expenses, and they are unable to maintain their plants and equipment adequately to ensure long-term efficient operations (cf., World Bank Agriculture Sector Memorandum, Vol. 2., P. 147).

#### 2.1.6. The biscuits, candy and sweets companies

The most important of these companies are controlled by either a brewery or a large industrial bakery. The largest manufacturer of biscuits (VAP) also produces baby food and has received assistance from USAID for that purpose.

#### 2.1.7. Agricultural input manufacturing and distribution

There are two manufacturers of small farm tools in Kinshasa, CHANIMETAL and UMAZ. The former is a large shipbuilding and metal industries company which produces farm tools of high quality. The latter is a joint Zairian-Chinese venture created in 1979 which has a history of financial difficulties. It produced 80,000 hoes and 2,150 axes in 1987; CHANIMETAL produced 92,000 hoes, 496,000 machetes and 44,000 shovels. Most of the small farm tools are produced by village blacksmiths from scrap metal. They are usually of lesser quality but much cheaper. As nearly every village has at least one blacksmith, commercial production and distribution of small farm tools is very limited.

Apart from locally-produced seeds and small farm tools, most agricultural inputs need to be imported. This is the case for all chemical fertilizers. There are no bulk blending facilities at the port of Matadi or in Kinshasa and thus, all fertilizers that are imported need to be at the correct specification, which is often a problem.

Fertilizer marketing and distribution takes place through three distinct channels:

1. The large agro-industrial companies import directly for their own account via their overseas representations.
2. Local representations of large multinational chemical companies (BASF, HOECHST,...) or trading companies accept orders for fertilizers and import them on request. Usually, payment in advance is required. In Shaba, orders are usually placed with representatives of companies from southern Africa (Zimbabwe, South Africa).
3. The National Fertilizer Program (PNE) imports fertilizers from donors (Belgium, United Kingdom, Japan) or through a line of credit from the ADB. These fertilizers are distributed in fertilizer demonstration trials and are also distributed directly to smallholders or to small and medium sized farms.

GECAMINES-Développement represents about 40 percent of the total market for fertilizers. The national railway (SNCZ) is also a large buyer for its maize production farms in Shaba. More than 50 percent of all the fertilizers imported in Zaire are used in the Shaba region for maize production.

In conclusion, there is as yet no private reliable distribution system for fertilizers in Zaire under which fertilizers are readily available.

Lime is produced locally in the cement factories but there is no tradition of using lime in agriculture. Research at INERA and RAV has shown that small quantities of lime (500 to 1000 kg/ha) can have a dramatic effect on yields of certain crops, e.g., groundnuts and grain legumes.

Veterinary products are imported and distributed by the multinational companies that produce them and are represented in Zaire. There are two state-run veterinary laboratories (in Kinshasa and Lubumbashi) producing vaccines for cattle and poultry. The National Livestock Development Office (ONDE) operates a series of veterinary stores (DPMVE) in Kinshasa, Lubumbashi, Kamina, Kalemie, Mbanza-Ngungu, Mbuji-Mayi and Libenge. They sell mineral supplements, vaccines, and a range of veterinary drugs; but they have difficulties in their efforts to be self-supporting.

Pesticides are also imported and distributed by local branches of multinational companies. Crop protection chemicals for coffee and cotton and storage preservation products are the main pesticides used

) in Zaire. The five major importers in 1986 (in value) were in order of importance: Ciba-Geigy, Mobil Oil, Bayer, Sebelgrave and Hoechst. (Smits Engineering/Stabo, Etudes des Intrants Agricoles, September 1987).

The cotton subsector is the only one where insecticides are applied on fields of smallholders. However, spraying is organized by the private cotton companies which receive the insecticides from CSCo.

#### 2.1.7.1. Constraints on the development of private agricultural input marketing

One of the major reasons why private agricultural input services are not developing more rapidly has to do with the vertically-integrated structure of most agro-industrial companies and the turnover tax (CCA) system.

Already in the colonial days, the agro-industrial companies developed as fully vertically integrated structures. Typically, they had their headquarters in Europe, an administrative and logistics center in Kinshasa, and the field operations deep in the bush near a navigable river. Even the religious missions are organized this way via their "procure" in Kinshasa.

Typically, the agro-industries import directly from Europe and in fact bypass completely the wholesale and retail structure in Zaire, except for locally produced goods. This is still the way most agro-industrial companies operate with respect to their imports of agricultural inputs, trucks, spare parts, etc. This organization has been reinforced by the existence of the turnover tax or CCA (Contribution sur le Chiffre d'Affaires) which needs to be paid at each change of hands and is thus a cumulative tax on the gross value of the product. As the CCA taxes are fairly high, there is a large incentive to pay it only once, i.e., at the importation, thus favoring a vertically integrated structure.

The CCA rates range from 3 to 20 percent on the gross sales value. For imports, this tax is calculated on the CIF import value augmented by the applicable import duties and taxes. The CCA is 3 percent on agricultural inputs, on industrial raw materials and goods with a social value. But the 3 percent is calculated after the minimum import duty of 10 percent has been added to the import value (no exception for fertilizers!). For all other goods and products, the CCA is 20 percent. Thus, the CCA system discourages the development of specialized wholesale and retail operations for most goods and is a constraint on the development of private agricultural input marketing.

#### 2.2. Private sector agricultural research, extension and information services

The largest Non-Governmental Organizations (NGOs) carry out some adaptive research on food crops. This is the case for C.D.I.-Bwamanda in the Ubangi subregion of Equateur, which has variety trials on cereals, legume crops, soybeans, tree crops, and fruit trees and

conducts trials on fallow management, fertilization, and poultry production. Two full-time expatriate researchers (volunteers) are engaged in these activities and the E.C. has expressed its readiness to finance their work. Such activities were started in 1982 for the food crops and in 1977 for the poultry operations. Other NGOs also conduct some variety trials. Most large agricultural development projects also have some adaptive research activities.

Some limited coffee improvement is taking place near Isiro in the NGO GENAGRO which depends on Prof. Louant of the University of Louvain-la-Neuve in Belgium. This includes variety improvement and breeding for resistance to tracheomycosis which devastates coffee plantations in Haut-Zaire.

Regarding perennial crops, the Société de Cultures au Zaire at Binga (near Lisala) has had a perennial crops research center in operation for the last fifteen years. It includes breeding and selection of oil palm, coffee, cocoa and rubber and PLZ shares the cost of the research operations. One particular focus of their research has been wilt (*Fusarium*) resistance of oil palm and resistance to swollen shoot disease in cocoa. Four expatriate researchers are at Binga.

After independence, the best selection material from Yangambi and Bongobo INERA stations was duplicated at Binga. They also regularly import improved planting material from the French research system (CIRAD) in Ivory Coast, Cameroon and from the Far East.

Thus, Binga supplies the improved planting material for most of the large-scale plantations. The Belgian Aid Mission has regularly provided limited financial support for tree crops research at Binga.

The cinchona companies PHARMAKINA and KINAPLANT operate their own research in their plantations and laboratories. The major research focus is on resistance to *Phytophthora Cinnamomi* which destroys cinchona plantations. PHARMAKINA employs 3 expatriate researchers and is reported to have a budget of two million DM for research. KINAPLANT also operates a research station.

The JVL livestock company based at Kolo in Bas-Zaire and Mushie in the Bandundu region has over the last 50 years improved a local Ndama livestock breed which is known for its trypanotolerance. The JVL improved Ndama breed is now well known in West and Central Africa as they have exported breeding stock to the Congo, Gabon and Ivory Coast.

Thus, private sector agricultural research is important in the perennial crops subsector. This is not surprising when one realises that INEAC had its roots in the Régie des Plantations, created in 1923 by the private plantation sector to improve palm oil. Unfortunately, there is very little public knowledge available about tree crops research at Binga since the private sector keeps its research achievements hidden from the public eye.

Regarding extension and information services, all NGOs active in agricultural development have extension activities in light of the weaknesses of the state extension services. Plantation companies traditionally did not provide any extension services or planting material to the smallholders surrounding the plantation as the policy was to include everybody in the plantation and enlist as many as possible as salaried workers. This has now broken down as many workers have moved outside the plantations. Smallholder coffee and oil palm production has been developing over the last decade but usually without any support from the plantations. The GOZ policy is now to provide incentives to plantations to provide input services and extension.

The tobacco companies are very active in the distribution of seeds and the provision of extension services to farmers from whom they buy tobacco under contract. This is necessary to ensure that the right type and quality of tobacco is produced.

Cost recovery is easy as services to farmers are deducted from the purchase price and there is no free-rider problem as there is only one buyer of tobacco in a particular area.

Something similar has always existed for cotton, the cotton companies distributing seeds to farmers and providing extension services. However, cotton extension services always contain an element of coercion in Zaire, as the price offered to farmers is usually a disincentive to grow cotton.

Thus, up till now, there is little private sector extension to smallholders except for tobacco and cotton but it is a major activity of most NGOs together with the distribution of seeds and planting material. Unfortunately, this occurs in an uncoordinated and dispersed manner.

### 2.3. Private sector agricultural training and related activities

The private sector does not carry out any formal agricultural training but does provide a good deal of "on-the-job" training. In addition, there is a lot of private sector training in the areas of accounting, financial management and business management. Prof. Phambu-Ngoma Binda in a recent article mentioned a total of 65 registered private institutions of higher learning in Zaire. Apart from the religious (theology, biblical sciences) institutes, 80 percent of those surveyed offer evening courses in business management and 47 out of the 65 are located in Kinshasa. None are active directly in agricultural training.

PLZ, the largest private plantation company in Zaire, is planning to organize formal training in plantation management with support from the DOARD and financial aid from the E.C. As far as is known, this is the first initiative of its kind.

Special mention should be made of the ISDRs in Zaire (Institut Supérieur de Développement Rural). The first such institution was

founded in 1962 in Bukavu by missionary priests. It was recognized in 1973 as being part of the National University of Zaire as the Institut Supérieur d'Etudes Sociales (ISES). It was transformed in 1977 to the present-day ISDR and since then, similar institutes have been set up in Mbandaka, Tshibashi (near Kananga), and Mbeo (near Idiofa) with some missionary help. They can each enroll about 200 students in total. They have a three-year course program leading towards a "graduat" degree and (since October 1988) they also offer a "licence" degree after two years of additional studies.

The training has a practical orientation and prepares students for jobs in agricultural extension, management of rural development projects, cooperatives, etc. Although they are not strictly speaking private sector institutions, they were created by a missionary organization and still receive some support from them. Their performance record is better than that of most other state agricultural training institutes.

#### 2.4. Producer associations, agricultural cooperatives, PVOs and NGOs

In a survey done in 1986 by the DORD, a total of 800 cooperatives were recorded and there exists a March 1988 "Répertoire des coopératives au Zaïre." Among these, about 400 are savings and loans cooperatives, 200 are agricultural production and marketing cooperatives, about 100 are livestock cooperatives and the remainder are medical and rural housing cooperatives. They had a total of 716,220 members in 1988.

Cooperatives are governed by the law of March 24, 1956 which grants them certain tax advantages on profits and on the import and export of goods. A new law governing the legal status of cooperatives has been prepared and is awaiting passage by the C.E.

GOZ responsibility for cooperatives is with the DORD, Service National de Coopération et de l'Organisation Paysanne (S.N.C.O.P.). This service exists since March 1989 and is the result of merging the direction of cooperatives with the direction of "organisations paysannes." Formerly, the direction of cooperatives was called "Programme National de Développement Coopératif" (P.N.D.COOP.).

The largest cooperatives are the savings and loans cooperatives. They can be divided up in three networks according to their religious origins:

1. The Caisse Populaire de Crédit Luymas (CPCL/CBZO) in Kinshasa and Bas-Zaïre.

They were founded in 1972 by Luyeye Massambe, a Protestant pastor trained in the U.S. They are inspired by American Cooperative Savings and Loans Associations but they are not recognized as an authentic cooperative by the ASCECA or Association of Savings and Loans Cooperatives in Africa. Thus, Luymas is not part of UCCEC, the Union Centrale de Cooperatives d'Épargne et de Crédit, as they do not

accept all the conditions pertaining to cooperatives. There are 36 caisses Luymas with 210,617 members and 1.118 billion Z in deposits.

2. The network of COOPECs of Kinshasa, Bas-Zaïre, Bandundu and Kivu which is inspired by Protestant missions.

3. The network of COOPECs in Equateur and Shaba which are of the Catholic denomination.

There are 120 COOPECs in total with 600,000 members, grouped in 5 COOCECs and represented by UCCEC. They have 1.5 billion Z in deposits.

Agricultural production and marketing cooperatives in Zaïre have a reputation of being unstable institutions as they go from prosperity to decline, eventual disappearance and rebirth.

The most important ones are:

1. The Coopérative Maraîchère de Ndjili, which produces vegetables for the Kinshasa market. In the past, they received French T.A. (BDPA).

2. The Coopérative des Agriculteurs de Bumba which focuses on rice production and marketing.

3. The Coopérative de Production Agricole de Gemena which organizes the marketing of coffee and cocoa through Bangui in the Central African Republic.

4. The Coopérative de Production Maraîchère au Nord Kivu (Butembo).

5. The Coopérative des Eleveurs et des Agriculteurs d'Inkisi, Bas-Zaïre.

6. The Coopérative des Eleveurs de l'Ituri (ACOOPELI) which receives support from the Canadians and from the World Bank. It groups together 127 associations of livestock producers and has 17,000 members.

Most cooperatives are active in the supply of inputs and in the sale of agricultural products. The GOZ does not offer them financial assistance in the form of subsidized credit or grants.

The S.N.C.O.P. has in its mandate the provision of T.A., statistics and training but little is being done for lack of resources. In the past, the International Labor Office planned to provide T.A. and financial support but this has never materialized. Recently, a request was made to Belgian Aid.

Most of the cooperatives are inspired by religious organizations and their major constraint seems to be lack of professional management. Most cooperatives do not manage to maintain the real value of their working capital and in many cases, they are an unequal match

vis-a-vis private sector operators. Apart from the COOPECS, the livestock cooperatives seem to be the most successful, providing their members with veterinary products and vaccines at cost. Most marketing cooperatives suffer from a lack of working capital, access to marketing credit and transportation services.

The history of cooperatives in Zaire, which dates back to colonial times, is a checkered one with few of them surviving. Cooperatives are not a panacea for agricultural development but can play a useful role, particularly in areas where the private sector and/or the government is deficient.

NGOs in Zaire have filled the void left by the lack of government involvement in the provision of public services. The presence of NGOs has always been strong in Zaire, but the extent of their involvement at the regional and community level has increased over the last decade. Currently, their contribution can be felt mostly in the areas of health and education and increasingly in agriculture. Most of the NGOs are religious organizations, either foreign inspired or local ones.

In many cases, they provide basic economic and social services to the population and have effectively taken over many of the functions which are normally expected from the state. However, since Zaire is a huge country with on average low population density, most NGOs are very location-specific and have a limited (local) although important impact. In comparison to, for instance, Rwanda, where NGOs cover the whole country densely, in Zaire they appear as small dots on the map. Most NGOs also do not command the resources needed to adequately fulfill their role which usually covers a wide range of activities. Many NGOs lack the technical capability and the skills required to adequately solve the problems they confront. All this is not to say that they are not being useful or have no impact, on the contrary. It is just that the task they are faced with is huge and in many cases, they cannot cope.

There are several types of NGOs. Some have a purely social objective, some have an economic objective, some are mixed and aim for integrated rural development comprising health, education, agricultural production, community development, etc. Some NGOs are really fake and exist only as a vehicle to attract and absorb funds. Some NGOs such as GENAGRO are the receiving end of large agro-industrial companies (UNIBRA and ESTAGRICO) and carry out activities which are not directly profitable but which enhance the organization and benefit rural people working indirectly for the company.

It is difficult to quantify the impact of NGOs on agriculture and rural development, but in many cases, they are the only local institutions providing agricultural services, including direct agricultural production, processing, marketing, provision of extension services, input supply, livestock development, road maintenance and the supply of consumer goods to rural areas.

In general, NGOs active in the provision of agricultural services have not been successful in full cost recovery. Thus, they are constantly lobbying for donor financing. A good example is C.D.I.-Bwamanda. They started before 1970 and provide a full range of agricultural services to farmers, including tractor mechanization. They have benefitted greatly from substantial support from the C.E., Belgian government, Belgian, Dutch and German Catholic relief organizations, USAID, the E.C. (recently, over 2 million ECU) and next probably the ADB which has shown great interest in the C.D.I.-Bwamanda model. Nobody has ever been able to put together total donor financing, but despite their involvement in coffee marketing (over 3,000 tons a year), sustainability of the organization is still far off. The management of C.D.I.-Bwamanda believes that it will not be possible over the next decades. The heavy reliance on overseas volunteers (over 50 at any time) and Belgian cooperants may preclude a drive to sustainability.

To conclude, NGOs represent a major driving force in the Zairian rural health sector, particularly at the primary health care level, in rural education and increasingly, in agricultural services. The scope of their work does have some limitations and should be a complement, not a substitute, for national institutions and structures.

### 3. Donor Organizations

Several multilateral and nearly a dozen bilateral donors provide development assistance to Zaire. The World Bank is the largest and most active multilateral donor, while Belgium and France are (with the United States) among the largest bilateral donors. The discussion below focuses on selected donor activities in agriculture.

#### 3.1. Multilateral

##### 3.1.1. The World Bank (IBRD)

The World Bank lending effort in Zaire is very much sector-based and combines policy reform with institution building and straight-forward investment activities (projects). The strategy for future Bank assistance to the agricultural sector is two-fold. First, it will include short-term measures to aid private investment to boost agricultural production. This includes foreign exchange support for the purchase of inputs, easing other production and marketing constraints, and assisting the Zairian government with policy and institutional reforms aimed at improving the investment climate. Second, medium to long term measures will center on improving key agricultural services, essentially transport, research, extension, credit and government policy formulation, planning and programming capacity. The Bank intends to improve donor coordination efforts in the agricultural sector and is prepared to assume a leadership role.

The World Bank has taken the lead in a sector approach for agriculture, including an agricultural sector management and institutional development project known as PAT2. This project is a

follow-on to the PAT1 project which was an Agricultural Technical Assistance Project from 1983 to 1987.

In comparison with other African countries, there are only a small number of World Bank (IDA) supported projects in Zaire. Apart from the above-mentioned T.A. projects, the following projects have been financed by the World Bank since 1980 in agriculture:

- 1980 - Smallholder maize	\$11.0 million
- 1981 - Kwilu Ngongo sugar	26.4 million
- 1982 - Second Cotton	11.3 million
- 1983 - N.E. Rural Development	13.0 million
- 1984 - Lulua Ag. Development	9.0 million
- 1985 - Seeds BUNASEM	14.9 million
- 1985 - South Shaba Agric. Dev.	4.4 million

On average, one agricultural project per year is started; and compared to the size of the country, the projects are relatively small.

The first T.A. project was for \$5.0 million and assisted the DOA and the DORD in the implementation of PIP and in strengthening of economic analysis and policy formulation capacity. This project was attached to the Minister's cabinet and, according to the PAT2 technical annex "...while generally successful, suffered from a lack of integration with the permanent structures of the institutions it supported." The PAT2 project has been designed to be fully integrated into the Ministries and it will also complement other donors' current and planned interventions.

The PAT2 project document also states that "...our recent review of the agricultural sector concludes that improving the efficiency of some key public services is an investment with high returns because in the present context, it is the most effective way of encouraging private investment and Zairian farmers to participate in the trading economy."

