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FINANCIAL ASPECTS OF SMALLHOLDER DEVELOPMENT  
WITH SPECIAL REFERENCE TO KENYA 1)

von

Rudolf Golkowsky, World Bank, Nairobi

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1 Introduction

In the early stages of economic development, agriculture commands a high proportion of the economy's land, labor, and capital resources and produces a high proportion of the national income. The nature of the existing agriculture conditions the overall development process as well as the strategy for development of agriculture. Farming in most of the low-income areas of the world is dominated by the smallholder-family farm. Agricultural development policies for these areas must therefore focus on both ways of increasing agricultural production of smallholdings and means and consequences of its modernization (MELLOR, 12, p. 37). In a global study the World Bank has estimated the capital requirements to achieve the target of raising the annual output growth rate of all small farmers in the developing countries to 5 % by 1985 and to sustain this rate thereafter (The World Bank, 18, p. 64). The calculations were based on a simple model whose parameters include the capital/output ratio, the capital depreciation rate, the population growth rates of small farm households, the timelag before investment becomes productive, and the share of the benefits from investment which accrues to small farmers. Accordingly the total cumulative capital cost would amount to US \$ 70 billion up to 1985; to maintain the growth rate of 5 % per annum beyond 1985 annual investments of about US \$ 20 billion would be needed.

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1) I am grateful for advice to Messrs R. Hanan, T. Marchant, R.S.M. Nelson, H. Ruthenberg, W. Schaefer-Kehnert, G. Schmidt and W.H. Spall.

Most governments of developing countries endeavor, supported by external donors to provide funds to traditional smallholder agriculture in the framework of more or less comprehensive programs financing for instance production credit requirements, infrastructure (roads, marketing facilities, schools) and services (extension, training, research). The design of such programs primarily depends on government policies and specific regional and local conditions and is invariably subject to controversies of planners and implementers. Such controversies usually arise from different priorities given to development objectives like production growth, income redistribution, provision of social services, different individual experiences with regard to implementation of development programs, and different interpretation of regional and local conditions. The knowledge of these is frequently very limited during the planning phase. A case in point is the variety of views on the institutional credit required to increase smallholder output and income.

This paper is divided in three main parts:

- a) A review of classifications of types of smallholders, financial requirements and sources of finance of smallholders.
- b) A presentation and analysis of the essential features of agricultural finance and smallholder household expenditure in Kenya.
- c) A discussion of the role of credit in developing smallholder agriculture.

While parts a) and c) are based on a review of the literature, part b) dealing with Kenya is focussing on most recently generated empirical data.

## 2 Classifications

### 2.1 Smallholders

One of the most confusing shortcomings in discussing subjects related to smallholders, even in the context of only one country like Kenya, are the difficulties or more precisely, the impossibility in defining the terms smallholder or small farmer. The reasons for this are obvious, if one considers the numerous parameters determining such definition whose relative priority vary from region to region if not from village to village, for instance farm area under various crops and pasture, climatic and soil conditions, marketed production, market access, crop and animal husbandry standard, motivation and ability of the farmer, and capital/man/land ratios. In lieu of an exact definition, the factors determining the situation of smallholders are frequently called the "small farmer syndrome". This is characterized by small owned or rented cultivated areas, high indebtedness, dependance on traders and landlords, lack of modern technology, a standard of living only slightly higher than subsistence and lack of political influence.

In Kenya agriculture provides the livelihood for three quarters of the population, most of which is living in the more than 1.4 million smallholder households. According to the Kenya Central Bureau of Statistics (Republic of Kenya, 15) the median cultivated area for all Kenya smallholdings is in the range of 1 - 2 ha. As shown in Table 2 below average per capita income from these smallholdings varies from KShs 415 (US \$ 51) to KShs 599 (US \$ 73) while the average for the total population is estimated at about KShs 1,800 (US \$ 220).

