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Control, Accountability, and Incentives in a Successful Development Institution

The Kenya Tea Development Authority

Geoffrey Lamb
Linda Muller

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Abstract

This paper analyzes the institutional factors in the remarkable success of the Kenya Tea Development Authority, and draws some lessons which may be useful to other development institutions. It surveys the rapid growth of KTDA, which is now the largest and most successful smallholder tea scheme in the world, with 138,000 growers, 24 operating factories, and production of around 33,000 metric tons of manufactured tea, most of it of premium quality. The paper identifies organizational autonomy, strategic managerial control and an effective accountability and incentive system as the keys to KTDA's institutional success. Current problems arising from market conditions and the maturing of the smallholder tea industry are discussed in terms of the institutional adaptations they will require the Authority to make. Finally, the paper considers the relevance of KTDA's experience for other development institutions.

Acknowledgements

This study would not have been possible without the generous cooperation of KTDA, and particularly of Messrs. George Gitungo (Chief Technical Officer) and Maina Kariuki (Public Relations Officer), who arranged an extensive program of field visits and interviews for us in 1981. We are grateful for their help. We would also like to thank the Chairman and the General Manager of KTDA, Messrs. Charles K. Koinange and Simon Kamuyu, and through them to express our gratitude to the many tea growers, extension staff, factory managers and regional and headquarters personnel who took time and trouble to answer our questions. We are also grateful to Messrs. W.D. Ware-Austin and R. Kemoli of the Commonwealth Development Corporation for their assistance.

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Section I: INTRODUCTION AND SUMMARY

1. This study sets out to provide a coherent account of the Kenya Tea Development Authority as an example of successful institutional development, and to draw some lessons from KTDA's experience which may be applied to organizational, managerial and other institutional aspects of projects in developing countries. The study is part of a continuing program of work in the difficult area of institutional development, in which the World Bank seeks to learn from and contribute to efforts by its member countries to improve the efficiency and effectiveness of development institutions.

2. The Kenya Tea Development Authority is widely acknowledged to be a remarkably successful institution in two fields--smallholder rural development and public sector enterprise--in which the African experience has often been fraught with difficulties and disappointing performance. In roughly two decades it has organized the planting of about 54,000 hectares of tea by some 138,000 smallholders, and has become a major processor and the largest exporter of black tea in the world. Smallholders produced 146,000 metric tons of greenleaf in the crop year 1980/81, which was processed into approximately 33,000 metric tons of made tea, 85% of it for export. Smallholder tea exports, virtually non-existent before 1960, have accounted for about one-third of Kenya annual tea exports since the mid-1970s, the remainder coming from long-established commercially-owned tea estates. The rapid expansion of smallholder production has been the major factor consolidating tea as Kenya's second most important export commodity, and third largest source of foreign exchange earnings (after

tourism and coffee, but excluding re-export of refined petroleum products). Although no comprehensive evidence on grower incomes is available, it seems clear that grower incomes from tea grew very rapidly over the 1960s and 1970s to a level comfortably above the Kenyan average. KTDA's record is reviewed in Section II.

3. This study concentrates on the institutional factors in that success. Natural conditions (climate, rainfall, elevation, soils) and the economic environment were very favourable to smallholder tea in Kenya for much of the 1960's and 1970's, but they required appropriate institutional mechanisms on both the supply and demand sides to fashion an efficient and sustainable smallholder production system for this demanding crop. Those mechanisms, and their applicability (or indeed their limitations) beyond their immediate Kenyan setting are the subject of this paper.

4. Rural development presents peculiar difficulties for building and sustaining effective development institutions, particularly where small farmers are concerned. Each peasant holding is a complex producing and consuming unit whose members' behaviour is subject to a wide range of internal and external conditions--social, cultural and political as well as economic. Institutions which are both stable and innovative enough to cope with this complexity must deal with an array of activities which are overwhelmingly social rather than technical.

5. Rural development involves large numbers of people, pursuing multiple and often imprecise objectives, and operating in a highly variable environment. Management styles and organizational frameworks appropriate to factories or urban bureaucracies cannot easily be applied in such uncontrolled environments; nor are there often readily identifiable paths

along which institutional resources may be concentrated to attain output or welfare objectives.