The increased World Bank involvement with agriculture in Zaire can be seen from the size of the PAT2 project (total \$16.1 million of which \$12.2 million is from IDA) and from the five large projects which are in the pipeline in various stages of preparation and which are all \$20 to 40 million in size, except for the forestry project.

- National Agricultural Research Project (INERA).
- Agricultural Services Project (T&V extension and input services).
- Industrial and Export Crops Credit (oil palm, coffee, sugar).
- Forestry subsector operation.
- Cotton subsector operation.

The PAT2 project is a seven-year project of T.A., training and logistical support to the DOA, DORD and DOE. The project includes the following components:

1. Support for Economic Analysis and Policy Formulation

Is based in SEP and includes two T.A. experts. The study units of the three departments are involved in this component but main emphasis is on SEP.

2. Support for Programming and Execution of Public Expenditure  
Situating in DAGP and includes one T.A. expert.

3. Support for Personnel Management and Logistics  
Includes government-wide civil service reform in the context of the structural adjustment program, staff performance evaluation, training and reorganization. Two T.A. experts (one specialist in human resources, one financial expert) will be attached to the office of the PAT2 director.

4. Training and Human Resource Development  
Is mainly in-house training and overseas training if necessary, as the donor of last resort.

In addition two forestry T.A. experts will be posted in the DOE.

In the DOA PAT2 is essentially focused on three directorates, DSG, SEP and DAGP. The director of PAT2 reports directly to the Secretary General and the Secétat and is thus in a powerful position, having at present strong support from the GOZ and from the World Bank. He is now the key player in the building of a more effective public administration for agriculture.

The financing plan for the project is as follows:

GOZ	: \$ 2.4 million	(which essentially goes towards the payment of primes)
IDA	: \$12.2 million	(of which \$3.0 million will be in Z)
Belgium:	<u>\$ 1.5 million</u>	(for T.A. experts supplied from Belgium over a three-year period)
Total	: \$16.1 million	(of which \$10.7 million will be in foreign exchange).

Of the \$16.1 million, \$7.2 million is for T.A. The project includes a lot of studies and surveys, some of which will be contracted out.

The following studies are listed in the work plan for 1989:

DOA:

- The milk subsector
- Animal health
- Coffee
- Sugar policy
- The cotton subsector
- Forestry
- Project preparation studies at SEP

DORD (CEEP):

- Cooperatives
- Storage infrastructure
- Extension

DOE:

- Surveys
- Ten-year replanting program

The studies all serve a need in project identification and/or in policy reform.

An important part of the project is Personnel Management. The project will assist the Direction des Services Generaux (DSG) and the Secretary General in personnel management and salary policy formulation. An institutional assessment of the DSG will be carried out resulting in better personnel data management systems, job descriptions, a review of the job inspection function and procedures for staff performance evaluation. Performance bonuses (primes) will be awarded according to preset criteria (individual or divisional performance).

#### 3.1.1.1. Recommendation

As many of the personnel management improvements envisioned under PAT2 have repercussions on USAID's involvement with the DOA, and particularly SEP, coordination with the World Bank and the PAT2 project is recommended with a view to arriving at uniform performance standards, primes, etc. As USAID has a comparative advantage in overseas training, liaison with PAT2 is recommended for this.

#### 3.1.1.2. Conclusion

Many of the objectives pursued in PAT2 with World Bank financing are of paramount interest to USAID in an agricultural sector approach. Organization, staffing, incentives, human resources development, etc. are all of concern in the development of an effective public administration for agriculture. There are many parallels between what the World Bank will be doing in PAT2 and what USAID aims to do in a sector-based approach. Thus, coordination of activities will be a must. Much of the success of the coordination will depend on the quality and the readiness to cooperate of the T.A. experts who are being recruited by PAT2. It is suggested that USAID make arrangements for coordination through the office of the PAT2 project director, and, as required, the Secétat's office.

#### 3.1.2. The European Community

A food strategy team mission was sent by the E.C. in 1985 (Davies and Lipton, 1985). They concluded that the preconditions for a national food strategy, which would provide essential tools for any food sector planning initiative the GOZ chooses to pursue, were not met. They did recommend E.C. support via the European Development Fund for the following areas in order to assist the GOZ in meeting preconditions for a national food strategy:

- Agricultural statistics and the food information system.
- Small farmers' production systems and productivity studies.
- Information on and procedures for agricultural budgeting and planning.

These recommendations were met with skepticism in the E.C. in Brussels and were not approved by the GOZ. As a result, the E.C. in Zaire now concentrates its aid efforts in two regions, Bas-Zaire and Kivu, has steered away from a sector approach and does not involve itself with policy matters.

The evaluation of the agricultural projects executed under Lomé 2 financing concluded that very little impact was made at the farmer level and that most funds did not reach or benefit the farmer. Therefore, it was decided that Lomé 3 projects (from 1986 to 1990 corresponding to the 6th EDF) would benefit farmers directly through actions at the grassroots level, by private firms, cooperatives and NGOs.

Under the present aid convention (Lomé 3), priority is given to two concentration regions: Bas-Zaire and western Bandundu in the Programme Arrière Pays Economique de Kinshasa (APEC) and rural development in Kivu. The APEC program is budgeted at 25 million ECU (\$1 = 0.90 ECU), reforestation of the Bateke plateau near Kinshasa at 13.32 million ECU, the Kivu programme at 40 million ECU, and the rehabilitation of the Matadi-Kinshasa road at 22.5 million ECU.

There are also large loans of the European Investment Bank with Gécamines, SOFIDE and SNCZ. Presently, a 30 million ECU commodity import program at very favorable terms is being implemented. Recently, 15,000 tons of wheat were imported as E.C. food aid. The total grant aid in Lomé 3 is 149 million ECU. The CPF funds which are generated are mainly used to finance micro-projects (micro-réalisations) and local Z expenses of projects.

The E.C. plans to manage its projects via an interdepartmental monitoring committee (Comité interdépartemental de suivi) involving the DOA, DOP, DOF, DORD, and DOE. It is also foreseen that the next program (1991-1995) will be similar to the current program.

In conclusion, the E.C. aid program in Zaire is poorly integrated in GOZ planning and in the public administration; no real effort is made to work with or to strengthen it. This raises serious questions about the sustainability of their actions.

### 3.1.3. The UN Food and Agricultural Organization (FAO)

For almost twenty years, FAO has provided T.A. to the Division of Statistics of the DOA in the form of two experts, consultants, equipment and logistics. They have also provided T.A. in the past to the DMPCC, to the documentation center of the DOA, and to other units. Since the early seventies, they have supported the Programme National Engrais (PNE) with Belgian financing. They now work closely together with the World Bank in BUNAS™ and are jointly preparing projects on agricultural research with INERA, on agricultural extension with the DORD, and on rice research together with Italian aid.

Because of budget cuts in Rome, FAO is having increasing difficulty in attracting and keeping quality staff. FAO is thus forced

to join forces with the World Bank to get projects approved and to obtain UNDP financing. In fact, very little is possible on their own financing.

Presently, FAO is not planning organization or management studies of the DOA. They do have a large interest in the reorganization of INERA and have organized several missions for this purpose.

In conclusion, FAO's role in T.A. for agriculture and in the strengthening of the public administration for agriculture in Zaire is gradually being reduced. They now accept World Bank leadership in this area and are keen to work with the Bank.

### 3.2. Bilateral

#### 3.2.1. Belgium

Belgium's aid program in the agricultural sector is dominated by technical assistance and is characterized by great fragmentation. There are over 50 projects in the agricultural sector which makes management and coordination of this effort nearly impossible. The fragmentation is partly the result of the complete failure of the Kaniama-Kasese mechanized maize production project which was in operation from 1972 to 1981 and which cost over \$20 million. Moreover, because of the colonial history, Belgium is unable to adopt a sector-based aid program, including policy dialogue, for fear of being accused of meddling in the internal affairs of Zaire. Although agreement was reached with the GOZ on the drawing up of a master plan (plan directeur) for the agricultural sector, the terms of reference of this plan do not include sector studies and policy preparation; emphasis is on agro-industrial projects, cooperatives, agricultural credit and technical assistance.

Presently, there are six T.A. experts in the DOA. In addition, Belgium finances a food marketing study at the DMPCC through the University of Leuven with two T.A. experts; six other T.A. experts are active in cotton development projects. There are two T.A. experts at the DOE. Both are active in reforestation policy and actions, particularly on the Bateke plateau. T.A. experts are present in over thirty separate development projects including INERA, spread out all over the country and covering all subsectors. Needless to say, it is difficult to manage such a large portfolio of projects, particularly since most of these are implemented "en regie," i.e., directly by the central aid administration (AGCD) without recourse to private firms.

It is difficult to see any priorities in the Belgian T.A. program for agriculture in Zaire, except maybe for the cotton subsector. Although a geographic concentration has been agreed on, covering eight areas (Bas-Zaire, W. Bandundu, N. Equateur, N. and S. Shaba, E. Kasai, Kivu, Kongolo-Lubao-Kasongo), actions are also undertaken outside these areas. Thus, one has to conclude that the Belgian T.A. and aid program in agriculture has no particular focus or direction and is more or less the sum of all requests from the GOZ and from Belgian

lobbies. Lack of coherence and long-term strategy is a major shortcoming of the program.

Over the last two years, the World Bank has approached AGCD in Kinshasa and in Brussels for the co-financing of World Bank projects. As the objective of the Belgian aid program in Zaire is to bring agricultural sector interventions to 20 percent of the total aid envelope, more funds are becoming available for agriculture. Since the total aid program is about 4 billion francs ( $\pm$  \$100 million) per year, this would mean 800 million francs ( $\pm$  \$20 million) for agriculture per year. The present situation is far removed from this target. Moreover, the AGCD administration will be unable to identify and prepare sufficient bilateral projects to meet the target; hence, a recourse to co-financing with the World Bank. In addition, the co-financing mechanism is a shortcut for the incapacity of the AGCD administration to do its homework for the preparation of new projects. Belgium has already agreed to co-finance the PAT2 project for 50 million francs ( $\pm$  \$1.25 million) over three years in the form of a grant to meet expenditures for T.A. supplied from Belgium. Provisions are already being made to extend Belgium's involvement to seven years, the duration of the PAT2 project.

A tentative agreement was reached with the Bank for the co-financing of a smallholder oil palm promotion project in Bas-Zaire and Bandundu whereby Belgium would contribute 400 million francs ( $\pm$  \$10 million). This project was to be set up with private companies active in oil palm production such as JVL, PLZ, etc. However, the Bank has now dropped this project. There will be some limited co-financing of the World Bank project on national agricultural research (INERA). Co-financing of projects for the development of cotton production and processing is also likely. However, Belgium is not likely to be supportive of the agricultural extension project.

The present Secétat of the DOA has already expressed his views on Belgium's aid for agriculture. He wants increased action for the relaunching of tree crops (palm oil, coffee) and industrial crops, including cotton, for livestock (cattle, small ruminants, poultry) and, to a lesser extent, for food crops (INERA, marketing of food crops including studies, storage and improved transport through maintenance of feeder roads).

After the recent trauma of the longest Zaire-Belgium crisis in post-colonial history, Belgium's aid program in Zaire is likely to be overhauled. The Belgian government has already reiterated its desire to see support for agriculture and rural development attain 20 percent of the aid budget, or about \$20 million per year. Present spending is less than one third of this. Moreover, as interest payments on the remaining commercial debt with Belgium can be paid in local currency to be used as counterpart funds for development purposes (about \$15 million per year reaching gradually \$33 million by the year 2000), Belgium's role in agricultural investment in Zaire is bound to increase sharply. Preliminary indications are that Belgium wants to scale down its T.A. efforts in the DOAKD and will retire from the cotton subsector. A major involvement with coffee and with large area

development projects is to be expected (Kivu region). However, project preparation is not yet underway and it is likely that Belgium's involvement will take more and more the form of co-financing agreements with World Bank initiatives.

### 3.2.2. Canada

CIDA finances a 3-year \$4 million CN project called "Projet d'Appui au Département de l'Agriculture du Zaïre," which is implemented through the Quebec region of Canada (International Affairs and the Ministry of Agriculture). This project is a follow-on project to a phase I project which was concentrated in the North-East of Zaïre (cooperatives, livestock). In this second phase, emphasis is on livestock production, animal health and cooperatives in North-Kivu with the "Cellule de Production et Santé Animales" at Goma as headquarters. There is also a specific action in the Secretary General's office at Kinshasa which is a follow-on to the presence of one T.A. expert in this office for the last three years.

The main objectives of this latter component of the project are to improve management in the Secretary General's office. This includes:

- Management training for the upper echelon civil servants.
- Improving communications between the Secretary General's office and the Regional Inspectors.
- Improving office management through appropriate filing systems for documents, upgrading of office staff, improved working methods and control systems.

The six directors of the DOA and the Secretary General are the main focus of the training efforts. Most of the training will take place in Kinshasa but overseas training in Canada is also foreseen if necessary. Emphasis will also be put on the four national inspectors in the Secretary General's office for improved methods of budget preparation and control. Ten such inspectors are foreseen in the administrative structure of the DOA. The PAT2 project also puts weight on increased efficiency of the small corps of agricultural inspectors. The regional inspectors will be included in training sessions as they are seen as the regional extension of the Secretary General's office. Training will include principles of personnel management, office management, financial management and administration.

The Canadians are also very active in the forestry sector through the DOE. They provide T.A., logistics and training and help to manage the state-owned forestry company FORESCOM. The Canadian aid mission in Kinshasa recognizes the need for donor coordination for the development of an effective public administration for agriculture. The Canadians are looking for a leadership role by the World Bank through the PAT2 project. They are quite prepared to coordinate their actions with those planned by the Bank and are open to other donor initiatives and proposals. It is also likely that their commitment is of a long-term nature and that the project which is now limited to the Secretary General's office may in the future be extended to other units in the Ministry.

## II. CONSTRAINTS ANALYSIS

### A. Key Constraints on Agricultural Growth and Development

#### 1. Government Policy and Planning

The macroeconomic policies adopted in the early 1980s have eliminated or reduced a number of important constraints to agricultural growth and development that stemmed from the inappropriate set of policies that had previously been in place. At the same time, there remain some impediments to full liberalization (e.g., imposed crops, fixing of the timing of marketing campaigns by regional governors) that continue to hinder agricultural development. More fundamentally, the policy volatility that characterized Zaire until fairly recently, and concerns about possible subsequent changes in macroeconomic policies, serve to inhibit confidence of potential investors and thereby constrain development of the agricultural sector.

From a more direct, institutional perspective, lack of adequate skilled and experienced human resources has been a constraint on the ability of the GOZ to carry out planning and policy activities. This reflects both weaknesses in the domestic educational system and also weaknesses in public sector pay policy. One aspect that has been particularly relevant here is the absence of reliable statistics on the performance of the agricultural sector. Two other elements that constrain the GOZ in this area are the woeful underfunding of operating expenses for the DOA and Zaire's political system itself.

A key requirement for carrying out improved planning and policy analysis and development is the availability of a corps of well-trained and experienced individuals. However, the Zairian educational system tends to produce graduates who have been exposed to a broad range of theoretical concepts, but whose practical and applied skills often tend to be weak. In addition, management training per se does not exist in Zaire's university system, and this further constrains GOZ capacity to implement policies and plans.

USAID has made a major effort over the past 15 years or so to redress this deficiency, by providing long-term (Master's level) academic training to Zairians employed at the DOA's Service d'Etudes et Planification (SEP). Approximately 70 Zairians have received this academic training, mostly in agricultural economics, and the series of USAID-supported projects at SEP -- by virtue of various studies and analyses that are carried out on an ongoing basis with technical assistance -- have also provided opportunities for acquisition of the practical, on-the-job training needed to carry out planning and policy-related activities. The trained personnel presently contributing to SEP's ongoing activities constitute a substantial improvement over the human resource situation that prevailed at SEP at the outset of the 1980s.

Public sector pay levels are exceedingly low, and this pay policy has exacerbated the GOZ's difficulties in building and maintaining a

group of skilled and experienced policy analysts and planners. That is, many of those from SEP who received long-term stateside training have since left SEP (this group represents well over half of the 70 individuals who have received such training), often in search of more remunerative employment in the private sector. While these individuals frequently continue to work in the agriculture sector and thereby contribute to agricultural development, their loss to SEP hinders development of governmental planning and policy capabilities.

Data that provide an adequate overview of performance of the agricultural sector are needed in order to carry out effective planning and policy analysis and development. Unfortunately, such data have not been available. The Division des Statistiques Agricoles (DSA) of the Department of Agriculture, which is part of SEP, has been particularly weak over the years. This weakness stems from a variety of factors: poor management of the Division, inadequately trained and generally ineffective human resources in the Division, poor coordination between USAID and FAO (the two donors that have provided support to DSA since the 1970s), overly ambitious efforts at agricultural data collection (in particular, a series of FAO-supported projects at the Statistics Division have encouraged these unrealistic undertakings), and inadequate and often untimely (i.e., delayed) financing of agricultural data collection activities.

Difficulties in obtaining adequate and timely financing for agricultural data collection are part of a broader problem of inadequate governmental resources to effectively carry out planning and policy-related activities. Small and often long-delayed budget allocations limit the scope of activities that can be undertaken. This constraint has been largely circumvented, at least at SEP, by the series of USAID-funded projects that have supplemented ordinary budget allocations with counterpart funds. These counterpart funds, in turn, have provided the means to finance activities in support of planning and policy development. It is not clear, however, that this constraint will be alleviated by the time that the current project at SEP ends in the mid-1990s.

Finally, Zaire's political system also constrains improved government planning and policy activities. This comes about because of the frequent shuffling and reshuffling of personnel at the highest levels of the DOA. That is, Commissaires d'Etat and Secretaires d'Etat who come into office know that chances are better than even that they will not remain in office for even one year. This revolving-door political system discourages serious efforts at long-term planning at the highest echelons of the DOA, and creates a bias away from continuity and toward instability, as each new administration attempts to put its own mark on agricultural policy and planning.

## 2. Private Sector Marketing

During the 1970s Zaire, like many other African nations, attempted to use a variety of parastatal organizations to organize marketing of agricultural products (e.g., ONACER, ONPV, ONDE, ONC). As was most frequently the case elsewhere, this state-run marketing

policy proved to be a disaster. Controls on marketing at the national level were eliminated as part of the liberalization measures of 1982, so the constraints that had existed in the 1970s with the government marketing boards have not been relevant for most of the 1980s.

With the economic liberalization of 1982, the GOZ placed greater emphasis on the private sector for agricultural production, input supply, agricultural marketing and rural infrastructure. Within the framework of the Fonds des Conventions de Développement, many industrial and service companies went into direct agricultural production, including the acquisition of agricultural inputs. Most of the production went to their own labor force through a canteen or food distribution scheme. It was generally accepted that employers have a social duty to provide such fringe benefits to their employees. However, most companies discovered that they do not have a comparative advantage in agricultural production and that food can be bought more cheaply in the open market. As the Fonds des Conventions withered and were finally abolished, most companies stopped their agricultural activities.

There are two aspects of government marketing policy that influence private sector marketing and are pertinent to consider as constraints to agricultural development. First is the fact that despite the national policy of decontrol of marketing, there are still marketing campaigns at the regional level that essentially run counter to the spirit of liberalization and decontrol. For example, the dates of marketing campaigns are frequently fixed by regional officials. These dates typically are limited to periods of peak production, when prices are lowest; so this policy effectively restricts farmers' options to take advantage of higher prices associated with off-peak production. Offsetting this constraint is the fact that often traders do not abide by the timing of marketing campaigns as fixed by regional authorities. In addition, the marketing campaigns result in damage to agricultural output due to the strains that the campaigns put on inadequate storage facilities.<sup>1</sup>

A second element of government marketing policy that hinders agricultural development is the absence of adequate marketing facilities in Kinshasa. The lack of marketing infrastructure contributes to the very high marketing margins that exist: as noted earlier, DMPCC/K.U. Leuven estimates that fully 75 percent of the retail price in Kinshasa of cassava from Bandundu goes for transportation and marketing costs, and a significant portion of this share is for marketing costs within Kinshasa. These high marketing margins put downward pressure on farmgate prices, thereby stifling incentives for increased production.