### 2.2 Financial Requirements of Smallholders

According to MELLOR (12, p. 37) smallholdings are "household units that make most management decisions and that control most of the farm labor supply and normally much of the capital as well. Because the family and the farming unit are the same, labor and capital allocative decisions represent a subjective equilibrium between household and business considerations." Accordingly, the demand for finance from such smallholdings-cum-households or

"firm-household complexes" (NAKAJIMA, 13, p. 166) is invariably for both farm investments and household consumption purposes. Basically, smallholders use finance to:

- a) Satisfy their personal needs (e.g. food purchases, payments of school fees and taxes, urban investments).
- b) Obtain inputs to maintain their traditional production level.
- c) Finance innovations leading to production increases (BELSHAW, 2, p. 46 - 66; KIERMAYR, 10, p. 37 - 38).

Credits used to finance a) and b) are typical for traditional agriculture and termed "static", while credits used to finance c) are termed "dynamic" (BELSHAW, 2, p. 46). Numerous case studies have shown the relative importance and typical patterns of static credit requirements in rural societies. While development institutions and development oriented governments are relatively little interested in studying static credit requirements, for fund allocation purposes, they usually spend much effort on quantifying funds needed for innovations leading to production increases which are both profitable to farmers and macro-economically beneficial. This approach may appear to be questionable because of the fungibility of money. However, during implementation of development programs the requirements are usually estimated from year to year with an increasing degree of precision.

### 2.3 Sources of Smallholders' Finance

The sources of finance available to smallholders can be broken down into on-farm cash income, off-farm cash income and funds made available from persons and/or institutions outside the household comprising loans, government subsidies and other grants and gifts. Regarding loans DONALD (5, p. 78) reports the following shares of the four main sources:

	<u>% of Farmers Getting Institutional Credit</u>	<u>Institutional Loans as % of Total Loans</u>		<u>Non Institutional Loans as % of Total Loans</u>	
		<u>Public</u>	<u>Private</u>	<u>Commercial</u>	<u>Non Commercial</u>
<u>AFRICA</u>					
Ethiopia	1	----- 7 -----	-----	----- 93 -----	-----
Kenya	12	NA 1)	NA	NA	NA
Zambia	0	0	0	1	99
<u>ASIA</u>					
India	20	26	4	51	19
Pakistan	5	14	0	23	63
Taiwan	95	12	53	----- 35 -----	-----
<u>LATIN AMERICA</u>					
Brazil	15	66	17	11	6
Colombia	30	27	69	3	1
Ecuador	18	26	64	----- 10 -----	-----

- 1) NA = Not Available. According to Table 1 below, in 1976 public institutions extended 60 % of all institutional agricultural loans.

With the exception of Kenya for which no data were available on the break-down of loans by type of lenders, there are some estimates, however rough for all the other countries mentioned.

### 3 Smallholder Finance in Kenya

#### 3.1 Institutional Credit for Agriculture

A recent agricultural credit study commissioned by the United States Agency for International Development (USAID) has quantified agricultural credit from 19 sources (Table 1). These sources fall into the following groups:

1. The Agricultural Finance Corporation (AFC) which gives loans to large as well as small-scale farmers including the Guaranteed Minimum Return Scheme proceeds.
2. Commercial banks which provide working capital and development credit channelled largely to large-scale farmers.
3. The Cooperative Bank which provides development and seasonal loans to its members.
4. Parastatal organizations such as crop or produce boards which provide seasonal or medium loans, mainly for the development of cash crops.
5. Other credit institutions which provide suppliers credit through institutions such as the Kenya Farmers' Association and the Kenya Breweries.

Over the period 1970 - 1976 commercial banks providing 33 % to 40 % of all institutional credit and AFC (16 % to 37 %) have invariably been the most important sources. AFC is the main Government instrument for agricultural credit. It was established as a statutory body in 1963 to assist in agricultural development and makes loans to farmers, cooperative societies, incorporated group representatives, private companies, public bodies and local authorities engaging in agriculture. In addition, AFC acts as agent for the Guaranteed Minimum Return Scheme (which provides seasonal credit to growers with more than 6 ha under wheat and hybrid maize as well as insurance against crop failures).