6. KTDA's approach to these difficulties has been to concentrate institutional resources on activities which were crucial to the whole cycle of tea production--and which had a technical character making them susceptible to efficient intervention by the Authority.

7. Compared to the complexities of an integrated rural development project, KTDA has had a simpler task in this respect: the technical package which it administers in field and factory is simpler and has been tested in estate production, and the managerial and financial coordination involved is more straightforward. Moreover, the smallholder tea industry soon began to generate a cash flow which, in the 1960s and 1970s, was greater and more stable than in most peasant agricultural activities.

8. Nevertheless, the Authority, like most rural development institutions, was dealing with a large clientele of potential peasant growers, as well as its own personnel. Although responsible only for a single crop, it was involved in comprehensive or integrated provision of most components of the productive system. Credit, extension, nurseries, transport, processing and marketing all fell within its sphere.

9. The Authority's answer--partly by design, partly as a creative response to changing circumstances--has been to identify particular activities which, at different phases in the sequence of smallholder tea development over 20 years, have provided KTDA with the most effective leverage. In the early stages, the key element was planting material--KTDA owned the tree stump nurseries and therefore could exercise "quality control" of growers through licensing and issuing planting material. As

more and more smallholder tea approached pluckable age, and as planting technology changed, the emphasis moved to control over processing. Quality control was then concentrated at the factory end since the factories' power to buy or refuse leaf provided an effective incentive to field staff and growers.

10. For this control of strategic resources to be effective, however, staff and farmer incentives had to be pushing in the same direction, and both management and line personnel had to be accountable for results. The Authority's structure and operating methods are designed to accomplish this. Grower returns are directly related to world prices realized for specific factories' output; but the payment system has both regular (monthly) and bonus (annual) elements. This mix of financial security and incentives has worked well. Field staff are closely supervised by KTDA superiors, and their performance is also subject to influence from growers through representation on district tea committees and on KTDA's board. Field staff and growers alike are answerable to the factories for delivering high-quality leaf--and factory managements are quickly held accountable for the quality (and hence the price) of the resulting made tea.

11. KTDA's successful control, incentive and accountability system, analyzed in detail in Section III, would have been ineffective unless certin external conditions had been met. The Authority has been permitted substantial autonomy to carry out its development task. It is held to account by its owner, the Kenya Government, and in important respects by the external agencies which have supplied development capital. But it controls the resources necessary to do its job, it is not subjected to

substantial operational interference, and it does not have tax, subsidy or other burdens placed on it which could cripple its financial and operational performance. That external autonomy is complemented by the basic external incentive of world market prices: KTDA's policy has been to avoid insulating either itself or its growers from market influences. This sustained external economic pressure is used--at some risk--to demonstrate the direct link between premium tea production and high grower returns, and to enhance the competitive leanness of KTDA itself.

12. This study also emphasizes, however, that even the most effective development institution is likely to encounter two major kinds of challenge. Firstly, the external environment changes--sometimes radically. In KTDA's case, the Authority is now facing difficulties from drought, from declining world tea prices[1/] and from income alternatives competing for farmer attention, all of which tend to exert downward pressure on production and hence on KTDA's viability. Secondly, institutions themselves have a life-cycle. KTDA has had an outstanding record in the initial establishment of itself and of the smallholder tea industry, and in the second phase of rapid expansion and diversification into processing and marketing. The third phase of consolidating the earlier gains and assuring continued efficiency and high returns when expansion is much slower and the external environment more uncertain, however, poses different demands--and there are signs that the Authority is experiencing some difficulty in dealing with them. These issues are discussed in Section IV.

1/ World tea prices have fallen substantially since the "beverage boom" year 1977. World Bank price forecasts for tea indicate a continued fall in real terms in coming years, with average tea prices declining by 1985 to a real 15% below their 1981 level.