Prior to the implementation of price liberalization, government pricing policy was to establish official minimum producer (farmgate)

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<sup>1</sup> For more extensive discussion of these issues, see Service d'Etudes et Planification, Département de l'Agriculture, Liberalisation des prix ex-ferme et restrictions à la circulation des produits agricoles dans les régions de Bandundu et du Shaba, June 1989.

prices. In many parts of the country, however, these ostensibly minimum prices were treated by traders as official maximum prices. Hence, earlier price policy was effectively serving to keep farmgate prices low. At present, pricing policies do not appear to be a constraint to agricultural development.

Credit policies, like marketing and pricing policies, have in recent years been modified in ways designed to improve resource allocation within the Zairian economy. Thus, for example, preferential interest rates for agricultural credit have been eliminated. As noted in Part I, there is an unmet demand for credit and this constrains agricultural development. Most credit that is made available to the agricultural sector is of a short-term nature and goes to support crop marketing. Zaire's chronic inflation problems are one key aspect of its macroeconomic environment that deters medium- and long-term credit for investments in the agricultural sector.

Marketing of food crops and export crops is now left almost entirely to the private sector. As noted in Part I, marketing costs tend to be very high for a variety of reasons: high collection costs due to the poor state of feeder roads and river transportation, low population densities, and transport over long distances, shortage of and high cost of marketing credit, long delays between first purchase and final sale of the output, and (in the case of export crops) cumbersome administrative procedures. The efficiency of food crop marketing is impaired by a lack of marketing infrastructure at collection centers and at the semi-wholesale and retail levels in urban centers. Zaire does not have organized wholesale markets for food products, and there is an absence of public marketing infrastructure in the cities. This contributes to long delays in loading and unloading, congestion, stoppage of marketing operations during the rains, high product losses and deterioration of product quality, and lack of public marketing information.

The transportation network is a major constraint on private sector traders. Road, rail, and river transport infrastructure all depreciated considerably following independence, and this has resulted in a situation where transportation is highly unreliable and farm-to-market transportation costs are extremely high. These high transportation costs deter entry into the trader sector, and this in turn helps keep farmgate demand (and ultimately, prices) down.

Traders' access to fuel and spare parts also is often limited, particularly as one gets farther away from major urban centers. When fuel is available in the interior of the country, it is often extremely expensive. These elements contribute further to high transportation costs, and, as above, reduce the effective demand for agricultural products at the farmgate. An additional element adding to the cost of marketing agricultural outputs is the plethora of local taxes (both legal and illegal) that are effectively imposed on traders.

Limitations on access to credit also hinder traders' abilities to market outputs. As noted earlier, much of the credit that does go to

the agricultural sector goes for marketing activities. However, the bulk of this credit goes to the coffee subsector. During the past five years, just over half of the credit going to the agriculture sector went for coffee, while less than 20 percent of agricultural credit went to food crop marketing (cf., Service d'Etudes et Planification, Department of Agriculture, Impact des mesures de restructuration du controle de credit sur le secteur agricole, April 1989, Table 2, p. 17). Hence, the World Bank concluded in its Agriculture Sector Memorandum (p. 38) that despite increases in credit for seasonal crop marketing over the past five years, "crop marketing credit is still inadequate." It should be noted also that there are periodically difficulties with the timeliness of credit -- that is, delays in allocation of credit constrain crop marketing.

### 3. Commodity Exportation

In assessing the constraints to exportation of agricultural products, it is useful to distinguish between constraints that impinge on the production of export crops and constraints on the evacuation and marketing of these crops. Production constraints consist of economic, structural, and policy factors. The declines in prices of agricultural exports that Zaire and other developing nations have experienced during most of the 1980s constitute a direct economic disincentive to production for export.

The policy environment that prevailed until the early 1980s also resulted in deterioration of productive capacity in the export subsector. The 1973-1974 zairianization and radicalization measures shattered private investors' confidence. The zairianization helped Zairian entrepreneurs only to the extent that they were able to take over businesses from zairianized enterprises that failed. But the zairianization experiment had one of the most damaging and lasting effects on the long-term investment climate in Zaire. It undermined private sector willingness to invest and destroyed much of the distribution network which linked urban and rural areas. Thus, zairianization and radicalization effectively initiated the shrinkage of the modern sector over the past 15 years or so.

In addition, shortages of foreign exchange and of fuel contributed to the structural deterioration of modern sector plantations. While there has been considerable improvement in macroeconomic policy since the early 1980s, it should be noted that the efficiency of export crop marketing is also hampered by the lack of stability in the rules and regulations governing export operations and the repatriation of foreign exchange. This stop-and-go regulatory environment results in a lack of confidence and a poor climate for investment. The overall economic environment simply has not been one to encourage long-term investments in the modern sector.

Continuing structural constraints such as over-aged plantations for export crops, the inadequate state of many rural roads and the scarcity of credit, inputs and spare parts hamper the realization of the full benefits of liberalization. The studies on the impact of economic liberalization show that, by and large, it is effective, with

local and regional imperfections. Regional governors still declare pricing and marketing controls, as listed in the recent liberalization study of SEP, but they are inevitably corruptible or not enforced. The poor state of the transportation network, and particularly the river network so important for many of Zaire's export crops grown in the Central Basin, results in a very high effective cost of evacuating export crop output from the interior of the country. Inadequate amounts of credit for marketing of agricultural commodities also constrain exports.

Government regulations, in the form of required paperwork and taxes on exporting commodities, are especially burdensome and a constraint on exports. A study done for the World Bank found that exports of agricultural commodities may require up to 52 different documents and procedures, and dealing with as many as fifteen different government agencies (some of which, like OZAC and OZACAF, essentially duplicate one another's actions). It appears that much of this paperwork is unnecessary, and there is movement to streamline and simplify export procedures. In addition, there were several different export taxes paid on agricultural commodities, as well as separate export charges and levies, that could amount to up to 20 percent of the export value of some commodities. It should be noted that some of the taxes on agricultural exports have been suppressed in the past couple of years.

The present Structural Adjustment Program in Zaire aims in the agricultural sector in particular at output growth from import substitution in edible oils, meat, cotton and cereals, and from export crops such as coffee and rubber. Continued price liberalization and the planned rehabilitation of rural roads are supposed to be the driving forces for output growth.

#### 4. Credit Availability

Credit for the agricultural sector comes principally from Zaire's commercial banks and also from the two development banks, SOFIDE and BCA. Forty percent of the total lending of these banks between 1982 and 1986 went to the agricultural sector. However, the formal banking sector provided credit to only two main groups of agricultural borrowers: agro-industrial enterprises that could put up collateral such as real estate, and companies and individuals involved in the purchase of coffee, food crops, and cotton, and in the production of sugar cane.

There has been a sharp increase in credit to the agricultural sector over the past five years, representing a doubling of credit in real terms. Much of the increase has gone to seasonal crop marketing, which is the principal type of credit extended by the commercial banks to the agricultural sector. Despite this increase crop marketing credit is still inadequate and credit for production is in very short supply. In Zaire's inflationary environment, credit tends to be directed toward trade financing where turnover is fast and profit margins relatively high. Hence, credit for productive activities is increasingly crowded.

Overall, credit in agriculture has essentially served urban-based traders involved in crop marketing and some of the larger agro-industrial companies. Smallholders and the growing numbers of commercially-oriented farmers have little access to the formal credit network. The extent to which these producers are served by informal financial intermediaries (self-help groups, moneylenders, traders) is not known at present.

The agricultural sector could support increased access to marketing credit. Access to credit is a distinct constraint on the modern sector. In particular, credit for both short-term investments (in equipment and spare parts, vehicles, fuel, and building rehabilitation) and for major long-term investments in rehabilitation of the plantation sector is extremely scarce. Alleviation of these credit constraints on the modern sector, in conjunction with other complementary policies such as improvement in the transportation infrastructure, offers considerable potential for increased agricultural production by the modern sector.

#### 5. Farmer Productivity and Access to Inputs

As noted in Part I, smallholder production takes place using a fairly primitive technology. In particular, fertilizer, credit, and information (extension) are inputs that are simply not relevant at present to the production of most smallholders. Household labor is the principal source of labor inputs to agricultural production, and implements used are rudimentary and limited in number. Improved seeds and varieties (through BUNASEM, various commodity research programs, and area development projects) are available to significant numbers of smallholders, but even here there is still substantial scope for increasing coverage.

In Zaire's land-abundant environment, virtually all rural households are engaged in own-account agricultural production. Hence, there is no landless labor class that could be utilized to easily alleviate labor constraints. Augmented labor productivity is necessary for increased smallholder production. Expansion of efforts to produce and distribute improved seeds and varieties would appear to offer the most effective means in the short to medium term of increasing farmer productive capacity (i.e., labor productivity) in the traditional sector. Such expansion requires, in turn, ongoing adaptive research linked to seed production.

Alleviation of constraints owing to the use of rudimentary implements would presumably entail either development of animal traction or resort to mechanization. Use of mechanized equipment is not economically feasible in the smallholder sector, and while there are opportunities for use of animal traction in some parts of the country, overall these opportunities are fairly limited.

In theory, credit could be used by smallholders to purchase fertilizers and other improved inputs. In practice, however, designing a credit scheme that can work effectively with smallholders presents

considerable difficulty, and effective use of fertilizers requires access to appropriate information (extension) concerning fertilizer use (dosage, timing). Given the severe weaknesses in the existing GOZ extension system (see the section below on technology development and dissemination for more discussion of this point), improvements in smallholder access to information appear unlikely, and consequently prospects are not good for enhancing production via increased use of fertilizers.

The discussion in this section has focused so far on the traditional sector. Within the modern sector the situation is quite different. In particular, access to improved inputs appears to be a much more proximate constraint on modern-sector production than it is on smallholder production. For certain crops, lack of research and hence improved varieties constrains output. Difficulties in obtaining foreign exchange and weaknesses in the transportation system hinder acquisition of fertilizer and of modern equipment and spare parts for that equipment, and this further limits productive capacity in the modern sector.

As noted earlier, labor is often a constraint within the modern sector, in that wages offered by plantations frequently are insufficient to draw forth the desired labor. Note that improvements to the transportation infrastructure, to the extent that they would result in higher farmgate prices for agricultural output, would also have the effect of increasing the marginal revenue product of labor and thereby permit plantations to offer higher wages. Whether or not this would alleviate the labor constraint on plantations would depend in part on the impact of improved transportation on returns to labor in own-account smallholder production.

## 6. Natural Resource Base Management and Land Tenure

The development of human industrial, extractive, and agricultural activities often takes place at the expense of the natural resource base. This creates a dichotomy of objectives concerning the degree of natural resource exploitation and its utilization for human welfare. Managed development should at the very least address the potential consequences of development activities, so that possibly permanent alterations to the resource base can be judged against the overall benefit to the developing society. Although many human alterations to the natural resource base are essentially uncontrollable by development institutions due to their inability to prevent certain actions, government policies and or interventions can influence the incentives for the citizenry to manage or abuse a resource (National Academy of Science, 1982).

The government of Zaire, like many governments worldwide, is faced with the challenge of developing its human resources, increasing agricultural productivity and incomes, and bringing about food security, while at the same time maintaining a balance with the utilization of its natural resource wealth so that human resource and economic development is sustainable. Recognition of the linkage between long-term economic development and sustainable management of

the natural resource base is imperative. Continual or uncontrolled degradation of the natural resources on which the human population depends will eventually similarly degrade societal conditions (USAID, 1981).

The development of the agricultural subsectors in forestry and crop production have natural resource constraints. In many instances these constraints are related. As noted in Part I, Zaire has four major forest ecology zones: 1. closed canopy rainforest; 2. open canopy transitional forest; 3. high montane humid forest; and 4. gallery forested savanna. All of these zones have agricultural activities with natural resource constraints as does the generally non-forested southern savanna.

Constraints to the resource management of the closed canopy rainforest are both natural and political. Naturally, the forest is vast and to a large degree inaccessible to exploitation. A large portion of the forest is either a swamp or seasonally flooded. Present legal logging activities are limited to forest at the margins of navigable water-ways (Goodson, 1988). The legal commercial logging companies extract high value exotic trees for both domestic and foreign furniture industries. The total extracted tonnage from these activities is well below threshold estimates necessary to maintain sustainability, however selective removal of high value species does pose possible constraints to the sustainability of the exotic wood industry, especially if transportation infrastructure into the forest is developed (International Institute for Environment and Development, 1988).

Conditions within the policy realm are also constraining resource management of the rainforest. Inventories of the natural flora and fauna are incomplete (Goodson, 1988). The World Wildlife Fund has designated the forest as one of its seven worldwide conservation zones due to the already known degree of biological diversity and habitat for endangered species. Much of the forest's potential is still unknown. Additionally, protection of the forest from illegal use (unlicensed hunting and logging) is constrained by an understaffed civil forest service and apparent political favoritism (International Institute for Environment and Development, 1988).

Fuelwood and agricultural production activities presently pose the greatest constraint to national natural resource management. Deforestation to support these activities is occurring unsustainably in the transitional forests stretching from Kinshasa to Kivu and from Kivu south into the gallery forested savanna to Lubumbashi. Continued population pressures in these regions in conjunction with rural to urban migration resulting in average annual urban population growth rates of 7 to 8 percent have resulted in an ever-increasing demand for fuelwood. Although most cities are electrified, access to electrical power and more importantly electrical appliances (stoves and ovens) is beyond the reach of the impoverished urban majority. Deforested halos of 50 to 150 km surround major metropolitan areas, and unregulated pit sawyers and charcoal producers are increasingly exploiting the forest resources to supply the growing energy demands.

Market-driven agricultural production activities in the transitional and gallery forest have caused degradation of the natural resource base. Traditionally sustainable shifting cultivation practices have given way to shorter fallows resulting in increased mining (removal without replenishment) of soil nutrients. The resulting decrease in soil fertility has fueled demand for more fertile forest land and is increasing deforestation (DAFECN, 1988). The continued rural to urban migration places an ever-increasing pressure on the rural labor pool for food products and accelerates both deforestation and extensification through cultivation of more marginal land. This abuse of the natural resource base is continuing and will eventually constrain total production as forest reserves are depleted and production is limited to severely degraded land. It should also be noted that the spiraling degradation process will progress much more rapidly as farmers move from the more fertile transitional forests into the much less agriculturally suited rainforest and savanna.

Land tenure policies, under which the state is the ultimate proprietor of all land, might be argued to constrain agricultural development by hindering efforts to make permanent improvements to land, since the improver cannot be assured of retaining control over that land. This is a constraint in Kivu, where the land tenure system is unique and puts considerable discretionary power in the hands of one individual, the local chief. Under this system, smallholders have little incentive to invest in tree crops, because they cannot be assured of retaining control of the land for a period sufficiently long to recoup their investments. The granting of customary use rights to land elsewhere in the country, as well as the long-term concessions that are given to agro-industrial enterprises and modern sector plantations, give some sort of guarantee to most farming groups. In fact, the kind of uncertainty created by measures such as zairianization as well as the structural constraints on agricultural production and marketing appear to be a much greater constraint than land tenure policy on the willingness of investors to commit funds to agricultural development.

## 7. Technology Development and Dissemination

The agricultural research system and the agricultural extension system in Zaire constitute, respectively, the principal constraints to development of new or improved production technologies or cropping systems, and to adoption of these developments by farmers. Nearly thirty years after independence, the principal GOZ agricultural research organization, INERA, is still haunted by the glory days of its colonial predecessor, INEAC. That is, INEAC had, by the late 1950s, secured for itself a world-wide reputation as a tropical agricultural research organization. Its 1959 budget was of the order of ten million (1959) dollars, and it utilized some 200 university-level researchers. INERA is the post-independence successor to INEAC, and while resources available for agricultural research activities are much more limited now than in the colonial period, the GOZ has only

) slowly and reluctantly abandoned the idea of restoring INERA to its former glory.

In practice, INERA has been underfunded, overextended, and not making much of a contribution at all to agricultural research in Zaire. A GOZ study group, with support from ISNAR, recommended in 1985 that INERA be restructured and streamlined, with a reduction in the number of research stations from 20 to 9, transfer of INERA's headquarters from Yangambi to Kinshasa, and efforts at improved management and coordination with other departments involved in agricultural research. The study group's report with these recommendations was formally adopted by the GOZ in September 1985, but implementation of the recommendations has proceeded at an exceedingly slow pace.

To offset the lack of agricultural research in Zaire, USAID has funded RAV, which has in the past several years regrouped existing commodity programs for cassava, maize, and legumes and begun to carry out a serious program of agricultural research. However, RAV is limited in the scope of its activities (e.g., it is not involved in rice research, nor in research on export and industrial crops). Hence, the weaknesses of INERA effectively constrain development of new production technologies and cropping systems.

Even in the presence of a well-functioning agricultural research system, an effective extension system is required in order for farmers to adopt newly developed production technologies or cropping systems. Such an extension system does not exist in Zaire, where the agricultural extension system suffers from many of the same problems that hinder other African nations. The regional agricultural administration has staff at the local level (agronomes de zone, agronomes de collectivite, moniteurs agricoles) who in principle are responsible for agricultural extension. However, these individuals are hampered by a multitude of constraints: low pay, lack of motivation, low status of the extension service, distrust from farmers; severe lack of logistical support, especially vis-a-vis transportation, but also with respect to office supplies and extension materials; multiple attributions, including tax collection, crop imposition, and generating agricultural statistics; lack of overall coordination and organization, duplication of effort; and lack of a backlog of farmer-proven, tested varieties and cultural practices resulting in an absence of clear themes and messages for extension.

As a specific illustrative example, consider the case of the collectivity of Loango, in the Bas-Fleuve subregion of Bas-Zaire. As of the mid-1980s, there was one agronome de collectivite supervising six moniteurs agricoles in the collectivity. These six moniteurs were responsible for agricultural extension activities for residents of the more than 200 villages within the collectivity. Hence, each moniteur was nominally responsible for extension to roughly 35 villages. Even if these individuals had had no other duties to perform, their isolation from information flowing from existing research activities (e.g., the national commodity programs) meant that they did not have new techniques or cropping systems to extend to farmers. However, even

if the information were readily available it's not at all clear that this would have made any difference: the moniteurs had either no means of transportation at all or at best possessed a bicycle to get around on. In this environment, it is probably more common for farmers not to see their moniteur agricole during any given year than it is for them to have some contact with these extension agents.

In the face of the severe weaknesses in the GOZ agricultural extension system, most donors have made efforts to either upgrade and support the agricultural extension system within the areas covered by their agricultural development projects, or to establish a parallel extension system. In addition, donors often rely on NGOs for extension activities. There have not been any general efforts to revive the extension service, in large part because of the enormous constraints to doing so. Clearly, then, the lack of an adequate extension system is a major constraint to adoption by farmers of new or improved production technologies or cropping systems.