During the year ending March 31, 1976, AFC loan disbursements to farms of 20 ha and less (which is AFC's "small farmer" definition) amounted to KShs 52.8 million accounting for 42 % of total AFC disbursements to agriculture. 72 % of all new smallholder loans were granted for livestock purposes such as purchase of improved cattle and sprays and investments in dips, fencing and water development. Crop loans accounted for 6 % and other items for the balance of 22 % (LIJODI, 11, p. 20 and 29).

Small-scale loans issued by the commercial banks are rarely of medium-term duration (2 - 3 years), and are largely designed to meet on-farm development requirements but most are for working capital. Due to the small amounts - loans vary from KShs 10,000 to 30,000 - banks keep their administrative costs low by simply extending a line of credit up to the agreed loan amount without performing an analysis of farm development proposals. There is also practically no follow-up on the actual use of loans proceeds. This is in contrast to the current AFC practice where loan applications for smallholders are prepared in conjunction with Ministry of Agriculture, Land and Farm Management Division field staff; this involves visits to each farmer by an AFC field officer before a loan is made, loan disbursements based on suppliers' invoices, and, to the extent possible, the supervision of loan used by both AFC and the Ministry of Agriculture.

The aim of the Cooperative Bank is to pool funds generated by cooperatives and to make them available to the members. Cooperative societies generally maintain accounts at a commercial bank branch in the nearest commercial center to cover their day-to-day requirements. The Cooperative Bank lends to societies under the Cooperative Production Credit Scheme (CPCS) for crop finance. About 60,000 loans were made under CPCS during 1970 - 73, totalling KShs 31 million, an average of about KShs 520 per borrowing. Rural cooperative societies with credit from the Cooperative Bank finance crop marketing, livestock including dairy,

**Table 1: Aggregate Institutional Credit Advances to the Agricultural Sector in Kenya 1970 to 1976 (KShs Million)**

Lending Entity	Year Ending March 31						
	1970	1971	1972	1973	1974	1975 <sup>1)</sup>	1976 <sup>2)</sup>
Agricultural Finance Corporation	178.1	189.6	214.3	244.9	263.2	300.7	386.5
Guaranteed Minimum Return Scheme	106.7	104.6	110.9	118.9	130.0	162.8	170.3
Bank for Co-operatives	4.2	14.8	13.5	16.3	33.3	71.9	80.3
Commercial Banks (all) <sup>3)</sup>	186.0	251.0	240.0	356.0	481.0	737.0	751.0
Kenya Breweries	8.6	11.5	12.6	16.0	19.8	43.5	48.7
Credit Unions <sup>4)</sup>	0.8	1.2	2.5	4.9	12.8	18.1	22.4
Horticultural Co-op Development Authority Ltd	N.A. <sup>5)</sup>	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Kenya Dairy Board	0.4	0.4	0.7	0.1	-	-	0.1
Kenya Farmers Association	N.A.	N.A.	N.A.	52.0	130.0	152.0	182.0
Kenya (Coffee) Planters Co-op Union <sup>4)</sup>	-	15.4	22.6	51.4	73.9	49.5	284.5
Kenya Sisal Board	9.5	12.2	12.4	59.1	140.1	104.4	121.7
Kenya Sugar Authority	-	-	12.0	7.5	13.2	17.4	16.5
Kenya Tea Development Authority	39.1	-	0.4	-	-	11.0	5.0
Ministry of Co-op Development	2.5	4.9	12.5	52.5	65.0	96.6	127.5
Ministry of Lands and Settlement (Land)	5.5	9.3	1.0	0.7	0.8	2.0	1.1
Ministry of Lands and Settlement (Development)	10.9	5.9	2.8	1.4	2.1	2.1	3.9
National Irrigation Board	5.1	5.8	7.9	17.3	23.0	27.6	41.8
Pig Industry Board	0.3	0.3	0.2	1.1	1.6	0.5	0.5
Pyrethrum Marketing Board	-	1.5	2.0	4.1	2.5	3.3	4.0
Wheat Board	-	-	-	-	1.2	28.0	34.0
Aggregate Agricultural Credit	557.7	628.4	668.3	1,004.2	1,393.5	1,828.4	2,281.8
Agricultural Production Total	3,510.4	3,760.2	4,399.8	4,923.4	5,912.8	6,954.2	8,651.6
Aggregate Agricultural Credit as a Percentage of the Value of Agricultural Production	16	17	15	20	24	26	26
<p>1) Provisional.                  2) Projections.                  3) A few working capital credit advances to coffee cooperatives are included as estimates.                  4) Estimates.                  5) Not available.</p>							
<p>Source: Agricultural Credit Study Team, Multinational Agribusiness Systems Inc.</p>							