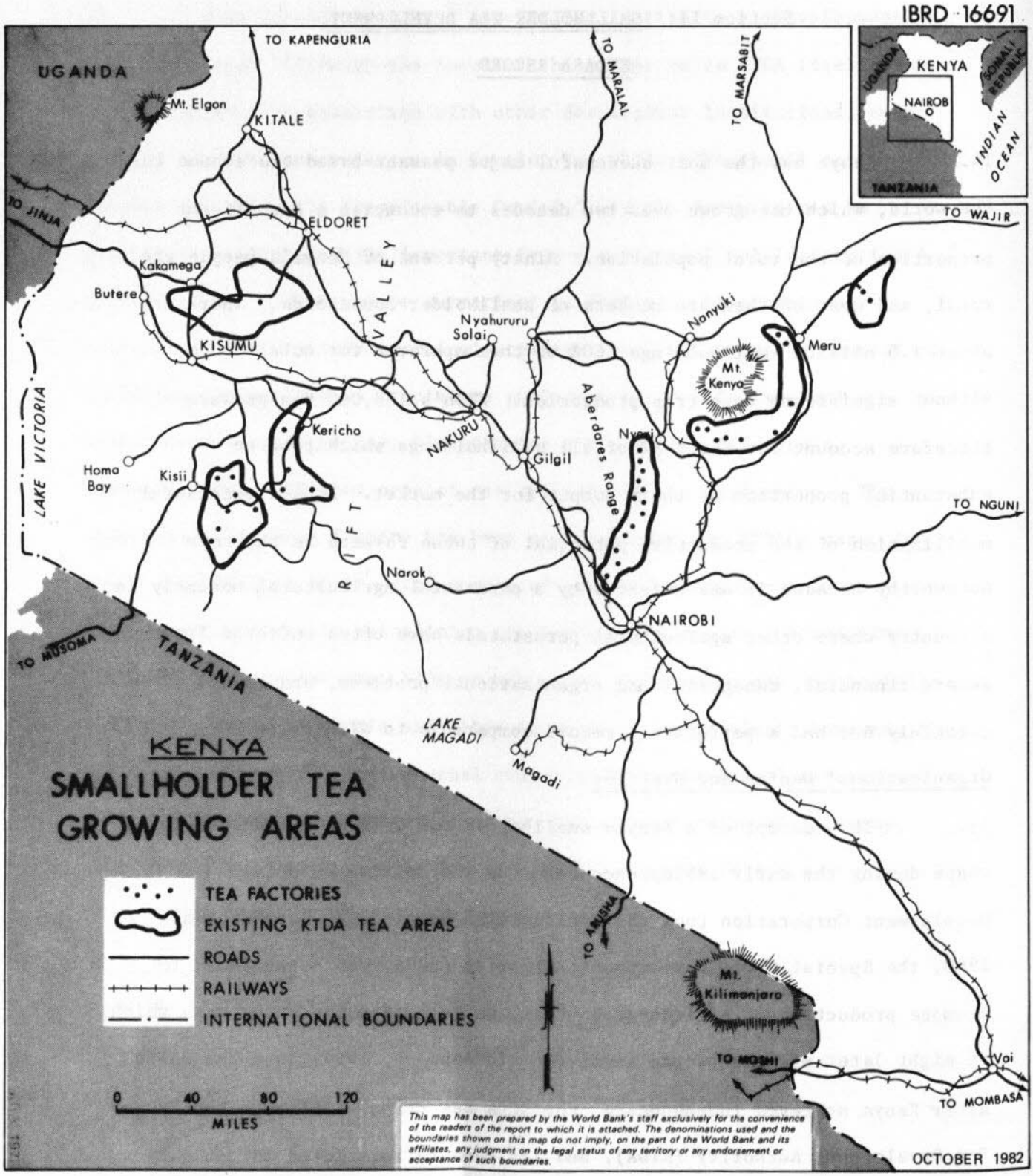
13. What lessons does KTDA provide for institutional development in other settings? Although the focus of this paper is on KTDA itself rather than on systematic comparison with other development institutions, some broader conclusions are drawn in Section V. While KTDA should not be regarded as a readily transferable "model," certain features can be identified as particularly important from a managerial and institutional point of view. These may be summarized as follows: 1) consciously designed and effectively sustained organizational autonomy; 2) control of resources and activities crucial to performance; 3) effective and involuntary accountability; 4) effective and mutually reinforcing incentives for different sets of participants in tea production. The combination of these factors has been so successful, in KTDA's case, in large part because of the strong role of external elements--growers, lenders and prices--in maintaining the Authority's internal discipline. There is no guarantee that KTDA or any other institution can successfully withstand adverse economic and other pressures. It is clear, however, that the Authority has acquired unusual reserves of institutional strength to deal with its difficulties, so long as basic ground rules of autonomy, control and accountability to its stakeholders remain in force.