## B. Efforts to Address the Constraints

### 1. Government Policy and Planning

Agricultural policy extends far beyond the specific initiatives taken by the DOA. Macroeconomic policies, as well as trade and tariff policy, foreign exchange rate regimes, credit, transportation, investment codes, and direct budget allocations all define the conditions for agricultural development. Policy formation in each of these various areas is the responsibility of distinct agencies, most of which do not have agriculture as their primary mandate, and few of which coordinate their agricultural activities with one another. Yet, in a broad sense, Zaire's "agricultural policy" encompasses this full spectrum of policy areas (Steven Block et al., "Overview of Zairian Agricultural Policy Issues and Recommendations for Policy Research Agenda," March 1987).

The problem of "agricultural policy" in Zaire lies in the fact that its definition in the DOA does not go beyond a certain level of generalization. The macroeconomic framework is beyond its control as is most of the trade policy, credit, transportation and budget allocations that go with it. The specific strategies for their implementation boil down to discrete projects over which the DOA has firm control. Thus, in essence, projects substitute for policy and planning in the DOA. As a result, the line between objectives and policies to attain those objectives is blurred. This is probably helped by the fact that the French meaning of "politiques" is different from the English concept of "policies." The French expression "politiques" means as much an expression of objectives and broad goals as the ways and means (or policies) to attain those objectives. Thus agricultural policy in Zaire as conceived by the DOA consists de facto of a wide range of mostly unconnected activities and projects, many of which are beyond their control. Because there is no mechanism to provide a unified assessment of their implications for agriculture, there is often a lack of coherence in policies.

If USAID is going to adopt a sectoral approach, a unified view of policies affecting agriculture in Zaire will be needed. This will not be easy as nearly 20 GOZ agencies are involved in policy making affecting agriculture, and only a minority of these agencies make policy decisions specifically with agriculture in mind.

Overall coordination of policymaking for agriculture presently rests mainly in the Prime Minister's Office, more specifically with the agricultural advisors working in the office. They draw heavily on the underlying bureaucracy and it is therefore critical that SEP and USAID's current Agricultural Policy and Planning Project (Project 119):

1) Increase the availability of improved information about the importance of the agricultural sector and its potential for sustained economic growth.

2) Develop and analyze policy alternatives and strengthen the capacity of SEP to collect and analyze data and conduct policy analyses.

3) Make adequate representation to the various GOZ agencies involved in agricultural policy making and carry out effective lobbying to bring about favorable policy changes. If they succeed in this role, they will effectively assume a policy coordination role.

As previously noted, the macroeconomic policies adopted by Zaire in the early 1980s have alleviated some of the constraints to agricultural development that had been due to earlier marketing and pricing policies. At the same time, there remain vestiges of governmental control of marketing, in the form of fixing the timing of marketing campaigns, that limit options for farmers and for traders. Apart from efforts (which will be discussed below) to enhance the availability of credit and to simplify procedures for marketing of export crops, government policies in the areas of marketing, pricing, credit, and land tenure are generally not the focus of ongoing or planned programs and activities.

Constraints on government planning and policy development capabilities have been and continue to be concerns of both USAID and the World Bank, in particular. Five constraints were identified earlier: training, poor public sector pay, poor agricultural statistics, inadequate GOZ resources, and Zaire's political system. Donors have been attempting to alleviate the first four of these constraints, and very recently President Mobutu has initiated what appears to be a major overhaul of Zaire's political system.

USAID has been prominent in the area of training, engaging in a long-term institution-building effort at SEP that has provided stateside training for approximately 70 Zairians to date, mostly at the Master's level in Agricultural Economics. This effort goes back roughly 15 years, and technical assistance has been used to provide on-the-job training to complement the academic training. Project 119, which is the third major USAID project to support SEP, is providing

technical assistance and additional long-term academic training in order to continue the upgrading of GOZ capacities for planning and for policy analysis and development. Additional academic training is needed to make up for attrition of trained personnel -- some of whom move on to other jobs within the DOA or elsewhere in the GOZ, while others leave for the private sector.

USAID's support has enabled SEP to play a key role in policy formulation within the DOA/GOZ. SEP is now carrying out agricultural policy and project-related studies that formerly had been done by consultants. Its staff expertise is recognized, and SEP is regularly consulted on policy questions not simply within the DOA but also by the Department of Plan, the Prime Minister's Office, and the Office of the Presidency. While the series of USAID projects has had a dramatic effect on SEP's ability to carry out policy analysis and planning activities, there is still considerable room for improvement. SEP's outputs have frequently been principally descriptive, whereas improved planning and policy making requires more analytical studies. It appears that the current project is beginning to produce these more analytical outputs.

An important constraint on planning and policy development capabilities within the GOZ is the absence of reliable data on the agricultural sector. USAID and the FAO have both provided support to the DOA's Agricultural Statistics Division at SEP, but the agricultural statistics problem remains. During most of the 1980s, USAID's support for the Statistics Division was concentrated on the Data Processing Office (Bureau Informatique). The FAO, by contrast, has been seeking to establish a national system for agricultural data collection. In the latest of a series of projects providing technical assistance and material support to the Statistics Division, the FAO is attempting to establish a "Systeme Permanent" of agricultural data collection.

Past data collection efforts by the Statistics Division have frequently been overly ambitious, and have failed to adequately cope with the exceedingly difficult logistical problems posed by agricultural survey work in Zaire. Poor management characterized the Division, there was a lack of priorities, and inadequate attention was paid to methodological issues, to the need for supervision in the field, and to requirements for data processing. Whether the Systeme Permanent can overcome these obstacles remains to be seen, but the prognosis at present is not a good one.

The World Bank seeks to provide support for agricultural statistics through its PAT2 project. This support will entail working in collaboration with FAO. However, unless the Statistics Division can significantly upgrade the qualifications of its personnel (who have not benefited from USAID-financed training to the same degree as their counterparts in the Division of Strategy and Planning) and focus in on some clear and feasible goals, it does not seem likely that FAO and World Bank efforts to improve agricultural statistics will bear much fruit.

One ongoing effort at agricultural data collection that should be noted is the work being done with the Directorate of Markets, Prices, and Campaign Credit (DMPCC) by a team from the University of Leuven in Belgium. DMPCC is responsible for monitoring of markets, particularly with respect to collecting of marketing information, prices, and requirements for marketing credit. The Leuven team, whose research is funded by Belgium, is studying food supply to the Kinshasa market. They have begun to produce a series of analytical studies that should be very useful for policy and planning purposes.

A further constraint on government planning and policy capabilities is poor public sector pay, which results at times in attrition of trained personnel, who leave the public sector in favor of better-paying private sector jobs. The World Bank, under its PAT2 project, will seek to provide support for improved personnel management and salary policy formulation within the DOA. However, the limited resources of the GOZ make it impossible to raise public sector salaries significantly without simultaneously reducing the size of public sector payrolls. Politically, it would seem as though reducing the size of public payrolls would be extremely unpalatable. Hence, without some sort of arm twisting, it seems unlikely that the GOZ would be willing to move to a much leaner, much better paid state bureaucracy.

A fourth constraint to improved government planning and policy development is the overall resource constraint -- that is, the fact that GOZ resources available for operating budgets are inadequate. Debt forgiveness, which has been carried out by the U.S., Canada, Germany, Belgium, and France, is one mechanism for alleviating this constraint, as is direct donor funding of specific activities. The World Bank is seeking to address this constraint via promotion of the priority investment program, PIP. In addition, under its PAT2 project the Bank intends to provide support for improved programming and execution of public expenditures. These efforts should serve to enhance the resources that the GOZ can bring to bear in addressing policy and planning issues.

The fifth constraint mentioned earlier in this section was the lack of continuity resulting from the revolving-door political system under which Commissaires d'Etat and Secretaires d'Etat typically remain in office for relatively brief periods. It is possible that the major overhaul of Zaire's political system recently announced by President Mobutu will ultimately improve this situation, and lead to greater continuity. However, it is also apparent that the short term is going to be a period of intense political activity, and this emphasis on politics is likely to divert attention from longer-term issues concerning promotion of economic development. In effect, then, the emerging political situation in Zaire will likely be a constraint on government policy and planning over at least the next year.

## 2. Private Sector Marketing

The state of Zaire's transportation infrastructure was identified earlier as a major constraint on trader abilities to market outputs.

USAID and the World Bank are actively involved in efforts to rehabilitate the transportation sector. The Bank has proposed a River Navigation Improvement project, and it is also pursuing a rural roads rehabilitation project. In addition, other donors periodically get involved in efforts at improving transportation infrastructure (e.g., EEC funding for rehabilitation of the road between Kinshasa and Matadi). In principle, these activities should be able to reduce effective transportation costs and thereby increase farmgate demand for agricultural products. Zaire's size and generally low population density are constraints on how effective any given resource inputs into transportation rehabilitation will be; but focus on river transport (to facilitate evacuation of production from the Central Basin) and on rural feeder roads in areas of relatively high population density appears to offer the best prospects for improvement.

An additional constraint on private sector marketing consists of the numerous taxes that are often imposed on traders by local authorities. Ongoing World Bank dialogue with the GOZ, in the context of the Structural Adjustment Program, seeks to rationalize the tax system.

Finally, limited access to credit was identified earlier as a constraint on traders. Policy changes during the past two years, including both a reduction in the degree of Bank of Zaire intervention in the process of allocation of credit and elimination of the preferential interest rate for agricultural credit, represent improvements. However, as noted earlier, there is still a shortage of credit and there is considerable unmet demand for marketing credit. While the World Bank is seeking to augment credit available to the modern sector for production activities, it would appear that there are opportunities for increasing credit available for marketing as well.

### 3. Commodity Exportation

The major constraints to exports that were identified earlier included declining real producer prices, a poor economic environment, poor river transport, inadequate marketing credit, and excessive paperwork required for exports. GOZ and donor efforts have been and are being made to attempt to alleviate most of these constraints. Under the Structural Adjustment Program, the World Bank is seeking to generate continued improvements in macroeconomic policy and in creating a favorable environment for investment. In addition, the Bank has successfully pushed for suppression of a portion of the taxes on exports, and it is seeking to assist the GOZ in policy reform aimed at reducing the volume of required paperwork and thereby streamlining the export process. Proposed improvements to the river transportation system (discussed above) are designed in large part to facilitate agricultural exports.

#### 4. Credit Availability and Savings Mobilization

USAID is presently funding an extensive study of rural financial intermediation that initially focuses on developing a clear understanding of rural financial markets in Zaire. The study seeks in particular to explore possibilities of rural savings mobilization through savings and credit cooperatives (e.g., COOPECS), which could potentially serve as direct suppliers of financial services to rural enterprises and households. Development of specific strategies and action plans for significantly expanding rural financial intermediation (and hence alleviating liquidity constraints in the agricultural sector) will be based on the study findings.

The World Bank has proposed establishment of an Industrial and Export Crops Credit (IECC) and of a Perennial Crops Rehabilitation Credit. The IECC is meant to facilitate access to foreign exchange and to credit so as to enable modern sector enterprises to satisfy short-term needs for inputs such as equipment, spare parts, and fertilizer. The Perennial Crops Rehabilitation Credit will seek to facilitate longer-term investments in rehabilitation of the plantation sector.

While there is potential for these credit programs to have a significant impact on the plantation sector, it must be emphasized that the chronic problems with inflation as well as the instability or stop-and-go nature of economic policy in Zaire is an important constraint on long-term investments in the plantation sector. For such investments to be made, it is necessary to have a reasonably stable economic environment, with relatively modest inflation and without fears that the rules of the game might change from one day to the next. It will take some time before such an environment can be established in Zaire.

#### 5. Farmer Productivity and Access to Inputs

Earlier it was argued that access to improved seeds and varieties constituted an important constraint on smallholder productive capacity. BUNASEM, the Bureau National des Semences, is the GOZ's main effort at engaging in improved seed production and distribution at the national level. BUNASEM was initiated in the early 1980s, with support from FAO and the World Bank. Its objectives are to: control seed quality, coordinate seed production and distribution, facilitate access of farmers to improved seeds, and supply foundation seed to seed farms.

BUNASEM now has seed farms in every region, and it also contracts with the private sector for seed production. There have been quality problems with some of the seeds produced by BUNASEM, and in certain cases deliveries have not been made in the requested quantities. BUNASEM is also very dependent on donor funding (over \$15 million), and it is not clear how it will reach sustainability.

Overall, BUNASEM has an important role to play in GOZ strategy to increase agricultural production. However, considerable funds from donors and the GOZ will be required to maintain it, and it faces

substantial difficulties related to transportation, organization, and lack of qualified seed production and certification staff. In order to reach small farmers, BUNASEM must decentralize its operations, but this will put considerable strain on managerial and organizational capabilities. It is still a fragile institution that must gain experience and maturity before it becomes self-sustaining.

Access to inputs is in many ways much more of a constraint on the modern sector than on the traditional sector. With regard to improved seeds and varieties, it was noted earlier that the absence of ongoing adaptive research by INERA constitutes an important constraint. The World Bank is planning a major National Agricultural Research project to support INERA, and part of the focus of this project will be on the export and industrial crops produced by the modern sector.

Additional constraints on the modern sector are caused by the poor transportation infrastructure (especially with respect to river transport), difficulties in obtaining foreign exchange, and lack of credit for both short-term inputs and longer-term rehabilitation investments. The World Bank has proposed various measures seeking to alleviate these constraints. A River Navigation Improvement project will seek to improve water transportation and thereby facilitate both evacuation of outputs as well as provision of inputs. As noted earlier, significant decreases in effective transportation costs would also have the consequence of increasing the effective demand for labor and thereby permitting higher wages to be offered by plantations.

## 6. Natural Resource Base Management

Ministries within the government of Zaire are becoming increasingly receptive to acknowledging and discussing natural resource degradation issues and utilizing world resources to help develop strategies and solutions for abatement. An inter-ministerial council under the auspices of The Departement des Affaires Foncières, Environnement et Conservation de la Nature (DAFECN) has been formed to serve an advisory role in development issues that will have an impact on the forest resources. DAFECN and The International Institute for the Environment and Development collaboratively produced the Etude Institutionnelle du Secteur Forestier, which specifically delineates the sequence of events that has led to the decline in the natural resource base. The document discusses possible methods to alleviate the pressure on the food production system and identifies constraints to regeneration of the soil and forest resources. This study and others of similar subject matter produced by the World Bank (1988) are important steps in recognition of the importance of the natural resource base and its consideration in development policy. These developments in Zaire are examples of the need for greater inclusion of natural resource base issues and natural resource base economists (agro-ecologists) in the overall development policy process.

Other constraints to addressing natural resource base issues in the overall development process rest with donors and their foresight and willingness to instill concepts of ecologic as well as economic benefits in macroeconomic, sector, and project strategies and

interventions. However, even within this arena there is still considerable scientific debate as to the sustainability of intensified agronomic practices for the humid tropics. Agronomic studies using high levels of inputs (lime, fertilizers, pesticides) have shown sustained management of the soil resource as measured through quantifying organic matter contents and nutrient availabilities (Sanchez et al., 1981). However, the economic sustainability of the proposed cropping systems has been widely questioned. None the less, progress has been made in understanding agricultural resource utilization in relatively infertile tropical soils. Research networks, management assessment methods, and other adaptable tools are available to better integrate sound resource management with agricultural development.

The major constraint to development of Zaire's forestry exploitation potential is the weak transportation system. The lack of roads capable of handling large vehicles and the general nature of the dense forest have limited the degree of exploitation. It should be noted that elsewhere in the world, improvements in farm to market roads have greatly exacerbated forest management endeavors by increasing the availability of the forest to both commercial and small scale lumber and agricultural activities. This implies that forest management and protection policy and efforts will need to be developed in conjunction with improvements in the transportation sector. This approach does not necessarily hark back to the days of large integrated rural development projects, but does highlight the need for comprehensive planning and evaluation of the effects that improvements in one sector will have on peripheral industries in the same area. The sustainability of one industry can be dependent on the consequent changes in related industries.

## 7. Technology Development and Dissemination

Rehabilitation of both the national agricultural research system and the national extension system are required to alleviate constraints to development and adoption of new production methods. In recent years USAID has played a major role in funding agricultural research in Zaire via the RAV project, which has regrouped and revitalized national commodity research programs for cassava, maize, and legumes. RAV is presently the principal organization in Zaire carrying out agricultural research, and continued USAID funding for agricultural research is essential in the short term.

In addition to USAID's efforts with RAV, rehabilitation of INERA is also needed. The GOZ/ISNAR study group essentially proposed that there be an integration of the national commodity research programs with INERA, after INERA itself has been profoundly reformed. The group's recommendations provided a blueprint for restructuring INERA and transforming it into a productive research organization. As noted earlier, however, progress toward implementing these recommendations has been exceedingly slow.

The World Bank is now taking an active role in coordination of donor support for INERA's restructuring and in the drawing up of a

long term master plan for agricultural research with phased implementation. The transfer of INERA's headquarters from Yangambi to Kinshasa and development of an action plan to restructure agricultural research were conditions of the Structural Adjustment Credit negotiated with the Bank in 1987. In addition, the Bank has proposed a National Agricultural Research project to continue and assist in the process of rehabilitating INERA. This project will focus initially on establishing a research and institutional framework, management support, priority activities, staff training, and minimal investment needs for research facilities. In addition to these organizational and administrative aspects, however, it is essential that INERA develop a realistic and manageable set of substantive research priorities. Ideally, substance and aims should determine organization, infrastructure development, and financing of INERA, not vice versa.

In any case, it is apparent that a long time will be required to carry out the needed reforms in order for INERA to become a viable and effective research organization. As USAID has learned in its efforts at SEP, the building of sustainable institutions is a slow, costly, and evolutionary process that may take decades rather than years. The key to the long-term viability of agricultural research in Zaire lies in convincing the GOZ that agricultural research and the dissemination of its findings are essential for accelerated growth in the economy.

The World Bank is also seeking to revitalize the extension system, through its proposed Agricultural Services project. The strategy to be pursued includes the following elements: improving regional extension services to small farmers to increase food production, beginning in selected priority regions and relying heavily on NGOs and the private sector; establishing an extension management system; substantially trimming and restructuring the present extension service; and rehabilitating veterinary services to promote smallstock, dairy, and meat development.

It is not readily apparent that the training and visit method of extension that the Bank is promoting will work effectively in Zaire. Perhaps more fundamentally, resolving a number of the specific constraints to extension that were discussed earlier will prove to be both very costly and extremely difficult to implement. On balance, then, the prospects for rehabilitation of the extension system do not appear to be as promising as the prospects for rehabilitation of the research system.

### III. USAID AGRICULTURAL SECTOR STRATEGY

#### A. Current Program

##### 1. Objective/Strategy

The overall objective of the USAID/Zaire agricultural sector program in Zaire is to increase agricultural production, productivity, and rural household income, with particular emphasis on the Bandundu and Shaba regions. Rural income is the principal economic variable USAID is attempting to ultimately change with its agricultural portfolio.

USAID's emphasis on increased agricultural productivity and progress in market-oriented policy reform is based on the premise that the agricultural sector is a key to sustained economic growth in Zaire. Agriculturally-led economic growth will expand employment greatly, particularly in rural areas, reduce rural to urban migration, improve nutrition, and raise living standards throughout the population. Agriculturally-based economic growth will depend on increasing both the production and productivity of Zairian farmers and on improving agricultural marketing. This in turn will depend very much on infrastructural improvements in rural and urban areas and on public policy which is supportive of agricultural development.

This growth-oriented objective is to be achieved by targeting activities and interventions in the following three areas:

- a. Increase sustainable crop production and productivity for domestic and export market.
- b. Provide market-oriented policy and institutional incentives for rural agricultural enterprises.
- c. Improve rural financial services for production, storage, processing and marketing activities by small and medium sized farm firms and entrepreneurs.