and farm purchase; there were 1,500 of these societies with a total membership exceeding 600,000 in 1975. In addition to their primary marketing or production activities, societies extend credit for input supplies through CPCS, the Smallholder Production Services and Credit Project (SPSCP) and the Integrated Agricultural Development Program (IADP).

The SPSCP is part of a USAID Agricultural Sector Loan totalling US \$ 3.4 million to the Government of Kenya planned on implementing a comprehensive program for the provision of production and marketing services to smallholders. The SPSCP target group of beneficiaries are smallholders characterized as less progressive but who also have the potential to become progressive farmers, i.e. those who have the capacity to use credit and modern farming techniques. SPSCP was intended to be the forerunner of IADP, the principal instrument for improving the economic well being of the country's smallholders. IADP is being implemented through the cooperative movement, which embraces a large section of the rural economy and has proven a useful vehicle for providing a variety of services to smallholders. The World Bank has committed funds amounting to US \$ 20.0 million in support of IADP. Implementation of both SPSCP and IADP is suffering from various administrative and financial difficulties as typically reflected in poor credit recoveries which are as low as 6 % in some areas. However the Government, the World Bank and USAID continue to believe that SPSCP and IADP provide a sound basis for improving productivity and incomes of Kenya's rural poor viewing the difficulties positively, as a learning process, and as a guide to develop the necessary administrative machinery.

Smallholders growing tea, pyrethrum, coffee and cotton can usually also obtain seasonal or medium-term credit from the respective statutory marketing organizations. Such cash crop loans take up most of the funds, and farmers growing only "subsistence" food crops (surpluses of which are also sold) have little access to credit, whether seasonal or medium-term. A farmer can, for instance, obtain advances from the respective board for the establishment of additional acreage (medium-term) and for fertilizer application (short-term). Loans are repaid by deduction from crop proceeds. For wheat production, large-scale farmers benefit from the Wheat Scheme, which is being administered by the Wheat Board. Under this program, growers obtain credit for actual cost of all cultivation and harvesting activities and repayment is effected by withholding from crop proceeds.

In addition to these formal institutional credit sources there is, of course, an informal supply of credit within the rural society. This includes financial transactions between members of families and "clans" who may lend to one another or on occasions (and especially in some tribal groups) pool their savings to provide funds. Since the tradition of the extended family remains strong and the wealth of individual family members can, in relative terms, grow rapidly through their participation in the modern sector, this source of capital is likely to be an expanding one. As detailed in sections 3.3 and 3.4 below, remittances of family members working in towns represent a major source of funds for a growing number of farm families. Similarly, it is known that credit is also provided in various forms by merchants. As the traditional sector becomes increasingly monetized, it is likely that this form of lending will also expand. Rural indebtedness to traders is generally thought to be relatively small and is not regarded as a social problem in Kenya (DONALDSON and von PISCHKE, 6, p. 3).