Section II: SMALLHOLDER TEA DEVELOPMENT: KTDA's RECORD

14. Kenya has the most successful major peasant-based tea scheme in the world, which has grown over two decades to encompass a significant proportion of the rural population. Ninety percent of Kenya's people are rural, and most of them are members of smallholder households. There are about 1.5 million smallholdings, 60% of them operated for subsistence, without significant cash crop production. KTDA's 138,000 tea growers therefore account for about 9% of all smallholdings which produce a substantial proportion of their output for the market. KTDA's successful mobilization of the productive potential of these farmers is the more noteworthy because it was effected by a parastatal agricultural monopoly in a country where other agricultural parastatals have often suffered from severe financial, managerial and organizational problems, and have certainly not had a performance record comparable to KTDA's.

Organizational Design and Staffing

15. The concept of a Kenyan smallholder tea operation began to take shape during the early 1950s, encouraged by the British Colonial Development Corporation (now the Commonwealth Development Corporation). By 1960, the Special Crops Development Authority (SCDA) was established to promote production of African-grown teas, as well as other crops with which it might later wish to become involved. In January, 1964, just one month after Kenya achieved independence, the SCDA was transformed into the Kenyan Tea Development Authority (KTDA), and its mandate restricted to tea. By 1979/80, KTDA operations covered two large regions, West and East of the Rift Valley (see map).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16. From the outset, the organizational design was spelled out in some detail. A Working Party advising on the establishment of the SCDA[2]/ recommended that SCDA would: a) essentially be a commercial enterprise, b) finance its capital investment by borrowing from sources other than Government (e.g., CDC, the World Bank, etc.), c) acquire specified responsibilities from the Ministry of Agriculture, related to SCDA's commercial operations, and d) require special commercial direction, which the government could not provide. The Authority would take charge of planting programs, field operations, inspection and collection, purchase, transportation, and the sale of greenleaf to factories, and would control distribution of tea plants for smallholders and registration of those farmers who would be allowed to grow tea. The Ministry of Agriculture agreed to second the staff for field extension full time; the Working Party had suggested that these staff specialize in tea only. Outside SCDA, the government initially retained nominal ownership over nurseries, and it was expected that tea factories would be financed and in part owned by private sector companies. The nurseries were regarded as crucial to operational control from the outset, however, and the consolidation of district nurseries into two large nurseries East and West of Rift under KTDA's direct control merely put the seal on what had already been the case.

17. The major change with the establishment of KTDA was that the new Authority would deal exclusively with tea. Otherwise, the experience of the SCDA during the first planting period from 1960-1964 had already set in motion several reforms, based on the perceived needs to consolidate control

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2/ Colony and Protectorate of Kenya, Report of the Working Party set up to Consider the Establishment of an Authority to Promote the Development of Cash Crops for Smallholders, September 1960.

and sharpen farmer incentives. For example, rather than giving growers a flat payment (and possible bonus) for greenleaf collected, the Authority made a fixed first payment based on the weight of greenleaf (per kg) collected, and a second variable payment annually based on the price achieved by the "made" (manufactured) tea on the world market. A Development Charge was levied on growers as a down payment for tea stumps, and credit was carefully controlled in order to strengthen the Authority's power to regulate the selection of growers and the acreage which farmers could plant tea. By the end of the 1960s, KTDA had started to take over existing tea factories and to build new ones, thus fully integrating all aspects of tea operations within its organization.