##### 2. Resources

At present, the USAID agricultural sector portfolio consists of the following four projects: (1) Applied Agricultural Research and Outreach (RAV); (2) Area Food and Marketing Development (PROCAR); (3) Central Shaba Agricultural Development; and (4) Agricultural Policy and Planning. The annual dollar obligation under these and follow-on projects amounts to approximately \$7-8 million, and there is another \$6-8 million dollars spent annually in local currency.

##### 2.1. Applied Agricultural Research and Outreach

The Applied Agricultural Research and Outreach Project (Recherche Appliquee et Vulgarisation-RAV) was initiated in 1983. The purpose of the project is to improve and expand the ability of the Department of Agriculture to undertake applied agricultural research activities, and

to transfer agricultural technology needed to increase village cultivators' production of food crops. A key element in the USAID strategy has been crop technology development by three national commodity programs: corn, cassava, and grain legumes.

Project implementation reports have documented the project's achievements to date and outstanding issues and problems. According to a 1988 interim evaluation of the RAV experience, a solid foundation has been laid for on-station commodity research. Outreach links to the extension agencies remain weak in all programs, however. The current research thrust of the RAV project is to institute improved crop cultural practices using the farming systems approach.

When the RAV I project ends in September 1990, it will be replaced by a follow-on project, RAV II. The purpose of the RAV II project is to strengthen and improve the capacity of the GOZ to develop and transfer agricultural technologies, on a sustainable basis, to small farmers for increased production and income. The project will also consolidate the building of capacity in applied food crop research and outreach in corn, cassava, and grain legumes, a process begun by USAID in the early 1970s. In this sense, the project is highly consistent with the Africa Bureau's plan for supporting agricultural research and faculties of agriculture in Africa (a plan under which Zaire is targeted as one of eight technology-generating countries selected for long-term investment by AID).

## 2.2. Area Food And Market Development (PROCAR)

The Area Food and Market Development Project (Projet de Developpement de la Production et Commercialisation Agricoles Regionale-PROCAR) was initiated in 1984. The purpose is to increase agricultural production, marketing and processing in Central Bandundu. The project is focused on assisting local PVOs so that they can deliver effective services to small farmers. The main food crops are cassava, corn, peanuts, and rice. Other crops grown in the area include coffee, fibers, rubber, and vegetable crops.

PROCAR trains extension personnel to increase the diffusion rate of improved varieties. The project is also taking a leading role in improving the efficiency of crop marketing in the project area. Promotion of improved processing techniques, a pilot river marketing trial, and testing of crop storage improvements are among the ongoing project activities. The project also addresses environmental issues by promoting tree planting for soil enrichment, as well as by advising farmers to lengthen fallow periods to improve soil fertility.

## 2.3. Central Shaba Agricultural Development

The Central Shaba Agricultural Project focuses on five new areas identified in the Shaba regional development plan and confirmed by design research to be critical to agricultural development. The basic objectives of the Central Shaba Agricultural Development Project are to help re-establish the preconditions for sustainable development in Shaba by restoring the basic infrastructure of the agricultural

sector. The ultimate goal is to move the region towards food self-reliance by increasing the production, processing, and marketing of basic food crops. USAID's support for agricultural development in Central Shaba was initiated in 1986. It is envisioned as a fifteen-year effort with the major financial expenditures occurring in the initial years. The Central Shaba Agricultural Development Project intends to: (a) establish a private sector seed enterprise; (b) develop farmer-based extension services; (c) construct village storage facilities; (d) improve transport; and (e) improve support centers. The project also continues supporting activities in the zones formerly covered by the North Shaba Rural Development Project (PNS).

The extension component of the project continues to make significant progress. Eight covered loading docks are to be constructed with capacity to protect 16,000 tons of crops from rain and other elements and thus reduce post-harvest losses. The Shaba region is a vital link in the food supply chain in the economically important southern band region of Zaire.

#### 2.4. Agricultural Policy and Planning

The Agricultural Policy and Planning Project (Project 119) is USAID's fourth activity to support the development of the Studies and Planning Service (SEP) in the Department of Agriculture. The overall purpose of the current project is to increase the institutional capacity of the Government of Zaire to develop and implement coordinated agricultural policies and investment plans.

According to a recent evaluation, the agricultural policy and planning project provides a significant opportunity for USAID to assist the GOZ in developing viable agricultural policies. The evaluation team also underscored that the initial step for realization of this opportunity entails a thorough review of the original project design to ensure that the project responds to current GOZ priorities. At present, the GOZ, the technical assistance team, and USAID are working in collaboration to more clearly focus project activity in three areas: agricultural policy, agricultural statistics, and investment planning.

On the policy side, for example, the technical assistance team is now addressing six key priority policy issues considered to be critical constraints to growth in agricultural production, productivity, and rural income in Zaire. The topics under analysis are: (a) food security; (b) price liberalization; (c) marketing costs; (d) trade and commercial policy; (e) agricultural credit and savings mobilization; and (f) seed policy. As these priority issues are analyzed and empirical data are brought to the attention of policy makers, a sector approach funding mechanism (discussed in detail below) provides USAID with opportunities for encouraging implementation of desirable policy reforms.

### 3. Policy Dialogue

### 3.1. USAID/GOZ Collaboration

The agricultural policy and planning project just described provides a continuing focal point for collaboration and dialogue between the GOZ and USAID in the policy area. In addition, USAID has also been involved in policy dialogue with the government of Zaire since the early 1980s through its ongoing support for Zaire's structural adjustment program.

In 1986 USAID substantially increased its involvement in economic policy analysis and dialogue with the authorization of a \$15 million African Economic Policy Reform Program (AEPRP). This program linked disbursements for a private sector Commodity Import Program (CIP) to industrial and trade policy reforms. Additional efforts to promote economic reforms are carried out through self-help measures under the PL-480 Title I program and through the Private Sector Support Program (PSSP).

With regard to PSSP, policy dialogue and quick-disbursing assistance are directed towards securing macroeconomic and regulatory reforms to improve the climate for private investment and business activity. Working with the World Bank and IMF, special emphasis is being placed on financial sector reforms and efforts to increase savings mobilization and domestic credit, particularly for small and medium-sized enterprises and agriculture-related activities.

Commodity Import Programs under AEPRP and PSSP generate counterpart funds, as do PL-480 imports. The use of these counterpart funds is programmed jointly by the GOZ and USAID in support of various development activities. Indeed, the scarcity of resources effectively available to the GOZ for development activities is such that these counterpart funds are typically the lifeblood of USAID-funded projects in Zaire.

Most recently, USAID was instrumental in assisting the DOA in organizing and carrying out a two-day national agricultural policy conference in late May 1990. The conference brought together high-level national and regional personnel of the DOA, representatives of the private sector, other ministries, and the donor community to hear and discuss a series of presentations focused on the broad theme of "Economic Liberalization: Achievements to Date and Strategies for the 1990s." The conference provided a forum for debating the principal sources of constraints to the growth and development of Zaire's agricultural sector, and for identifying the outline of a broad-based consensus on the agenda for future action. USAID is supporting preparation of a volume of conference proceedings, and the Commissaire d'Etat for Agriculture has indicated a desire to form a follow-up group to pursue recommendations made at the conference.

### 3.2. USAID/Donor Collaboration

Prior to the initiation of AEPRP the USAID program (outside of the health sector) was focused on specific target groups and geographic locations. USAID was knowledgeable about other donor

activities, but little coordination was required for the most part. The AEPRP constituted parallel financing to the World Bank Industrial Sector Adjustment Credit (ISAC), and contained conditionality complementary to that of the ISAC. Hence, improved coordination with the World Bank became imperative.

More broadly, as the focus of USAID and other donor activities in recent years has increasingly shifted to actions aimed at addressing broad-based structural problems, the need for improved collaboration and coordination among donors has become more apparent. USAID looks to the IMF and World Bank to take the lead in promoting constructive changes in macroeconomic policies, has been supportive of IMF and World Bank initiatives, and actively coordinates assistance with the World Bank and other donors. USAID's experience in Zaire gives it a comparative advantage in influencing sectoral policies in agriculture, health, transport, and finance, and in influencing policies of the regional governments in Bandundu and Shaba.

USAID's Private Sector Support Program was developed pursuant to donor collaboration focused on constraints to private enterprise development and on financial sector reform. This collaboration involved USAID, the World Bank, and the IMF. There was both sharing of information and co-financing by USAID of World Bank design of a Financial Sector Adjustment Credit which will build upon and complement the PSSP. Since mid-1988 there has been a donor working group in the transport sector, formed by the World Bank at USAID's initiative. USAID is working closely with the Bank toward a joint design for parallel financing of transport sector adjustment programs aimed at common policy reform objectives.

In the agricultural sector, an ad hoc donor committee under the auspices of the World Bank and including major bilateral donors was established in mid-1987 to coordinate action in support of the reorganization of INERA. Of particular importance in the future is consolidation of agricultural research in Zaire, and especially the relationship between RAV and INERA. USAID has maintained influence with INERA through establishment of Title I self-help conditionalities, primarily regarding financial and organizational management, and through funding INERA's component of the regional PRAPAC Potato Research Network Program. USAID has also been an active participant in recent GOZ-donor meetings to resolve problems in the organization and funding of agricultural research in Zaire. The GOZ agreed in November 1989 to integration of RAV and INERA by 1993, and this represented a culmination of USAID and World Bank efforts seeking ultimately to establish a unified national research system.

In contrast to the effective donor collaboration that has emerged focused on agricultural research, there remain significant problems in donor coordination in support of SEP's Division of Agricultural Statistics. Both USAID and FAO have been supporting the Division since the 1970s, although collaboration between the two donors was almost entirely absent prior to the mid-1980s. Some collaboration has taken place since then, including periodic USAID-provided local currency funding for FAO-supported activities, but USAID and FAO continue to

have very divergent objectives and approaches to agricultural data collection in Zaire. This divergence contributes to the inability of the Division to provide timely and relevant data as input to agricultural policy and planning decisions.

#### 4. Accomplishments

On the basis of studies carried out in Bandundu and Shaba, it appears that market liberalization has had a positive impact on agricultural production and farmers' incomes. Production increases have been realized as a result of increased area under cultivation, which in turn reflects farmers' responses to liberalized prices. As noted in the USAID Structural Adjustment Support Grant evaluation of September 1989:

Farmers in the Bandundu region reported that in 1986-87 and 1987-88, the areas harvested of all crops grown had increased from the preceding year. With favorable terms of trade this increased production led to a substantial increase in real income of farm households. Price liberalization therefore benefited most of the region's 611,000 farm households. Since average per capita income was \$63 per year, price liberalization also satisfied the U.S. Congressional mandate [for broad-based economic growth]. (USAID, 1989, p. iv)

Research supported by USAID has resulted in the development of five maize varieties with yields 30 percent higher than those of local varieties, and six cassava varieties with yield improvements on the order of 25 percent. This research has also supported development of improved varieties of grain legumes which has resulted in 11 new varieties (groundnuts, cowpeas, soybeans) with average yields 30 percent higher than local varieties.

Although the full potential for dissemination of these varieties has not been realized, it is estimated that in 1988 their use increased maize production in Shaba by over eight thousand tons. This constitutes more than 4 percent of the total regional maize market, and this increased production had an estimated market value of \$830,000. Similarly, in 1988 use of improved cassava varieties in Shaba increased production by three thousand tons for an estimated market value of \$305,000.

Improvements in cultivation techniques have also been shown to have potentially significant impacts on farm production. In Central Shaba, preliminary findings from a comprehensive analysis of 433 demonstrations in farmers' fields indicate that improved cultivation practices using local seed and stock provide increases averaging 45 percent for maize, 78 percent for peanuts, and 81 percent for peanuts intercropped with cassava. In Bandundu, 124 demonstration field trials combining improved varieties with improved cultivation practices resulted in a 48 percent increase for peanuts and a 200 percent increase for maize.

During the 1980s, USAID's institution-building efforts at SEP (principally through provision of stateside participant training and via on-the-job training provided by T.A. personnel) have resulted in a significant enhancement of the GOZ's capacity to provide description and analysis of the agricultural sector. While much remains to be done to increase SEP's ability to generate useful and reliable data on the agricultural sector and to develop and implement coordinated agricultural policies and investment plans, comparison of the outputs at SEP being produced at the end of the 1980s with those that were produced at the outset of the decade bear witness to the accomplishments of USAID's series of policy projects at SEP.

## 5. Economic and Natural Resource Sustainability

As noted in Part I, present traditional agricultural practices in much of Zaire appear to be generally unsustainable in the face of prospective population growth and increasing urbanization. There is considerable pressure already on the natural resource base, as reflected in shortening of fallow periods and deforestation, particularly in areas that are important sources of food production for urban centers. USAID attempts to address these issues in its agricultural research activities, and the area development projects in agriculture have incorporated environmental and natural resource management components in an effort to deal with these sustainability issues.

Among the research subjects addressed by RAV I and to be addressed by RAV II are crop rotations and fallow periods; multiple cropping; alley cropping, cover crops, and nitrogen-fixing trees; biological control of food crop pests; integrated pest management; soil amendments; and disease and insect resistant varieties. Research results on alley cropping, cover crops, and nitrogen-fixing trees benefit the PROCAR and Central Shaba area development projects. In addition, PROCAR is working with PVOs to provide extension information regarding lengthened fallow periods; it is attempting to promote tree nurseries to address reforestation, soil fertility, and crop protection, and is cooperating with the Canadian aid program's *Projet Pilote au Reboisement Communautaire*; and to limit environmental destruction PROCAR is promoting fixed market areas and river transport as an alternative to roads for evacuating agricultural output. The Central Shaba project is seeking to promote anti-erosion and soil fertility methods to address soil degradation and deforestation, and the project is also assisting park rangers in a national park located in the project area to protect native flora and fauna.

RAV II has a distinctly stronger environmental orientation than did RAV I, and will address environmental considerations through several mechanisms. These include efforts such as those cited above to improve agricultural practices to limit further degradation and rehabilitate environments that have already been degraded, and a focus on agro-ecological zones subject to near-term degradation. In addition, RAV II will also provide training to Zairian researchers and technicians in the principles of ecologically sound agricultural development, and will seek to develop linkages between Zaire's

agricultural research system and international organizations willing to contribute financial resources and expertise to preserve and rehabilitate Zaire's natural resources.

#### 6. Fit with Mission Resources and AID/W Policies

Over the period from 1986 through 1989 (fiscal years), annual obligations under the USAID/Zaire program averaged approximately \$61 million. Just over half of this amount was in the form of project assistance, roughly 35 percent was provided under PL-480, and the remainder consisted of non-project assistance. Over this same period expenditures (including counterpart funds) averaged more than \$72 million per year. Those projects that were active during the period from fiscal year 1987 through fiscal year 1989 had a total life-of-project funding of nearly \$270 million. Of this amount, \$100 million (37 percent) was devoted to projects in agriculture, and another \$72 million (27 percent) went to projects in health and population.

As indicated in Table 26, annual obligations are expected to average \$75 million over the next several years. PL-480 is expected to

Table 26. USAID/Zaire Obligation Schedule FY 1990 - FY 1995  
(millions of dollars)

Sector/Type of Assistance	Fiscal Year					
	1990	1991	1992	1993	1994	1995
<u>Zaire Program Total</u>	<u>74.2</u>	<u>65.0</u>	<u>80.0</u>	<u>70.0</u>	<u>85.0</u>	<u>75.0</u>
Project Assistance	24.0	20.0	27.0	20.0	25.0	23.0
Non-project Assistance	26.0	15.0	23.0	15.0	25.0	12.0
PL-480	24.2	30.0	30.0	35.0	35.0	40.0
<u>Agriculture Total</u>	<u>30.0</u>	<u>34.3</u>	<u>36.0</u>	<u>41.0</u>	<u>41.0</u>	<u>46.0</u>
Project Assistance	6.0	4.3	6.0	6.0	6.0	6.0
PL-480 Title I	24.0	30.0	30.0	35.0	35.0	40.0
<u>Health and Population Total</u>	<u>9.2</u>	<u>6.5</u>	<u>11.0</u>	<u>12.0</u>	<u>12.0</u>	<u>12.0</u>
Project Assistance	9.0	6.5	11.0	7.0	7.0	7.0
Non-project Assistance				5.0	5.0	5.0
PL-480 Title II	0.2					
<u>Transport Sector Total</u>	<u>16.3</u>	<u>10.7</u>	<u>12.0</u>		<u>22.0</u>	<u>12.0</u>
Project Assistance	3.3	3.7	2.0		7.0	5.0
Non-project Assistance	13.0	7.0	10.0		15.0	7.0
<u>Private Sector Total</u>	<u>14.0</u>	<u>9.0</u>	<u>16.0</u>	<u>12.0</u>	<u>5.0</u>	
Project Assistance	1.0	1.0	3.0	2.0		
Non-project Assistance	13.0	8.0	13.0	10.0	5.0	
<u>Miscellaneous Projects</u>	<u>4.8</u>	<u>4.5</u>	<u>5.0</u>	<u>5.0</u>	<u>5.0</u>	<u>5.0</u>

Source: USAID Action Plan, March 1990, Table 1, p. 26.

grow to over half of the overall program, while project assistance will account for less than a third of the program. The agricultural sector claims the largest share of the USAID program, principally because of PL-480. Focusing solely on project assistance, total obligations anticipated under agriculture for the period covered by the table amount to \$34.3 million, or roughly one fourth of total project assistance over the period. By contrast, total project assistance under health and population will amount to \$47.5 million, and corresponding figures for the transport and private sectors are \$21 million and \$7 million, respectively. Most of the non-project support that is anticipated is in the form of policy-based CIPs.

USAID/Zaire's program goal is to contribute to sustainable, broad-based, market-oriented economic growth and development. This goal is fully consistent with the goal and strategy of the Africa Bureau. It reaffirms USAID's intention to promote economic growth which will improve the well-being of Zaire's poor majority by providing opportunities to increase families' productive capacity, consumption, nutrition, and access to social services.

The Development Fund for Africa stresses a private sector orientation and equity considerations, and these concerns are central to USAID's program in agriculture in Zaire. The following section argues that agricultural development is the key to sustained broad-based economic growth in Zaire. Such development, by benefiting low-income rural residents, would be particularly desirable on equity grounds. The private sector has a critical role to play, and market liberalization and other structural adjustments as well as USAID's Private Sector Support Program and project activities with PVOs and NGOs all serve to promote development of the private sector in Zaire.

## B. Recommendations

### 1. Agricultural Development as a Key to Sustained Economic Growth

Economic liberalization, structural adjustment, policy reform, institutional strengthening, etc. all have as their basic justification sustained economic growth. The major challenge facing Zairian policy makers and donors is to put the Zairian economy back on a sustained economic growth path. The programs and projects undertaken within this framework claim that they will provide time, or an environment, or basic infrastructure and institutions that will do just that. Current and past programs in Zaire have been mainly directed at the appropriate problems but have not dealt adequately with the underlying economic problems which created them. This seems now to be changing.

Where is this economic growth going to come from in Zaire? Is it possible to have such growth with improved equity, as skewed income distribution is already a problem in Zaire?

Traditionally, the view is that rapid economic growth will have to come from the extractive sector for which Zaire is well endowed. But the market for raw materials of interest to Zaire such as copper, diamonds, cobalt or any of the other extractive products in which Zaire is so abundant has been depressed for over a decade, in spite of a marked upturn of the world economy in the second half of the eighties. Overcapacity of copper extraction on a world scale, recycling and substitution induced by technological advances such as the replacement of copper wire by fiber optics all indicate that there are limited possibilities to increase either production, market share, or world prices of those raw materials. The large investments required and the long lead times needed to expand extractive capacity further reduce the scope for the extractive sector becoming an engine of growth in the nineties.