### 3.2 A Case Study in Murang'a

In 1973 von PISCHKE (21) conducted a case study on "Credit Use and Development on Nineteen Murang'a Farms, 1969 - 1973". Murang'a District comes under Kenya's Central Province. 29 farms, whose size ranged from 3.9 ac to 32.1 ac with 13 farmers (68 %) working up to 15.0 ac and 16 farmers (84 %) up to 20.0 ac, were selected on the basis of specific farm characteristics but, unfortunately, non-randomly, to enable analysis of the impact of

AFC loans made under IDA Credit 105-KE for purchase of grade cattle in 1970 and 1971. There was a wide range of subsistence production activities on the sample farms, although most grew maize, beans, bananas and sweet potatoes. The range of cash crops was even wider, with tea and coffee being the crucial ones and, among the 13 AFC loanees, grade cattle had become another important cash activity. Sources and use of finance for the 19 sample members were as follows:

1. AFC loans - 13 loanees, range of loans: KShs 1,600 - 9,000; use of loans for purchase of grade cattle, fencing materials, water tanks, milking sheds and equipment.
2. Kinship and Friendship Credit - Four out of the 19 respondents had used it repeatedly for school fees.
3. "Traditional" Credit - Two of the respondents reported participating in credit arrangements which for want of a better term, von PISCHKE called "traditional" credit meaning "qualified sales in which the seller retains certain options which render the transfer reversible." The "future" element in these transactions implies a credit arrangement.
4. Merchant Credit - Six of the respondents reported to have used it for household goods like salt, sugar, cooking fat, kerosene.
5. Cooperative Credit - Three respondents reported to have received it: one of them KShs 900 worth of supplies under CPCS and the other two unspecified amounts for seeds and fertilizer for food crops.
6. Crop Authority Credit - Six of the seven tea producers among sample members had obtained fertilizer on credit under the fertilizer credit scheme of the Kenya Tea Development Authority (KTDA).
7. Commercial Bank Credit - Most of the AFC borrowers had accounts with commercial banks. Several received their monthly tea payments in the form of deposits made directly to their accounts by KTDA. Five of the AFC borrowers and one other sample member had used bank credit in recent years. Three reported having loans, three had obtained temporary overdraft facilities to ease liquidity problems. Loans were for purchase of vehicles and the development of farms.
8. Money Lender Credit - It was difficult to get any information on this type of credit. Only the most indigent member of the sample admitted that money lenders exist in Murang'a and he had borrowed from one of them from time to time.

Concerning loan morality von PISCHKE states (21, p. 4 - 6): "All sample AFC borrowers had defaulted at some point on their obligations to AFC and were in arrears at the survey reference date, June 30, 1973. Default does not appear, as is commonly alleged, to be a function of poverty (borrowers appear to be among the more prosperous farmers in their neighborhoods), of illiteracy (most of the sample borrowers were literate), or of the lack of zeal for maintaining farm records. Likewise, borrowers' payment of school fees for their children would appear to have an indirect and not very strong relationship with their repayment performance. Borrowers of relatively substantial financial means tended to be worse payers than those of meagre financial resources. In contrast, commercial bankers reported relatively good experience with their loans to small farmers in Murang'a. The clientele of the banks and AFC overlap and the area of duplication would logically include those AFC borrowers of relatively substantial means. These are also the segment of AFC's small scale borrowers who appear to have the worst default records, so it seems that individuals who handle their commercial bank facilities in a satisfactory manner are, in contrast, prone to default on AFC loans. The reasons for these variations in loan morality may probably be traced to differences between the banks and AFC in terms of administrative standards and services offered, and to AFC's public sector status."

### 3.3 The Financial Situation of the Smallholder Households

The Kenya Central Bureau of Statistics launched an Integrated Rural Survey (IRS I) in 1974 - 75 (15) as a first major step to establish a National Integrated Sample Survey. This paper restricts the presentation and discussion to the IRS I data on smallholders' sources and use of funds by the eight selected Agro-Ecological Zones (AEZs):

West of the Rift:	Tea Zone Coffee Zone Upper Cotton Zone
East of the Rift:	Tea Zone Coffee Zone Lower Cotton Zone
Coastal Zones:	Rain less than 40" Zone Rain more than 40" Zone.

The eight AEZs selected for the analysis are representative for the more than 1.4 million smallholder households amounting to 96 % of all smallholders in the smallholder areas of Kenya. The median cultivated area for all Kenyan smallholdings is in the range of 1 - 2 ha.