18. It is thus apparent that the concept of control has been very important in the Authority's organizational design, stemming from the difficulties generally experienced in managing agriculture and rural development, combined with the initial political uncertainties. In creating the SCDA, the Working Party had reasoned that a high degree of control by the Authority of the smallholder areas was necessary to secure high tea prices, low production and processing costs, and the economic and financial viability of the smallholder tea project. Jeffrey Steeves has noted: "It was felt that the nature of the crop and the need for efficiency warranted this emphasis (on control). One is dealing, then, with an organizational structure designed to assure control."[3/] One

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3/ "The Politics and Administration of Agricultural Development in Kenya: The KTDA," Jeffrey Steeves, Ph.D. dissertation, University of Toronto, 1975, page 10.

author goes so far as to describe KTDA as "an all powerful autocratic organization...both monopolist and monopsonist."4/

19. Internally, the Authority has achieved a record of fairly tight management and supervision, due not so much to its nominal comprehensive control but to the way it used strategic control to maximize operational efficiency. First, the ratios of field staff to farmers were carefully apportioned, so that task loads were manageable (see Organizational Chart, Figure 1). Because growers were registered, the Authority had accurate information about the numbers of farmers to receive extension service and therefore what staff and overhead resources would be needed in support. Second, since operations were limited to tea, the tasks and farmer contacts for each type of staff could be set out explicitly. This contrasted with dilution of efforts in extension programs elsewhere, from overburdening of field staff with multiple roles, and lack of detailed work programs, schedules or clientele. Third, the vertical integration of services for a single crop has meant that weaknesses in crop performance could be traced back to failures of specific services (and individuals). Fourth, the diaries kept (in duplicate) by extension agents and farmers have provided supervisors with easy access to information on the frequency of visits and nature of assistance rendered, without burdening staff with laborious report writing. Immediate supervisors sign the diaries they check, indicating in turn to their own supervisors that they have carried out their duties. Fifth, the Authority located extension staff strategically and made them sufficiently mobile so as to cover the territory and staff

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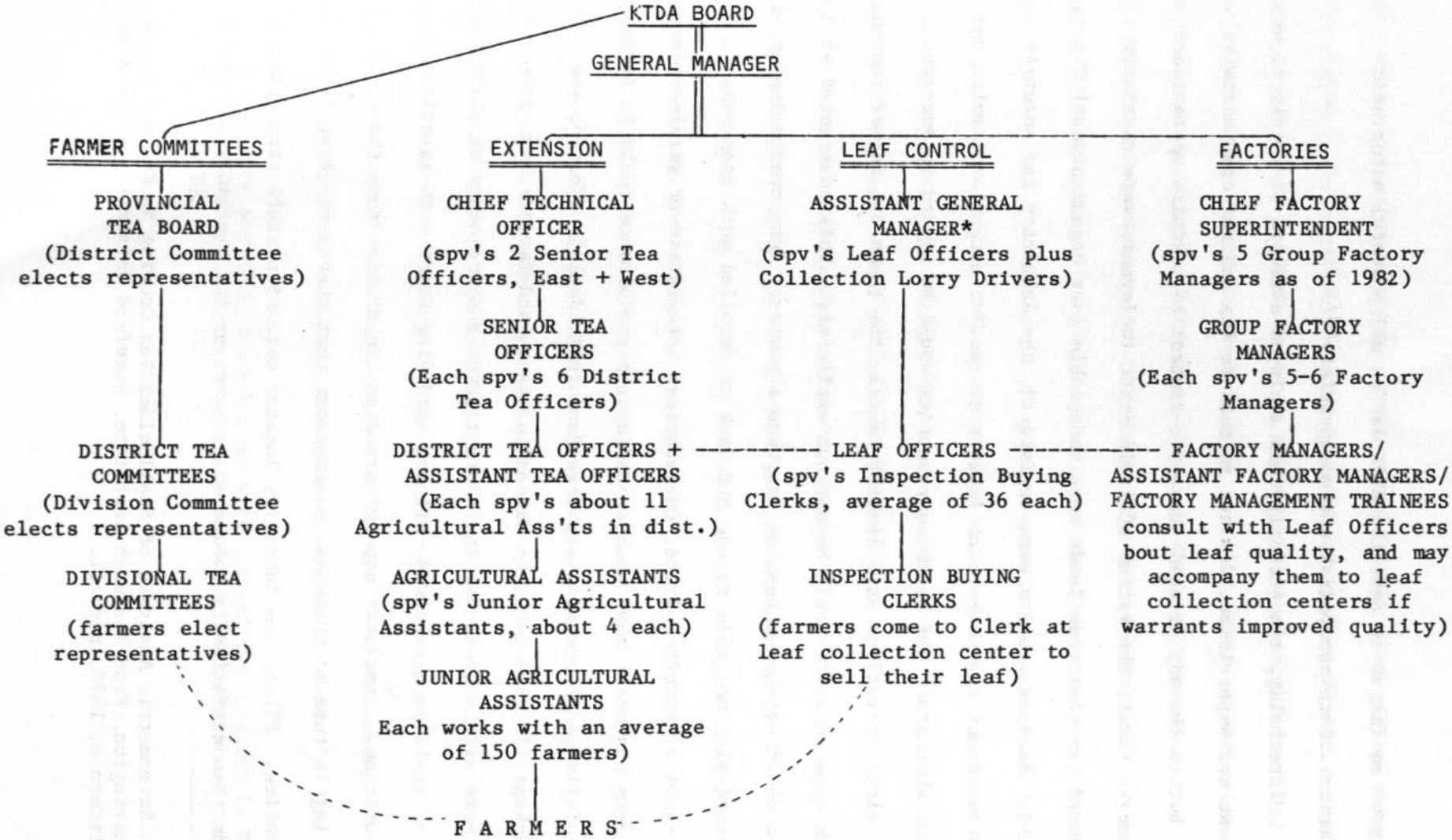
4/ "An Econometric Analysis of Smallholder Tea Growing in Kenya," Dan M. Etherington, Food Research Institute, Stanford University, Palo Alto, California, 1970, page 11.