In Zaire, the extractive sector makes up about a fourth of GDP (cf., Table 9), but it provides less than a fifth of paid employment. This illustrates the capital-intensive nature of the sector and the limited opportunities which it can provide for expanded employment and growth with equity. In contrast, commercial agriculture accounts for about 13 percent of GDP and over 30 percent of paid employment, reflecting the labor-intensive nature of agriculture.

The industrial and manufacturing sector in Zaire is mainly based in Kinshasa and Lubumbashi. Capacity utilization is very low and the limited size of the domestic market constrained by low purchasing power is a major impediment to increased production. Only if substantial economic growth revitalizes the economy can an expansion of domestic production be expected. An expansion of the industrial sector will itself require major investments and skilled manpower which will have to come from abroad through direct foreign investment which is unlikely under the present morose economic climate.

The only major area that has short and medium term prospects of accelerated economic growth with improved equity is agriculture. Agriculturally-led economic growth will expand employment greatly, particularly in rural areas, reduce rural to urban migration, improve nutrition, and raise living standards throughout the population.

According to the World Bank, the proportion of GDP growth directly attributable to agricultural growth increased from 12 percent in 1980-84 to a high of 46 percent in 1985. It dropped to 31 percent in 1986, and with the exception of a projected temporary increase in 1988, is expected to remain at about the thirty percent level during the next five years based on a scenario in which agricultural growth slightly exceeds both overall GDP growth and the estimated population growth rate of 3 percent per year (World Bank, 1988, p. 8).

Agriculturally-based economic growth will depend on increasing both the production and productivity of Zairian farmers and improving agricultural marketing. This in turn will depend very much on infrastructural improvements in rural and urban areas, on public policy which is supportive of agricultural development, and on the maintenance of the natural resource base in agricultural production areas. The recommendations in this sector assessment address these prime movers of agricultural development and help to lay the foundation for sustained economic growth with equity based on agriculture.

### 1.1. Recommendation

If USAID is going to adopt a sector approach with a large infusion of external funds coupled with policy changes, a careful assessment of the decision-making process in the key ministries affecting the sector is necessary. The key to any successful long-term agricultural sector policy making and planning lies in clearer procedures to allocate and to deliver timely and sufficient domestic resources to agriculture. A corollary is the acquisition of sufficient leverage by the DOARD to increase the aggregate levels of allocations to agriculture. It is our belief that this is a pre-condition for a coherent agricultural policy and for effective programs to promote the development of the agricultural sector.

## 2. USAID's Comparative Advantage

The major comparative advantage of USAID vis-à-vis other donors in an agricultural sector approach is in the following areas and modes of assistance:

### (i) Food aid

This can be a tremendous asset in combating poverty and malnutrition, in bridging the time between the moment a policy is decided on and when its effects appear (buying time and easing the transition), in pursuing certain social objectives (employment creation, providing a safety net for vulnerable groups), and in

overcoming transitory food insecurity because of drought, natural disasters, etc.

(ii) Counterpart funds (CPF)

Local currency financing can provide the needed incentives to make policies take hold and work (self-help measures), to overcome (temporary) shortcomings of the government, to bridge a severe economic crisis, etc. CPF can be managed in a flexible way so as to respond quickly to needs.

(iii) Overseas training in the USA

In the field of agriculture, the U.S. land grant college system is unique in the world and can provide high quality training over a wide range of subjects for participants. This is a unique asset of USAID vis-à-vis other donors and is all the more important in light of the weaknesses of Zairian higher education and the overriding need to build local capacity.

The demand for U.S. trained agriculturalists and economists is very high in Zaire. In contrast to some other African francophone countries, U.S. degrees are readily accepted. Enhanced problem solving skills make these returned participants very attractive to both the private and public sectors for management and decision-making positions.

Attrition rates of staff trained in the U.S. are fairly high. There is a high demand in Zaire for such well-qualified problem solvers in both the public and private sectors. In almost all cases, they continue to work in Zaire and the training received continues to benefit Zaire and USAID program and policy objectives. They provide two major benefits to USAID development objectives:

1. They facilitate access of U.S. personnel, both permanent and short term, to senior decision makers in the government and the private sector.

2. They facilitate access between and among similarly trained Zairian personnel working in a variety of public and private sector activities related to agriculture.

(iv) Assistance in the form of quick disbursing grants instead of loans

This is a big asset, particularly for actions such as T.A. which need to be financed by foreign exchange and where the GOZ is reluctant, and with good reason, to contract loans.

(v) Food crops research

USAID is heavily involved in food crops research in sub-Saharan Africa, particularly in Senegal, Cameroon and Zaire. Moreover, USAID is the major donor of the International Institute of Tropical

Agriculture in Ibadan, Nigeria, serving the lowland humid and subhumid ecologies of West and Central Africa. USAID has been and is a staunch supporter of agricultural research and sees it as of paramount importance to all of the agricultural and economically related projects and programs.

Over the years USAID has developed a singular capability to carry out agricultural research projects. Much of this capability has come from the eminent place American agricultural institutions have in agricultural research, particularly in food crops. In addition, USAID has taken a lead role in the development and support of the International Agricultural Research Centers that have been the base for many of the important breakthroughs that sparked the green revolution. Finally, USAID has been the pacesetter in support of Farming Systems Research (FSR). FSR is proving to be a key element in technology generation and adoption in Third World agriculture.

For the past fifteen years, USAID/Kinshasa has been the major donor in food crop research in Zaire. Total funding for agricultural research is over \$16 million. Research results obtained in Zaire serve surrounding countries and similar ecological zones in other countries (e.g., the Kasai and Shaba maize varieties are grown in Cameroon and Zairian cassava germplasm is being used in the breeding programs of IITA in Ibadan). Thus, USAID has a unique capability and experience among donors in this area. USAID is looked to by both the GOZ and other donors for the lead in any food crop research issues. Other donors such as the World Bank and Belgium are interested primarily in export crop and cotton research. These are areas where USAID has no comparative advantage or is forbidden by legislation from getting into.

### 3. Sector-Based Approach

#### 3.1. Adopting a Sector-Based Approach

Starting around 1983, the foreign aid pendulum shifted from project to policy-based lending. The influential Berg Report of 1981 (World Bank, 1981) recommended for Africa a shift to market liberalization, a reduction in public sector employment, and more effective agricultural policies, including price policy. Out of it came the need for "policy dialogue" and World Bank lending based on a sector approach. At the same time, the E.C. published a plan known as the "Pisani Memorandum" (Tollens, 1988) which advocated food strategies as a new form of cooperation between Europe and the Third World. Central in the concept of food strategies was policy reform and the macroeconomic dimension of agricultural and food policies. The principal objective was to create an environment conducive to an increase in agricultural production and development. Four countries were selected for implementation of a food strategy: Kenya, Zambia, Rwanda and Mali. The adoption of the food strategy concept by the E.C. represented a shift from a project-based to a sector-based approach.

Although many donors are reluctant to publish the results of their evaluations, it is well known that the failure rate of rural

development projects in sub-Saharan Africa is high. Zaire is no exception to this. The World Bank's Operations Evaluation Department recently evaluated the Bank's experience with financing rural development (RD) projects from 1965-1986 and noted that although "RD lending targets were met ... half of the RD projects in sub-Saharan Africa failed" (World Bank, 1988). The failure of projects has induced donors to adopt new approaches which offer better chances for success. In many cases the policy environment is a major constraint on project and aid effectiveness. Hence, efforts to induce policy changes and institutional reform now characterize the aid policies of the major donors in sub-Saharan Africa.

The major advantage of an agricultural sector approach is that it makes possible an assistance to policies instead of a policy of assistance as is the case in a project (only) approach. In a sector-based approach, focus is on the agricultural sector instead of on individual, piecemeal projects, and it is hoped that in this way more desirable policy changes can be induced and that a more effective development program can be realized. A sector approach provides a unifying framework for projects, stresses the macro or policy dimension of agricultural development, opens the door to policy dialogue and emphasizes that projects can only succeed if the macro-economic and policy environment is favorable. Moreover, a sector-based approach does not exclude individual, even disparate projects.

In many cases, the right policies (e.g., price policy) can achieve more than individual projects in the absence of such policies. Projects, by their very nature, are location and time specific. Price Gittinger (World Bank) calls them "the cutting edge of development." Even in a sector-based approach, in the end, most of the money and most of the action will be in projects. But projects will be linked to a macroeconomic framework and should in principle be the result of policy decisions that seek to implement certain policies reflecting macroeconomic planning and decisions about regional balance, equity, food security, etc.

In a sector approach and in light of the poor record of the GOZ in releasing domestic funds for projects or policies to which it is committed, the tactic of matching funds could be useful. If agreement is reached between USAID and the GOZ on policy reforms and related programs and projects, implementation could be phased such as to induce a clear commitment by the GOZ to provide its own budgetary contribution. For each dollar in local currency release for such an agreed action, \$x in CPF and \$y in foreign exchange could be released as matching funds by USAID or vice-versa. As far as is known, there are no such experiences in Zaire but the idea seems novel and worth trying. If successful, this could be the start of a genuine partnership and increased GOZ commitment to agriculture. There is a danger that the GOZ might see this as infringing on its sovereignty but this should be cleared up through the on-going agricultural sector policy dialogue and should be part and parcel of the new approach. As the release of funds (e.g., balance of payments support) could be tied to certain policy reforms, the matching of funds could be part of the

budgetary process and could be implemented after annual or semi-annual policy review sessions.

### 3.2. Sectoral Grants

The agricultural sector in Zaire has been neglected for so long that there is a strong willingness among GOZ officials to make whatever changes seem appropriate to regenerate economic growth from the sector. In addition, the major policy thrust of the GOZ is to support the private sector development of agriculture which coincides with USAID's general orientation. The challenge for USAID is now to develop a strategy which focuses on the basic developmental issues which affect Zairian society on the whole. Sectoral grants can be a major instrument in such a strategy.

A sectoral grant is a particular mode of assistance which offers many advantages, particularly in combination with large CIPs and a PL-480 Title I/III program which generates CPFs. Its operation and the expected advantages would be as follows:

- T.A. and participant training will be provided under the sectoral grant.
- Goods and services will be procured locally through the CPFs, thus reducing administrative delays, shortening delivery times, and stimulating the local economy.
- Private sector importers will be able to acquire the foreign exchange needed to import the goods and services via the CIPs, thus strengthening their operations and building local capacity.
- Public finance of the GOZ will benefit from this assistance mode through the various taxes and duties levied on local purchases.
- Administration at the USAID/Kinshasa mission will be reduced by shifting many functions to the private sector and counterpart organizations.
- The rate of implementation and disbursement within the overall program will be speeded up.
- Policy dialogue with the GOZ and donor coordination and cooperation will be facilitated through quick disbursing support (in foreign exchange and in local currency) of the agreed policies and actions.
- Leverage on the GOZ will be enhanced through the modulation of the rate of disbursement as a function of the rate of implementation of desired policy changes and performance indicators and benchmarks (this will be mutually agreed on in a Memorandum of Understanding).

### 3.3. The Concept of Matching Funds

The concept was explained to several key Zairian decision makers to test their reaction. Central in the argument is to build greater Zairian commitment to policies and actions (projects) and to translate this into a financial commitment which is then matched by a donor such as USAID. The following reactions were observed:

- The idea would not work for CPF, as the Secretary of State of the DOA considers this GOZ financing. It would be a futile exercise to try to match increasing CPF financing to GOZ financing.
- For dollar financing which would be matched by GOZ financing in zaires, the concept seems feasible if it is negotiated before a project or program starts and if it is explicitly written into a project or program agreement. The local financing would then have to be included in PIP, which implies heavy involvement of the DOP. This would only apply for new projects or programs and for additional dollar financing, over and above the present situation.
- Problems are foreseen with the release of local funds from PIP. The release of such funds is never the full budgeted amount and is often late, depending on the availability of funds at the Bank of Zaire. It is likely that a situation will arise whereby donor funding in dollars for a project or program is held up because local GOZ financing is not forthcoming, even after all assurances at the highest level are given and even if it is written into a binding project or program agreement. What then happens in such a situation is anybody's guess but it is likely that donor financing, since it is available, will be forthcoming, thus defeating the whole concept of matching funds.
- It appears that detailed rules will have to be laid down for monitoring the performance of a system of matching funds, i.e., benchmarks and performance indicators will have to be established.
- Until now, only the World Bank and the IMF operate under such a system wherein policies and actions have to be taken by the GOZ before a loan or standby agreement takes effect and funds are released.
- If donor leverage is high because of a high proportion of donor funds to local funds, performance of the GOZ is likely to be better since the incentive is greater.

### 4. Supporting Marketing Policy and Other Reforms

USAID supports the process of economic liberalization which is a core element of GOZ economic strategy. However, economic liberalization in Zaire is not yet deeply rooted in the GOZ and the pendulum could easily shift back to state intervention and control of the economy. Political pressures to increase the weight of the state for social or developmental reasons are always emerging and the basic distrust of market forces which may seem superficially unfair is

always there. Private sector operators, particularly traders, are still seen frequently as contributing very little to the economy and as profiteering unjustly from scarcities and market opportunities.

Private sector rewards which result from investment and risk taking in an unstable environment are not fully appreciated and are often seen as unfair and a candidate for state expropriation. Economic liberalization does not yet have mass appeal in the cities as it is seen mainly as benefitting the political/economic elite since real purchasing power of the average citizen has not yet dramatically improved.

The GOZ since independence has experimented with all kinds of economic regulation and control, from full control of the economy after zairianization and radicalization to full liberalization after 1982. The inherent vacillation in economic policy which flows from the learning process is not yet over and the US strategy in Zaire needs to take this into account. Therefore, USAID over the next five years needs to be supportive of the process of economic liberalization, in concert with other donors, and needs to take specific steps to further consolidate it.

Economic liberalization has brought with it a greater autonomy of local government and of parastatal institutions. In the drive to less dependence on the state and sustainability, many of these have been forced to impose taxes and find other means of survival. Thus, it appears as contradictory that many bodies which were formerly directly subsidized from the central government now have to rely on individual and private sector contributions. This is most evident in public health and education services. The drive to decentralization has also increased the power of the regional governors to impose regional taxes at points of embarkation of goods along rivers and at certain river ferries. Although this does not necessarily infringe on free competition, a rationalization of the tax system would increase transparency in markets and would enhance the free movement of goods and people.

The legal framework needed to support economic liberalization has never been clearly specified, permitting all sorts of deviations and practices which are contrary to a policy of liberalization. Thus, economic liberalization is still fragile and needs to be consolidated. Strong economic growth would constitute a big boost to the process of liberalization but so far, it has been marginal, reaching only 2 to 3 percent per year in real terms.

As pointed out before, credit is a major constraint as most banks can only extend credit up to a certain ceiling imposed by the Bank of Zaire. Shortage of working capital in agro-industrial companies and in trading enterprises effectively limits the marketing of products and the expansion of domestic trade.

Regarding export crops, the cumbersome administrative procedures to be followed and the lack of transparency in the controls of OZAC, OFIDA, OZACAF (for coffee) and the Bank of Zaire coupled with frequent

controls by the DOF for the payment of taxes hampers the expansion of the sector and does not contribute to the creation of a truly liberal economic environment.

Other examples of legal impediments to economic liberalization are the official marketing campaigns as declared by the regional governors which may restrict the free movement of goods at certain times; and the enforced cultivation of certain crops which still persists in some parts of the country. The law also imposes legal incapacity for married women, meaning that a married woman cannot open a bank account without the explicit permission of her husband, who automatically has access to her money. This rule is also implemented in part by the COOPECS. This restricts women's access to financial intermediation, thus limiting their role in food production and particularly marketing and hampering the process of economic liberalization.

In the policy dialogue, USAID should strive for a tidying up of all legislation to bring it in line with the principles of economic liberalization. The liberalization studies which SEP and Project 119 are undertaking provide the information and action proposals which USAID should address in a policy dialogue with the GOZ.

Zaire, having experimented with nationalization and state control of the economy during the 1970s with very unsatisfactory results, now tends increasingly towards a market orientation. However, tendencies to intervene and impose government controls on "speculators" are always there. There is always a feeling that the Zairian economy is being victimized by market forces, internal as well as external. Special interests vie for protection and try to influence the process of change in their favor. Thus, there is an inherent vacillation in economic policies which flows from the learning process.

In general, policy reforms should be designed to create and foster a more stable environment conducive to and supportive of increased agricultural production and more efficient and expanded agricultural marketing. This should be realized through increased private sector involvement and through the mobilization of local resources such as savings and credit in addition to donor resources.

Together with the World Bank/IMF and other donors, emphasis in economic policy reform should be on:

- Increased budgetary allocations to the agricultural sector and increased private sector investments.
- Increased "integrity" in the use of these budgetary allocations for agriculture.
- Rehabilitation of rural infrastructure, particularly roads and river transportation.
- More effective supporting services for the agricultural sector (research, extension, credit, seeds, other inputs).

- Decentralization (regionalization) of the supporting services of the agricultural sector.
- Improved physical marketing facilities (hardware) and marketing infrastructure for food products in major urban centers in order to reduce the large marketing margins through more effective competition and increased marketing efficiency.
- An appropriate incentive structure in the civil service of the DOA and the DORD to make it a more effective agricultural administration which is supportive of private sector involvement in agriculture.
- A realistic exchange rate policy which reflects the true scarcity of foreign exchange; the importation of vital spare parts, equipment, machinery and supplies for the agricultural sector.
- A certain protection of the agricultural sector against dumping and low import prices because of artificially low world market prices (e.g. sugar, beef, poultry,...).
- Streamlining and simplification of the procedures for export of agricultural products and a reduction/abolition of all remaining marketing taxes and export taxes.
- A policy of human capital formation and retention for agriculture through formal training, upgrading of skills, in-service training, etc.

#### 4.1. Recommendation

Although SEP and Project 119 play an important role in the preparation and analysis of economic policy reform in the agricultural sector, it is our belief that an effective impact on economic policy making requires the creation of a policy unit in the cabinet office, i.e., the office of the Secétat of the DOA. It is in this office that major policy decisions are made and executed.

The busy schedule of the Secétat and the lack of good communications in Kinshasa make a physical presence near the cabinet office necessary for effective policy dialogue with the decision makers.

It is recommended that USAID support such a policy unit in the cabinet office as part of a sector approach. Such a policy unit will require high-level, experienced T.A. and good liaison with SEP and Project 119. One could view such a small policy unit as an extension or antenna of SEP and Project 119.

It should be mentioned that from 1983 to about 1986 such a cabinet-level planning unit, called the "Cellule de Conception," existed in the cabinet office. It was staffed by French T.A. and financed by the World Bank under PAT1. It had responsibility for

elaboration of overall agricultural policy and for preparing monthly reports on agriculture for presentation to the Comité de Conjoncture. In November 1983, many of the Cellule de Conception's tasks were handed down to SEP. The Cellule had little input into policy-making, meeting only infrequently. Finally, it was scrapped.

## 5. Developing the Institutional Base

USAID has been instrumental in the creation of an agricultural economics capacity in the DOA from 1973 on. For the past fifteen years, USAID has been supporting SEP (the Studies and Planning Service of the DOA). The DOA now has an institutional capacity to analyze, develop and implement coordinated agricultural policies and investment plans. Strengthening of such a capacity is of crucial importance in a sector-based approach. The unique capability of USAID in this area has risen out of the strong agricultural economics research capacity in U.S. universities, research organizations, and private firms. All over the world, agricultural economists turn to the U.S. for graduate and postgraduate training, advancements in methodology, and research guidance through professional journals and publications. USAID supports or has supported similar projects in several other African countries: Senegal, Mali, Niger, Cameroon (at the University Centre in Dschang), Rwanda, etc. USAID has a wide variety of experience in this area, good and bad, and a centrally funded facility for support: the Agricultural Policy Analysis Project, which assists USAID missions and developing country governments with ABT Associates Inc.