The key financial results of IRS I are at Table 2 and highlighted as follows: The most striking feature of the mean total household income composition is the moderate share of the mean farm operating surplus which ranges from 25 % to 72 %; the average share for all Kenyan smallholder households is likely to be in the 50 % - 60 % range. Most important among the other 5 total household income sources are regular employment (4 AEZs), non-farm operating surplus (3 AEZs) and remittances from relatives (1 AEZ).

The non-monetary items included in the mean farm operating surplus analysis, in particular the livestock valuation change distort the financial picture of the smallholders considerably. For instance, for Lower Cotton East of Rift the mean livestock valuation change amounts to minus KShs 1,175 reducing mean total farm production to KShs 1,026. Therefore, for the purpose of this paper the mean total household cash income was calculated by reducing mean total household income by the non-monetary portion of the mean farm operating surplus. The AEZ means of total household cash income range from KShs 1,547 (Upper Cotton West of Rift) to KShs 3,271 (Coast Rain more than 40"), their shares in mean total household income range from 45 % (Coffee West of Rift) to 118 % (Lower Cotton East of Rift).

For 2 AEZs the mean current household cash income is negative, viz. Coffee West of Rift and Tea East of Rift. This is an indication of credit arrangements on which IRS I did not yield any consistent data. The Central Bureau of Statistics is planning to conduct special loan surveys to shed light on this matter which has been subject to many speculations and disputes.

### 3.4 Some Implications

Table 1 indicates that institutional lending to Kenyan agriculture has dramatically increased. Although the total AFC disbursements to smallholders have been recorded (accounting for 42 % of total AFC disbursements for the year ending March 31, 1976 as reported in Section 3.1 above) there are only rough estimates available on the total involvement of smallholders in institutional credit. Of the total number of almost 1.5 million farmers in Kenya, mostly smallholders, only about 200,000 have received institutional credit. In 1972, the cooperative system extended loans to 90,000, parastatals to 31,000, and AFC to 15,000 smallholders (working up to 20 ha according to AFC's classification, i.e. substantially more than the average smallholder as resulted from IRS I). It is estimated that at the end of 1972 loans out-

**Table 2: Average Value Per Holding of Income, Outlays and Savings by Selected Agro-Ecological Zones and Percentage Distribution of Household Income by Source of Income and Selected Agro-Ecological Zones**

	Tea West of Rift		Coffee West of Rift		Upper Cotton West of Rift		Tea East of Rift		Coffee East of Rift		Lower Cotton East of Rift		Coast Rain less than 40"		Coast Rain more than 40"	
	KShs	% of THI*	KShs	% of THI	KShs	% of THI	KShs	% of THI	KShs	% of THI	KShs	% of THI	KShs	% of THI	KShs	% of THI
Farm Operating Surplus	2,534	59	3,116	72	1,428	58	2,694	61	2,085	51	646	26	702	25	1,040	26
Non-Farm Operating Surplus	377	9	255	6	265	11	713	16	197	5	611	25	589	21	879	21
Regular Employment	1,041	24	417	10	338	14	323	7	938	23	384	16	183	6	649	16
Casual Employment	105	2	132	3	137	5	332	8	377	9	396	16	469	16	606	15
Remittances from Relatives	139	3	335	8	240	10	217	5	392	10	383	15	820	29	761	19
Other Gifts	117	3	49	1	43	2	107	3	96	2	59	2	94	3	142	3
Total Household Income	4,313	100	4,304	100	2,451	100	4,386	100	4,085	100	2,479	100	2,857	100	4,077	100
Total Household Consumption	2,720	63	3,454	80	2,215	90	5,925	135	4,026	99	2,788	112	3,546	124	3,252	80
Current Household Savings	1,593	37	850	20	236	10	-1,539	-35	59	1	-309	-12	-689	-24	825	20
Non-Monetary Portion of Farm Operating Surplus	1,741	40	2,373	55	904	37	1,746	40	1,626	40	-437	-18	355	12	806	20
Total Household Cash Income	2,572	60	1,931	45	1,547	63	2,640	60	2,459	60	2,916	118	2,502	88	3,271	80
Total Household Cash Consumption	1,515	35	1,988	46	1,470	60	3,661	83	2,446	60	1,914	77	2,459	86	2,800	69
Current Household Cash Savings	1,057	25	-57	-1	77	3	-1,021	-23	13	-	1,002	41	43	2	471	11
Number of Persons per Household	7.32		8.04		6.10		7.74		6.82		5.98		6.13		8.76	
Per Capita Income (KShs)	589		535		402		567		599		415		466		465	
Ratio of Total Farm Cost to Total Household Consumption	0.19		0.13		0.09		0.17		0.20		0.14		0.11		0.13	
Number of Holdings	140,140		248,641		333,577		169,378		340,473		141,528		22,406		33,075	