FIGURE 1

CURRENT ORGANIZATION OF KENYA TEA DEVELOPMENT AUTHORITY



*Aided by Assistant Superintendent and Mechanical Supervisor

NOTE: Dotted line denotes coordination among DTOs/ATOs, Leaf Officers and Factory Managers on how to distribute excess leaf during flush periods.

assigned to them with the requisite frequency. In contrast, many extension programs, especially in Africa, have lacked mobility.

20. The Authority consists of four separate branches: tea committees representing farmers, extension,5/ leaf inspection and collection, and factory operations (see Figure 1). Presiding over the four branches is the KTDA Board, which includes members from KTDA, the Kenyan Government, grower organizations and external financing sources.6/ Lower level field extension has grown considerably from the level originally forecast (see Table 1). The total extension staff was expected to peak at 166 and then taper off in the 1970's; actually, it reached 722 by 1971/72, and 762 in 1981. This growth reflected an expansion of tea land, and of the Authority's diversification into manufacturing and marketing in contrast to previous plans. In fact, the 657% expansion of staff proceeded more or less pari passu with tea land increases.

21. The Commonwealth Development Corporation provided initial assistance in recruiting staff, drawing on a wide range of people who had acquired considerable experience with tea both in Kenya and elsewhere. By 1968, however, all but two of KTDA's staff were predominantly Kenyans, and most were Africans. Given that quality and performance standards were maintained, this was a considerable achievement in rapid localization of

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5/ While extension staff have been seconded from the Ministry of Agriculture, they work full time with the Authority, receive its extra job benefits, and specialize in tea. In other words, they function like regular KTDA staff.

6/ Membership consists of the Permanent Secretary and the Director from the Ministry of Agriculture, the Chairman of the Tea Board of Kenya, representatives from CDC, Ministry of Agriculture nominees, seven tea growers elected by the regional Tea Boards, the KTDA General Manager, and a Chairman appointed by the Minister.