### 5.1. Strengthening of SEP: data collection and analysis, agricultural planning and evaluation

In a sector approach, strengthening of SEP becomes a central activity since SEP should become the "think tank" of the DOARD and a strong force in policy formulation and implementation. SEP should play a role similar to ERS at USDA. No policies should be formulated without input from SEP, and SEP should play a leading role in the budget preparation process.

One of the weakest areas in SEP is data collection and analysis (Division of Statistics). Despite 20 years of FAO's T.A. and USAID financial support, the Statistics Division is still not collecting the key reliable information on areas planted, yields, production, prices, marketing margins and a minimum of nutritional information (together with CEPLANUT). What it collects is either irrelevant, not reliable, or published too late to be really useful. Its major sin is that it collects the same information on the structure of farms (which changes only very slowly) repetitively every year in all regions, without sufficient supervision, and with data processing which is too slow and not sufficiently reliable. It does not produce reliable data on agricultural production as it cannot do this with only one or two visits to the farmers in the sample. The Systeme Permanent de Collecte des Statistiques Agricoles (SPCSA), a major FAO-initiated data collection effort, tries to collect too much information in too many regions at the same time. The Statistics Division and SPCSA are involved in too many surveys and simply cannot handle it. Prof.

Michael Lipton stated it as follows: "... these figures are little better than random numbers, but give the illusion of knowledge" (Lipton, 1985, p. (ii)).

On the positive side, the SPCSA exists as a structure and with good management, appropriate methodology, and adequate funding, it could produce reliable and timely information on a number of key variables. With sufficient incentives (primes paid on time), proper training and supervision, the enumerators in the field and the supervisors can perform satisfactorily, as the Bandundu surveys at the DMPCC have amply demonstrated.

It needs to be stressed that a properly functioning agricultural data collection system is a precondition for a better agricultural information system and for agricultural sector analysis. It is a vital prerequisite for the ultimate success of Project 119.

What is so disturbing about the Division of Statistics is that neither the FAO nor the World Bank seems to realize what the quality is of the statistics produced and what the real problems are. The latest evaluation by the FAO of the SPCSA was done by Mr. Duvieusart. Although some critical remarks were made together with some suggestions for improvement, the overall tone of the report was very positive. In the World Bank Agriculture Sector Memorandum (Vol. 2, Chapter 6 written by Mr. de Largentaye), the two basic considerations listed which underlie the Bank's strategy for improving agricultural statistics collection are:

- 1) Preserving the institutional achievements under the FAO project (in other words, carry on); and
- 2) Promoting donor coordination in the design and management of agricultural statistics projects (everybody else should join in the work).

The data collection efforts at the DMPCC through the SPCSA are dealt with in a one liner (p. 56) "... with assistance from Belgium, the DMPCC is also working on what it needs from the Statistics Division."

Presently, the Division of Statistics is planning to add to its already overloaded survey schedule rural household consumption surveys to be carried out in all regions starting in April 1990 in the framework of the "Social Dimensions of Structural Adjustment" of the World Bank. The Bank will provide \$828,019 for this purpose for three years and UNDP will also put in some assistance in the form of short-term T.A.

In addition, the SPCSA is planning to add nationwide a new monthly survey called "Rapports Statistiques des Zones," to be filled out by all the collectivity agronomists and to be synthesized at the level of each zone. The scope of the survey includes: the weather situation, progress on agricultural activities, health situation of livestock in the zone, production and marketing of crops, livestock numbers and slaughterings, and use of agricultural inputs.

The major problems of the SPCSA are:

- emphasis on the collection of data which is not very relevant for policy analysis and preparation (i.e., annual data on the structure of farms) instead of on flow-type information such as areas planted, yields, production, marketed surplus, prices and a minimum of nutritional information.

- wrong methodology: it is impossible to collect reliable flow-type information in a one or two shot survey. At least monthly recording of data will be necessary.

- overambitious work plans: it is nearly impossible to carry out nationwide surveys on large samples. Tight priorities need to be set. Focus should be on an in-depth survey in one or two regions every five years, the intervening years being covered by light surveys.

- inadequate computer data processing: the plan has been to decentralize computer processing, with data entry and processing in each regional headquarters. This has not worked. There are large economies of scale in central data processing because of the availability of competent hardware and software support.

- reliance on scarce, undertrained and mistrusted extension workers as enumerators. The same agents who impose crops and PRAAL fields, levy taxes, etc. are responsible for data collection. In the sample villages, educated men and women who do not belong to the administration should be relied on for the weekly and monthly filling out of survey forms, against a small remuneration.

There are attempts by the Division of Statistics to monopolize all data collection efforts in the DOA. Although they certainly should coordinate the overall data collection effort, they should not impose their methodology on anybody in SEP or elsewhere. Otherwise, a well-thought-out survey like the Southern Band Survey, which was carried out by Project 070 (the predecessor at SEP to Project 119), could never have been implemented. Fresh data, new ideas and insights are needed in creative economic analysis. Trying to arrive at consistency in unreliable data will not help Zaire. The major challenge of SEP and Project 119 is to challenge the conventional wisdom and the persistent myths that go with it and to collect reliable primary data which will support whatever analyses and policy proposals which they make. What is needed is new knowledge about production constraints in particular areas, marketing conditions, policy inconsistencies, etc. and by and large, this will require a departure from the beaten track.

#### 5.1.1. Recommendations

1. A study should be done followed by a workshop to be held in Kinshasa with the following terms of reference:

- What are the minimum data requirements for policy analysis and planning ?

- Establishment of priorities for data collection and analysis.
- Development of appropriate methodologies in light of Zaire's size, logistics and resources.
- Drawing up of a tentative 5-year plan for data collection, for policy analysis and planning.
- Identification of needs for training of Zairians, T.A. and equipment.
- Promulgation of a tentative 5-year budget, including local cost financing.

Such a study/workshop should be done in close collaboration with SEP and with involvement of the 119 project. The team charged with the study/workshop should be composed of an agricultural economist/policy specialist, a sampling specialist (statistician), and a data processing-computer specialist (some of those could be drawn from the 119 project).

The study/workshop should be coordinated with FAO/UNDP and the World Bank as they are also involved with agricultural statistics in Zaire.

2. The DMPCC should be brought into SEP as you cannot divorce markets, prices and credit and the data collection which goes with it from SEP. This is also the position taken by the World Bank (Mr. de Largentaye). However, the director of the DMPCC is opposed to this idea and insists on maintaining the status quo. Self-help measures should be examined to ease the merging of DMPCC with SEP.

3. It is recommended that the U.S. Bureau of the Census-International Statistics Program Center (ISPC), provide T.A. for agricultural statistics. They did an excellent job at SESA, Ministry of Agriculture, Rwanda with USAID financing. Mr. Dan Clay, the ISPC-principal coordinator, would be eminently qualified to evaluate the SPCSA system and work out a plan of action to remedy the present situation.

The GOZ is gradually shifting from a food self-sufficiency policy to a food security policy. Whereas self-sufficiency implies domestic food production ample enough to meet all food requirements with emphasis on the supply side, food security implies enough food (calories) for all through domestic production, trade, food aid and stocks. A food security policy emphasizes the demand side effects which in a country with very low per capita purchasing power is all important. Demand side effects are all too easily forgotten and many analysts of agricultural policy issues in Zaire have been guilty of neglect in this area. One could even say that most policy makers and their advisors in Zaire have been obsessed with increasing agricultural production, although the demand side is as much a factor

in realizing food security as the supply side. Moreover, some policy makers are equating food security with increased hardware for storage, although a 1984 DMPCC study showed that Kinshasa had ample storage capacity for food. There is strong evidence that when the demand side is forthcoming, supply does follow and that supply response is high given adequate incentives.

#### 5.1.2. Recommendation

It is recommended that SEP and Project 119 analyze the consequences of reorienting agricultural policy around the concept of food security rather than food self-sufficiency. (Cf., Block et al., March 1987). This needs to take into consideration supply and demand effects and ensuring stability over time through trade, concessional food imports and storage. This would also address GOZ concerns with such issues as self-sufficiency in dairy products, malt, etc. Domestic comparative advantage (domestic resource costs) needs to be determined vis-à-vis the world market and the scarcity of foreign exchange.

#### 5.2. Building sustainable institutions

Carl Eicher (1988) defines sustainable institutions as those that have the ability to mobilize domestic political support to pay the salaries and required operating costs of the core staff from national sources. Sustainability with respect to agricultural research in Zaire has been analyzed in annex 7 of the Threshold Decision Evaluation of RAV in December 1988. Many of the points raised also apply to other institutions of the DOARD. The question of how to strengthen in a cost effective and sustainable manner the key agricultural institutions in Zaire is critical to the development of the agricultural sector over the next decades. Most projects dodge this issue by setting up their own project administration, bringing in technical assistance and providing close to 100 percent of funding, including recurrent local cost financing.

The World Bank in its agricultural sector involvement in Zaire also dodges the issue and assumes that the severe economic crisis and structural adjustment preclude a serious consideration of "sustainability" issues. "We will see in five years" seems to be the escape clause, with present lending efforts considered as long term investments which are necessary. Undue attention is given to the stage of institutional maturity in Zaire and to the capacity of Zaire to absorb foreign aid with "integrity." In financing infrastructure such as the rehabilitation of INERA research stations and in bringing in expensive technical assistance teams, large sums of money are spent but it is an open question whether sufficient local human capability and institutional strengthening is taking place.

The debt crisis of the second half of the eighties in Zaire really boils down to paying now and being unable to pay for the excesses, mistakes and miscalculations of the sixties and seventies, including wrong advice from many foreign experts. Along the same lines, the present lending effort of the World Bank in Zaire and of other donors really represents the use now of part of the monetary

resources or wealth of the next generation of Zairians. Unless there is strong economic growth which eases paying off of past debts, the burden of the present borrowing for, e.g., INERA, agricultural extension T.A. in the DOA, etc. will be haunting the next generation when the principal has to be paid back, in foreign exchange. This is why lessons should be drawn from the experiences gained since independence in order to avoid the same mistakes and to embark now on a path of continuous, strong economic growth, institutional strengthening and sustainability.

It remains an open question how institutional capacity can be built and strengthened in a cost effective and sustainable manner. The Asian model of the sixties and seventies which is broadly applied to sub-Saharan Africa does not seem to work as expected. There is very little research on the key determinants of sustainable institutions. One could perhaps learn from successful institutions in Zaire and draw lessons from these for the future, but it is difficult to come up with such candidates. This is one area where more research of an interdisciplinary nature is overdue, not the least because so much money is spent by various donors on institution building and strengthening with little success so far.

#### 5.2.1. Agricultural research

Short and medium term sustainable economic growth in an agriculturally oriented country such as Zaire where the majority of the population is in rural areas will have to come from agriculture as neither the extractive sector nor industry have the capacity at present to sustain growth which brings increased employment and incomes to the rural masses. Appropriate agricultural technology is one of the prime movers of agriculture in a country such as Zaire. Growth in land and labor productivity and in agricultural incomes is necessarily based on technological change and it is up to agricultural research to produce such new technology.

USAID has been involved in agricultural research on food crops for almost two decades. Its human capacity building effort in this area is an example for many to follow. Its institutional strengthening effort has been extremely difficult and slow but is making some headway. However, sustainability of agricultural research in Zaire is at least a decade away (cf., Threshold Decision Evaluation of RAV in December 1988).

The Threshold Decision Evaluation of RAV at the end of 1988 came out strongly with a recommendation for a follow-on project, although with modifications proposed in order to make RAV a better-managed, more cost-effective, leaner organization with higher mobility and which is more results oriented. Ultimately, if INERA reforms itself profoundly, RAV will be unified with it while maintaining the autonomy of its national programs. This also implies that USAID continues to finance self-help measures at INERA which induce policy changes which lead to a unification process and a sustainable national institution in the long term, with increased financial support from the GOZ.

Food crop agricultural research needs to remain one of the key areas of USAID involvement in Zaire, keeping in mind that agricultural research is a long-term undertaking, with an uncertain outcome. Care should be taken to keep agricultural research in Zaire linked to the international system and to research efforts in other countries. Emphasis should also be placed on assuring outreach, particularly with NGOs and with development projects.

Considering the demographic changes in Zaire where rapidly growing urban populations are dependent on a more slowly growing and aging rural population for food, research to address increased efficiency of agricultural labor and land is paramount. The exportation of food crops to urban areas is not sustainable under traditional slash and burn agriculture. The present extensification and increased production of cassava relative to other food crops and the declining nutritional status of both urban and rural children should be recognized as clear indicators of a decreasing capacity of Zaire to feed itself.

Input importation, transportation, and land tenure policy as well as research and extension must develop an integrated approach to moving the rural farmers to more intensive agricultural production systems. Research and extension should be encouraged to develop integrated production technologies that include management of fallows in a crop rotation system so that the residual effects of fertilizer and investment in the land can be realized by the farmer over time. Technology development should put greater emphasis on aspects of human nutrition through incorporation of edible grain legumes (peanuts, soybeans, cowpeas) in the crop components. Breeding programs in cassava should adapt germplasm developed by the IARCs that have higher production of nutritionally valuable beta-carotene.

Regarding export crops, USAID could be supportive of the proposed World Bank project with INERA which focuses mainly on cash and export crops. Given USAID's comparative advantage, it is recommended that several M.Sc. and Ph.D. fellowships be awarded to Zairian researchers in INERA to pursue graduate studies in the U.S. or other places with a view to strengthening INERA's research capacity in export crops research.

#### 5.2.2. Agricultural extension

It would be tempting to get into agricultural extension in Zaire on a large scale, as the World Bank is planning. It is advised not to do so for the following reasons:

- It is not clear that agricultural research (in particular improved cultural practices) has progressed enough to be able to produce appropriate farmer-acceptable technology tested on-farm which can be extended on a massive scale over wide areas.

- Too many other constraints may make extension fail, e.g., lack of production incentives, lack of marketing outlets, lack of credit to buy improved inputs, transportation constraints, etc.

- The state extension service in Zaire is integrated in the territorial administration. Extension is only one of the duties of extension personnel. A profound reorganization of extension, with over 5,000 agents, may be impossible to implement politically.

What is recommended, though, is to keep outreach linked with agricultural research (RAV) and to put emphasis on extension in large area development projects such as Central Shaba or PROCAR. In any case, preference should be given to extension through NGOs and the extension effort should be reinforced with efforts to overcome the other major constraints in the area through the provision of improved seeds, fertilizers (if appropriate), credit (if appropriate), road rehabilitation and maintenance, and private marketing support. Emphasis should also be put on the training by NGOs of extension workers from the private sector and from the state extension service, if they are interested and motivated.

### 5.2.3. Education

All donors in Zaire have for the last ten years been dodging the issue of a sustainable faculty of agriculture. There is now a wide consensus, including key Zairian observers, that IFA at Yangambi is doing a poor job of training university level agricultural staff. As a Zairian professor who previously taught at IFA has noted: "... a whole generation of agricultural scientists and administrators is being wasted." This increases the future dependence of Zaire on foreign expertise for the conception, preparation, implementation and evaluation of its agricultural development. Second-best solutions are the sending overseas of large numbers of Zairians for undergraduate and graduate degrees in agriculture: there are 35 in the USA as part of the training effort of RAV, there are 55 in Gembloux (Belgium) with various scholarships, about 20 in Louvain (Belgium), etc. The situation at higher technical agricultural training institutes such as Bengamisa and Mondongo is not much better. The GOZ and the major donors have to face up to the question of higher agricultural education in Zaire and this subject must be included in the policy dialogue. More attention should also be focused on the education of women as agricultural producers and professionals.

A lot of training efforts take place in donor-supported technical assistance projects such as Project 119 in SEP, RAV, PAT2, the Canadian projects, etc. However, lack of trained manpower continues to be a major bottleneck in the institutions responsible for agricultural development. This is partly due to high attrition rates due to poor remuneration for trained personnel who frequently leave for more lucrative private sector jobs. Coordination of training offered by various donors could also be improved as there is some duplication of effort. A human resources T.A. expert will be provided in the PAT2 project for this purpose.

In many cases, foreign experts have been hired for their technical skills in specific operational areas, whereas the problems

confronting the Zairian administration tend to be organizational and managerial rather than technical.

Management in all its aspects (administrative, financial, personnel, office, marketing, etc.) is generally considered as one of the major weaknesses of Zairian institutions, public and private alike. The university system is not really addressing the needs for management training in Zaire as the emphasis is on technical skills.

In a recent article by Prof. P. Ngoma-Binda on private institutions of higher education in Zaire, a total of 65 such institutes were mentioned, 47 of which are in Kinshasa. Almost 30 percent of these are in the areas of business management and accounting. Most operate through evening courses and have no buildings of their own as they usually rely on state facilities. Most of the professors in these private institutes have a full time teaching or management job during the day. Prominent among these institutions are CENACOF, which received USAID support in the past, CEPETEDE and CPA (Centre de Perfectionnement en Administration).

It is recommended that USAID examine the creation, together with Zairian partners, of a graduate and postgraduate school of management at the MBA level.

Similar management training schools already exist in Douala, Yaoundé and Abidjan.

What is recommended here is an institution of the following type:

- A first university degree (licence, ingenieur) is required for admittance plus two years of proven professional experience; in addition, students must be recommended by the institution from which they come.
- Private or semi-governmental character of the school with a great deal of autonomy (no governmental intrusions).
- A board of trustees which reads like a "Who's Who" in the business community in Zaire including ANEZA, OPEZ, etc.
- A sizeable endowment to get the school started; this endowment would come from the private sector in Zaire and a starting grant from USAID and maybe U.S. foundations/companies.
- A large part of the professional staff would be on a part-time basis; they would keep their functions in the private or state sector.
- Affiliation with a recognized graduate school of business in the U.S. is recommended.
- The basic course program would be a one-year program; special short-term courses, evening courses, etc. could be considered too.

- One option in the curriculum would be agribusiness management, including training in plantation management. The E.C. delegation in Kinshasa is planning to fund plantation management training in Zaire in collaboration with PLZ.

- A three months' practical training (stage) in established, recognized firms in Zaire could be made mandatory.

- Tuition would be required from the students; if they can't pay, they could "borrow" their tuition, to be paid back in the ten years after graduation, interest at the commercial rate included.

As more and more private firms in Zaire such as the breweries, Scibe, PLZ, African Holding Company (ex-GAP), Est-Agrico, etc. engage Zairian staff to replace overexpensive expatriates, interest in such a venture by the private sector is certain to be there. Sustainability of the school would be assured through the tuition and fees, contributions from the private sector, grants from various donors, and contract income from studies and consultancies of its staff. The GOZ could contribute the land for the construction of a building. Start-up of the school could be in an existing building.

USAID should examine seriously funding the start-up of such a school because of the comparative advantage which the U.S. has in this area. The most prominent management schools are in the U.S. and this is where most of the expertise comes from.

## 6. Other Actions to Improve Employment and Income

### 6.1. Area development projects

USAID is heavily involved in such projects, i.e., the North and Central Shaba projects, PROCAR and many smaller projects. These are costly projects, loaded with infrastructure development and large overheads necessary to make a project work, in the absence of a domestic capacity to do so. The major issue is the extent to which such projects "substitute" for GOZ action and the question of sustainability, as the North Shaba project amply demonstrates. Should USAID get out of such ventures? Integrated rural development projects, which were very popular in the seventies, have now fallen into disfavor with many donors and experts. Instead, emphasis in the development literature is now put on building an institutional capacity, i.e., strengthening institutions such as the Ministry, research organizations, extension services and skill development.