\* Total Household Income (THI)

Source: Calculated on the basis of Republic of Kenya, Central Bureau of Statistics: Integrated Rural Survey 1974 - 75, Basic Report (1977), p. 55 - 67 and personal information obtained from T. Marchant.

standing to smallholders totalled about KShs 366 million and loans to large scale farmers amounted to about KShs 580 million, i.e. the 3,000 - odd large scale farmers received about 61 % of all institutional farm credit. More specifically, small farmers received only 20 % of all short and medium term credit available from organized sources, while they produce not only half of the marketed output but also subsistence for 90 % of the nation's total population. "Thus", the World Bank concluded 1975 (17, p. 487) "the adjustment of the credit institutions to foster the smallholder agriculture is far from complete. The institutional structure is fragmented and there is little coordination of sources or flows of credit to farmers. There are few operative special policies or regulations affecting the provision of farm credit by financial institutions, and the agricultural credit system is effectively isolated from the wider financial system of the country. Consequently, the various categories of farms and types of production are not served on a uniform or integrated basis and this is reflected in the imbalance in lending between the subsectors, and, most importantly, in the lack of coordination between credit provision, input supplies, and extension advice."

Although von PISCHKE's (21, p. 145-167) survey in Murang'a cannot be considered representative for AFC's credit operations it has yielded some advice for AFC's future credit activities. Lack of extension advice and other technical support have apparently caused the failure of the Murang'a AFC credit program. Von PISCHKE calculated an average rate of return of minus 39 % to the 13 farmers (taken as a single entity) having used AFC credit for investments in an improved dairy herd. Two borrowers had discontinued their grade cattle enterprises at the time of the survey because of stock mortality. Three others incurred net cash losses in most of the period surveyed, which ranged from two and one half to four and one half years. Only three had ever obtained enough cash surplus to cover their annual loan installments, and only one of these had done so on a fairly consistent basis. However, these negative results from Murang'a provide ex-post wisdom that would be dangerous to generalize. In addition, the sample farms were selected for specific farm characteristics and hence are not entirely representative of the area.

VASTHOFF's (19, p. 93) field study in three other districts in 1966 arrived at considerably more positive results: He calculated annual net return to loan capital invested in dairy development of 4 % for Kajiado, 44 % for Kiambu and 42 % for Nandi. However special the circumstances of the two case studies may have been, they tend to confirm the conclusion made by Development Alternatives Inc. (4, p. 163): "Medium- and/or long-term credit does not insure success or income gains to borrowers (at least in the projects reviewed) . . . ."

The IRS I data will prove to be of considerable importance for agricultural policy makers and planners; never before had any farm survey covered so comprehensively the majority of Kenyan smallholders. In the context of this paper the most remarkable results of IRS I are the:

- a) high proportions of mean off-farm income in mean total household income ranging from 28 % to 75 % among the eight AEZs; and
- b) considerable dependence of smallholder households on remittances from relatives.

On the basis of the IRS I data it can be estimated that on average, off-farm income accounts for 40 % to 50 % of total household income and about 70 % of total household cash income of all Kenyan smallholders. Consequently, off-farm income is vital for the average Kenyan smallholder and must be a dominant consideration in smallholder/rural development programs, although further research is required to unveil, in any specific area, the complex relationships between the various components of smallholders' incomes, consumption, savings and investments.