Zaire is poorly developed compared to many other African countries such as Nigeria, Côte d'Ivoire, Cameroon, etc., in terms of infrastructure like roads, railroads, communication networks, marketing infrastructure for inputs (seed) and products, etc. As high marketing costs severely constrain agricultural production and the use of improved inputs, improvements in infrastructure and in agricultural services which reduce marketing margins are necessary before institutions at the national and regional level can become more

effective. The key issue here is to develop such infrastructure in priority areas, and only in those areas because of the lack of absorptive capacity, with limited overheads and with a strong commitment from the GOZ and with the help of the private sector to maintain such infrastructure, particularly after the end of project. Since Zaire is a huge country with, on average, low population densities and limited absorptive capacity in the sense of being able to absorb foreign aid and make it work after project completion, one must be very careful in choosing suitable areas for such projects.

Within the context of area development projects, land use assessment should be included at the project identification and planning stages to ensure project objectives are compatible with the land's basic capacity for sustainable agricultural production (National Academy of Science, 1982). A similar recommendation has been proposed by the inter-ministerial group in Etude Institutionnelle du Secteur Forestier (DAFECN, 1988), as a means to open the discussion of development issues and allow a more comprehensive review of GOZ/donor development interventions. Land use assessments identify and delineate the productive capacity of the natural resource base and the levels of inputs required for various crops and associated production technologies.

It is suggested that USAID concentrate its efforts in agricultural input services (seeds, fertilizers, credit, cooperatives, ...), extension, marketing infrastructure improvement, and private sector support in the large areas retained for development, as is already the case in Central Shaba and PROCAR. The mutual reinforcement and the integration of activities is bound to yield large multiplier effects and contribute to the overall success of the effort. In order to enhance long-term sustainability, overhead costs need to be kept as low as possible and existing services, institutions, NGOs, private sector operators, etc. need to be relied on as much as possible and cost recovery, self-financing, etc. need to be pursued actively.

## 6.2. Geographic focus

Should USAID have and maintain its geographic focus on the Shaba and Bandundu regions?

First of all, USAID's comparative advantage is in food crop production. This is in line with the Africa strategy. Moreover, legal provisions prohibit action on certain cash and export crops, e.g., cotton. There is also less experience with the major export crops of Zaire: coffee, rubber, cocoa.

Priorities in food crop production are in the southern band in Zaire, following high population densities in these areas and near the major industrial activities in the country. It is also in this belt that the major cities are located: Kinshasa, Kikwit, Kananga, Mbuji-Mayi and the southern mining towns: Kolwezi, Likasi and Lubumbashi. In the southern belt in savanna or derived savanna areas, the potential for food production is high and there is a major demand for commercial food production for growing urban centers and mining areas. Since such

food production comes from smallholders with labor-intensive cropping systems, enough labor must be present in such areas, i.e., the choice of projects should also be guided by potential for increasing food production, including population densities, soil quality, etc.

USAID is fortunate to have in operation two such projects in high priority areas, i.e. Kwilu (and parts of Mai-Ndombe) in Bandundu and Central Shaba. Kwilu will remain a high priority area for a long time to come for the supply of food to Kinshasa. Central Shaba and probably certain areas in Northern and Southern Shaba are high priority areas for the Shaba region.

Most of the Equateur region is very sparsely populated, except for the Ubangi subregion. There are several large area development projects in this area, particularly C.D.I.-Bwamanda. The ADB is preparing a large agricultural development project for the region of Equateur, modeled after the C.D.I.-Bwamanda experience. Haut-Zaire region is known as a productive agricultural region with no food shortages; it is also of low population density except for the northeast where soils are quite good near Lake Mobutu. Kivu region is now made up of three regions: North-Kivu, South-Kivu and Maniema. North-Kivu is densely populated and has good tropical soils, although erosion is a major problem. This is the concentration area for Canadian aid and for the E.C. South-Kivu is also densely populated and struggles with problems of soil degradation, erosion and land tenure. The World Bank is planning a major project in this area. Maniema region is densely covered with rainforest, has high rainfall and is uniquely suitable for rainfed rice. However, rural infrastructure, particularly roads, is terribly degraded and access in the region is very problematic. This is a carryover of the Maniema rebellion in the sixties. No large donor efforts have been made in this region to revitalize the economy and the central town of Kindu. Kindu is linked to Lubumbashi by the SNCZ railroad. In 1987, the World Bank (IDA) had identified Maniema as a priority area for a rice project and was planning an identification mission, but there was never any follow up.

Both Kasai regions are relatively densely populated regions with above average purchasing power of the population because of diamond mining. They are also deficit regions, importing maize, cassava and groundnuts from neighboring Bandundu and Shaba regions. Road maintenance in the Kasai is notoriously poor. However, farmers there have a reputation for being dynamic and enterprising. Maize is the major food staple followed by cassava and grain legumes. The Sankuru subregion in the north has a good potential for rainfed rice production, while the more southern areas are suitable for maize and cotton. In the sixties and seventies, efforts were made to relaunch the cotton paysannats near Gandajika, with E.C. financing. This effort largely failed. In the seventies, there were two large area development projects in the Kasai regions. Both had as their major focus maize. The PMKO project (Projet Maïs Kasai-Oriental) in Kasai Oriental around Tshilenge was funded by the World Bank up through the end of 1987 and cost \$11 million. Another World Bank supported project, PRODALU (Projet de Développement Rural de Lulua, or Lulua Rural Development Project) in Kasai Occidental is a \$12.5 million

) project focusing on maize production which runs until the end of June, 1990. In the seventies and eighties, there was also the CEDERIM project (Centre de Développement Rural Intégré de Mweka, or Integrated Rural Development Center of Mweka) in Kasai Occidental with E.C. financing and French T.A. The World Bank is now considering a follow-on project to PMKO, to be cofinanced by IFAD, called PMKO 2-Kabinda Agricultural Development Project, which will include cotton as a major focus.

In terms of geographic focus and in light of USAID's comparative advantage, one has to conclude that the Shaba and Bandundu regions are appropriate areas for regional concentration. Resources permitting, expansion in these areas comes as a first priority, given the experience acquired and the familiarity gained in the area; as a second priority, the Kasai regions should be considered as an area focus. This would also enable a linking up of efforts in Bandundu and Central Shaba. Infrastructure development in Kasai would be a top priority and this would also foster interregional trade and integration. The major focus would be on maize production and marketing, and secondarily, cassava and grain legumes.

### 6.3. Export crops

In a sector approach, export crops need to be considered. Export crops can play an important role in the context of food security, in employment and income generation in rural areas, as part of a policy of diversification of crops and of exports, and as a source of export-led growth.

After careful consideration, it appears that Robusta and Arabica coffee offer the most hope in Zaire for development. In fact, Zaire has the potential of becoming the Brazil of Africa in terms of coffee exports. Before the civil war, neighboring Angola used to be the fourth exporter in the world, after Brazil, Columbia and Côte d'Ivoire.

Coffee has many advantages. It is easy to grow and to process, it supports transport over long distances because of its high value to weight ratio, there is an active and competitive trade in coffee in Zaire, and the world market offers scope for expansion for good quality coffee. At present, Zaire is a small producer on a world scale and since Zaire is one of the poorest countries in the world (average per capita income in 1986: \$160), it could certainly increase its exports.

Robusta production is well suited to Equateur (Ubangi, Mongala), Haut-Zaire (Bas Uélé), and part of the Kivu region; Arabica production thrives in most of the Kivu region. Thus, coffee production takes place predominantly in the more remote areas where there is no real food shortage (except for malnutrition problems from an unbalanced diet), where there is little competition from other crops (except maybe cotton but cotton has already lost the battle with coffee), and where there are no major USAID projects. In fact, in Haut-Zaire, there are virtually no sizeable agricultural development projects except

cocoa in Benguissa and some private or NGO initiatives (Genagro near Isiro). USAID support for coffee expansion in the north of the country could balance its efforts aimed at increasing food crop production in the south.

A coffee production development project would involve the following activities:

- Production and distribution of improved coffee seedlings.
- Extension of improved cultural practices: pruning, weed control, insect and disease control, soil fertility improvement (mulching).
- Possible upgrading or extension of certain processing facilities.
- Road maintenance.
- Marketing credit.

#### 6.3.1. Recommendation

It is recommended that USAID consider within a sector approach the feasibility of a coffee development project in the north of the country, resources permitting.

#### 6.4. Forestry

According to FAO statistics, Zaire has 43 percent of the forest resources of sub-Saharan Africa. Exploitation has barely touched the forest resources of Zaire, except for the Mayumbe forest in Bas-Zaire and for some precious wood species such as ebony and wenge (*Millettia Laurenti*) which were very much sought after in colonial times. The Mayumbe forest has been nearly depleted of its more valuable forest species such as limba (*Terminalia superba*). The largest concession has been given to SIFORZAL, a joint Zaire-Danzer enterprise. Danzer is a West German forestry firm which has a large forestry operation in the Equateur region and makes finished doors, panels, etc. at its factory near Maluku. Danzer is the largest manufacturer of wooden doors in West Germany.

With help from Canada, a permanent forest inventory system is being set up and strengthened through the SPIAF project. Zairian forestry personnel at various levels have been trained in the forestry department of Laval University in Canada. The Canadians are also assisting Zaire in forestry management in the AGEF (Appui à la Gestion Forestière) project with the Department of Lands, Environment and Nature Conservation. The World Bank will also provide two T.A. experts to this Ministry in its PAT2 project.

The biggest constraints to forestry development are:

- the weak transportation system which makes it difficult to haul the wood to the market via ONATRA and the port of Matadi;
- the very low per-hectare volume of currently marketable timber compared to areas like Southeast Asia (due to Zaire's enormous diversity in forest species);
- the unstable and vacillating economic environment in Zaire: at times, the export of wood logs has been prohibited or heavily taxed, at other times it has been encouraged;
- the reforestation tax imposed on foresters, although very little reforestation takes place;
- the shortage or difficulty in importing supplies, tools and spare parts for forestry equipment.

As a result, less than half a million cubic meters of wood are harvested per year while six million cubic meters, the GOZ objective by the year 2000, could be cut each year with proper management without depleting Zaire's forest resources.

Zaire has a high percentage of the undisturbed tropical plant and forest area of the world. It also has the last major reserve of certain wildlife species. About 12 percent of its total area is in natural parks. Thus, Zaire has the potential to become a world leader in the conservation effort (Presidential Agricultural Task Force to Zaire, 1985).

#### 6.4.1. Recommendation

Through its private sector support program, USAID could provide incentives to U.S.-based forest industries to encourage private investment in the forestry sector in Zaire coupled with reforestation and conservation management.

#### 6.5. Livestock

Livestock production in Zaire has a dual character: there are large commercial operations mostly dating back to colonial times and also traditional production on smallholder farms. The well-developed, commercial livestock production is concentrated near the major consumption centers. Large cattle ranches are mainly in Bas-Zaire, Bandundu and Shaba regions; smallholder cattle raising is mainly in Haut-Zaire (Ituri subregion) and in Kivu. Diseases, particularly trypanosomiasis, endemic in most of Zaire, confine livestock production to certain regions. Commercial poultry and egg production largely takes place near the major cities where the concentrated feed mills are located. Most smallholder farmers have a few fowl and/or goats, sometimes sheep and pigs. Certain farmers in Ituri and Kivu have livestock production as their only source of cash income.

Although meat and egg consumption in Zaire is low by any standard, it is mainly a lack of purchasing power (poverty) which

constrains it. This is evidenced by the large imports of offals and low quality (e.g., horse mackerel) frozen and dried fish (about 100,000 tons per year), at a price which is only a third that of domestically produced fish. There is now a 50 percent import tax on meat, which effectively protects domestic production.

Livestock production requires long-term investment. Therefore, the general macroeconomic and investment climate in Zaire is probably the most determining factor in livestock development. USAID has no particular comparative advantage in livestock development in Zaire, except in its large area development projects in Bandundu and Shaba. Therefore, it is recommended that USAID limit its assistance to livestock development to these areas. It is only when per capita real incomes start moving up fast that the effective demand for livestock products will increase rapidly (cf., income elasticities of demand for meat which are well above one).

#### 6.6. Agricultural inputs

Regarding agricultural input services, it would not be cost effective to generalize agricultural input services in Zaire in all regions. Rather, since USAID is involved in large area development projects, input services in these areas should be part of the project design.

Particular mention should be made of agricultural credit. With the economic liberalization of 1982-83, credit became very tight and has become a major constraint in the stimulation of agricultural production and the financing of marketing operations. The scarcity of credit contributes to high marketing costs which severely constrain agricultural production and the use of improved inputs. The Agricultural Credit Bank (BCA) does not appear to be an efficient instrument for the extension of agricultural credit (cf., evaluation report by Dr. Carlos E. Cuevas of November, 1988), except perhaps for marketing credit for traders based in Kinshasa.

Savings and loan cooperatives (COOPECs and COOCECs) seem to be developing as viable, locally-based institutions with a growing potential. In fact, the potential for rural savings mobilization as a source of rural finance emerges as a viable option which should be pursued, particularly in the large area development projects. From past agricultural credit projects in Zaire (including, among others, the USAID-supervised agricultural credit project in Bas-Zaire of the early seventies), important lessons have been learned. Only agricultural credit specifically linked to improved inputs (such as seeds, fertilizers, animal traction, etc.), which ensures under normal circumstances increased production and the capacity to repay the loan, has been successful. General purpose agricultural credit usually ends up in expenditure on consumer items and is a write-off.

There are large untapped rural savings available in Zaire, as demonstrated by the emergence and spread of COOPECs and COOCECs. Agricultural credit is also in its infancy and credit is more and more becoming a major constraint on the sustainability of developmental

actions in agriculture. USAID was the first donor to set up a controlled agricultural credit scheme in Bas-Zaire in the late sixties and early seventies. The availability of CPF and the expertise in U.S. institutions, particularly land grant universities, with regard to agricultural savings and credit policies and actions warrants involvement of USAID in this area. Since sustainability of projects and programs in Zaire is of high priority to USAID, the potential for rural savings mobilization and domestic financing should be studied and appropriate policies/actions implemented.

Improved seeds can make a tremendous contribution to increased agricultural production and rural welfare, as the North Shaba project has demonstrated. There are presently efforts to create and stimulate a private seed industry via BUNASEM and USAID. However, it is doubtful whether a private seed sector can survive in the absence of some sort of subsidies and without hybrid seeds (maize). A mechanism needs to be found by which private seed companies can recover the full costs of seed production and distribution plus a reasonable profit margin. Such a mechanism will probably involve agricultural credit and repayment after harvest. Availability of superior hybrid maize seed produced in Zaire would fill an existing demand and would be a great boost to the sustainability of the emerging private seed trade.

The scope for increased commercial use of chemical fertilizers for food crops in Zaire is limited. Only certain high priority areas in key production areas of Bas-Zaire, Kwilu, Kasai and Shaba which are well integrated into the marketing system and with relatively low marketing margins offer some potential. This assumes cheap imports of fertilizers, probably from southern Africa, relatively high producer prices, fertilizer responsive varieties and good cultural practices. As long as area expansion is the cheapest way to increase production, which implies low effective or implied wage rates, it will be difficult to promote the commercial use of fertilizers, except for specialty crops such as vegetables near cities or tobacco.

## 7. Natural Resource Base Considerations

In light of the demand on the agricultural sector to provide food for the growing urban areas, major problems loom as the natural resource base of agricultural production zones is rapidly degrading. The ever-increasing consumption of the transitional and gallery forests and decreasing fallow periods will eventually reduce agricultural product exportation from these regions and may lead to severe human suffering within these regions as productive capacity collapses. USAID will need to address the natural resource base issues at all levels of policy and project development.

The government of Zaire will eventually have to address the need for farmers to move to more intensified agricultural production systems in the major production areas. Area expansion is only a short term solution. Intensification will require land tenure rights that increase incentives for long-term sustainable soil management. Agricultural research institutions will need to take a systems approach to incorporate commodity research into the production methods

used in the producing regions. Research efforts must be client oriented and RAV must integrate its present emphasis on varietal screening with improved cultural practices for more intensified production methods that rely on crop rotations fitting the farmers' conditions. There is a strong emphasis on environmental considerations in the recently-completed RAV II Project Paper, with a focus on agro-ecological zones subject to near-term degradation and efforts envisaged seeking to develop ecologically responsible and affordable technologies that are adoptable by Zairian farmers.

The net export of essential mineral nutrients from the agro-ecological zone must be addressed. The food producing regions can not remove these nutrients on a sustainable basis. Chemical fertilizers containing nitrogen, phosphorus, potassium, and possibly the other secondary and micronutrients will need to be imported to the region and the technology developed to incorporate their use in the crop production system. Zaire possesses the raw materials to develop a fertilizer manufacture industry. The acid soils of the major agricultural production zones will increase the solubility and availability of phosphorus and other nutrients in poorly powdered or even non-refined rock phosphate. Locally produced and inexpensive hydroelectric power could support nitrogen fertilizer manufacturing.

Reports by the International Fertilizer Development Center (IFDC) have identified weak effective demand as the constraint to an indigenous fertilizer production industry. Improvements in the transportation sector and in agriculture extension can enhance the demand for and utilization of fertilizers by small farmers for food crop production. Reassessment of fertilizer manufacture and mining of phosphate deposits in Zaire should be made.

#### 7.1. Debt swaps: for-nature and for-development

Beginning in 1987, several countries have participated in debt-for nature swaps, in which developing-country debt is ultimately used to finance conservation activities. In 1989, AID initiated a Debt-for-Development Program. As with debt-for-nature swaps, this program entails retiring developing-country debt and at the same time using that debt to finance activities of NGOs. Because they are based on purchasing debt at a discount on the existing secondary market, these debt swaps provide a particularly effective means of converting hard currency (used to buy up existing debt) into local resources available for conservation of natural resources or for general development of the economy. Arranging debt-for-nature swaps or establishing a Debt-for-Development Program for Zaire would entail considerable work, and there are certain pitfalls to be avoided. However, Zaire has all the necessary ingredients (lots of debt, lots of nature, lots of development problems, and lots of NGOs) for such ventures.

Debt-for-nature swaps would appear to be a very attractive vehicle for securing increased GOZ commitment to preserving the rainforest specifically (for example, by expanding land area in national parks and by prohibiting logging and other forest development activities in certain areas) and for supporting efforts at improved

natural resource base management generally. A Debt-for-Development Program seeking to provide support to NGOs for general extension activities would appear a priority area where such a program could be effective. As part of USAID's ongoing policy dialogue with the GOZ in support of the agricultural sector, consideration should be given to the desirability and feasibility of arranging a debt-for-nature swap and a Debt-for-Development Program.

#### 8. Donor Coordination

If USAID adopts a sector approach, more cooperation and coordination will be necessary, particularly with the World Bank. This needs to occur in Kinshasa and also at the Washington level. It may be useful to create an agricultural sector policy donor coordination group such as exists for INERA. Logically, the agricultural sector policy donor coordination group would meet in the framework of SEP and with high level representatives of the cabinets of the DOARD, DOP, the DOF, the Agricultural Counselor of the Prime Minister's office and of the President's cabinet. Occasionally, the Bank of Zaire may also be invited. The World Bank's office in Kinshasa has plans to set up such an agricultural policy donor coordination committee, once the PAT2 advisors are in place and the World Bank's office strengthened.

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