The ratios of mean total farm cost to mean total household consumption in Table 2 demonstrate that for the average smallholder, consumption is far more important than farm expenses.

Further analysis of these ratios and more reliable data on loans could lead to practicable recommendations on the design of smallholder credit programs.

With regard to remittances from relatives, JOHNSON and WHITELAW (9) have analyzed data on the urban-rural income transfers which were collected as part of the Nairobi-Urban Study in the Spring of 1971. The Study revealed that 89 % of the surveyed low and middle income earners in Nairobi remit substantial shares of their earnings to relatives in the rural areas. Estimated remittances for some selected income levels evaluated at the mean values of rural-urban attachment were as follows:

<u>Income Earned</u> <u>per Month</u>	<u>Income Sent out of</u> <u>Nairobi Each Month</u>
-----KShs-----	
50	14.0
200	44.0
500	76.5
1,000	132.0
1,500	204.0

The average amount of this transfer (including the 11 % who did not remit any income) was KShs 85.70 per month. The average monthly income for the sample was KShs 411.5 per month. Hence, 20.8 % of the urban wage bill was remitted. Most urban residents still consider their home to be the village in which they grew up; their stay in Nairobi is principally for the purpose of making a good income.

#### 4 The Role of Credit in Developing Smallholder Agriculture

W.C. BAUM has concisely specified the global scope for smallholder credit as follows (FAO, 8, p. 5): "Fortunately, there is considerable potential for increasing agricultural output in the developing countries, including output from the small farm sector. This potential should be sufficient to provide the marginal additions to food output needed to keep pace with population growth over the next several decades . . . . To realize this potential requires more irrigation and better water control, more soil conservation and reclamation, and additional infrastructure such as roads and market facilities. It also means new crop varieties, more fertilizer and pesticides, improved tillage and land preparation, better quality storage and food processing -- together with careful planning for the introduction and management of this technology. Furthermore, the technology must be brought within reach of millions of small farmers whom the so-called Green Revolution has largely by-passed. To purchase these inputs and adopt the new technology, increasing amounts of production credit to small farmers will be needed".

However, the design of successful smallholder credit programs requires, first of all, quantification of such credit demand. In addition, in determining the ways and means of lending evaluation of the developmental impact of past and ongoing smallholder credit programs will prove useful. Although recently under the auspices of USAID a large number of smallholder development projects which include substantial credit activities have been evaluated (DONALD, 5; Development Alternatives Inc., 4), the lessons from these studies are not specific enough to help shape more realistic approaches. However, these exercises have shown the limitations of the state of the art: "The unsatisfactory results in the credit field could perhaps be attributed to the absence of well established methods for achieving rural development generally. This view suggests that credit programs, like other modernizing institutions, could not be expected to produce reliable results until basic developmental doctrines

are evolved and applied" (DONALD, 5, p. 10). And further "to assume without examination that new technology is available for the small farmer, and that it is profitable to him, is the biggest error the proponents of agricultural credit have made" (DONALD, 5, p. 37).

Actually, more often than not profitable technology is lacking and can only be established through adaptive research, particularly trials on farmers' fields. Such adaptive research is likely to be an essential feature of the initial phase of most realistically designed smallholder credit programs, although there are other needs to be satisfied, particularly widespread acceptance of the new technology by the smallholders and timely supply of inputs. In many recently recorded successfully implemented smallholder development programs a sequential approach has proved useful. Initially, the extension staff is trained and programmed to concentrate on improving existing farm management practices. Soon the extension service will start recommending increasing amounts of purchased inputs. And only then farmers' demand for efficient and effective input supply and credit systems will develop (see for instance BENOR and HARRISON, 3, p. 16 - 17). The necessarily delayed deployment of credit cannot be overstressed since it has frequently been ignored. However, if and when credit is available commensurate to demand it is becoming a crucial, but still complementary vehicle for increasing smallholder output and incomes significantly.

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