Table I. KIDA: Planned and Actual Staffing of the Field Sector*
(1963-1972)

Per end of Fiscal Year	Forecast**					Actual					
	Senior Tea Officers	Tea Officers	Agricultural Instructors	Assistant Agricultural Instructors	Total	Senior Tea Officers	Tea Officers	Asst. Tea Officers	Agricultural Assistants	Junior Agricultural Assistants	Total
1963/64	2	11	27	91	131	2	10	-	23	81	116
1964/65	4	11	27	91	133	2	11	1	34	97	145
1965/66	4	11	28	91	134	2	11	1	38	104	156
1966/67	4	11	33	91	139	2	12	1	41	142	198
1967/68	4	11	38	100	153	2	12	2	47	189	252
1968/69	4	11	42	108	165	2	12	6	73	325	418
1969/70	4	11	42	108	166	2	12	6	129	504	653
1970/71	4	11	32	65	112	2	12	8	141	559	722
1971/72											

* Not including Settlement Scheme.

** The staffing at the Assistant Agricultural Instruction Level (J.A.A.) provided for in the appraisal report is about 10% lower than in the Supervision agreement.

SOURCE: "Performance Audit of First Kenya Tea Project," Operations Evaluation Department, World Bank, March 5, 1974, Table II.

personnel. As for selection of personnel, the KTDA Board appoints the General Manager, and otherwise the Authority has control of staff hiring and firing, including control over the extension staff seconded by the Ministry of Agriculture. KTDA has been a prestigious place to work, and therefore has had a fairly good choice of staff candidates. It has favored young, technically qualified and ambitious candidates, especially for factory managers and middle management positions, and has thus placed rather less emphasis on seniority than is often the case. Besides a moderate amount of staff training and job mobility, KTDA provides a strong system of staff incentives, as detailed in Section III of this paper.

Financing

22. The original and largest single source of capital investment in KTDA's development has been the Commonwealth Development Corporation. CDC had lent approximately L16m. stg. to the Authority by 1981, and continues to be involved in its factory construction programme. The World Bank assisted KTDA in the intensive periods of field development with two IDA credits ($2.3m for 1964-68 and $2.1m for 1968-72: not all of these credits were drawn, however). A World Bank Loan of $10.4m for construction of 17 tea factories and associated services was extended in 1974 and disbursed 1974-81. Other external financing has been provided by the West German government, the European Investment Bank and by OPEC, which is currently financing construction of three factories. The Kenya Government and parastatal financial corporations have also provided substantial loan capital to KTDA. Government and its agencies have accounted for slightly less than 20% of KTDA's KSh 538 million total loan financing to date. Appendix Table 5 provides details.

23. KTDA was intended from the outset to be operationally self-financing. Operating costs are met from a cess deducted from the monthly "first payment" to farmers for their greenleaf (the payment system is explained in more detail in Section III). The cess has for some years been fixed at KSh. 0.31 per kg greenleaf, deducted from a first payment to farmers of KSh 1.11 per kg. The cess has remained fixed despite changes in the level of first payments over the last decade, from KSh. 0.88 (1970-77) to KSh 1.00 (1977-81) and then KSh. 1.11 for the crop and financial year 1981-82. KTDA's operating income is therefore not directly dependent on world tea prices, but on the quantity of greenleaf which farmers deliver. (Of course prices have an indirect effect through farmer incentives, but many other factors also affect the level of leaf deliveries). The Appendix tables contain further detail on the Authority's finances.

Cultivation

24. Originally, tea planting material was issued to growers in the form of "stumps," i.e., plants cultivated in nurseries from seed. The stumps took approximately four years before they could be plucked (and nine years to reach their full productive capacity). Aggregate development costs in the early phase were made available to KTDA by CDC, and repaid by growers through the capital cess, while the Authority's recurrent costs were covered by the recurrent cess. The two cesses were amalgamated in 1973, at some cost to early planters who might have expected to complete repayment of the "capital" portion and hence to have their cess reduced.

25. In the mid-1960's, KTDA began experimentation with vegetative propagation (VP)7/ under the guidance of the East African Tea Research Institute in Kericho, Kenya. By the 1968-69 season all plantings were VP material, still issued by KTDA. VP possessed an advantage over stump tea in that it was easier to obtain, less expensive, matured more quickly, and its quality could be closely controlled by cloning from plants best adapted to and most productive in a given area. By the end of the 1970's large numbers of farmers had learned to do VP, sometimes even better then their extension representatives, and were filling in or adding to their tea holdings by independent cloning from their own mother bushes. The one disadvantage which has emerged during the last two difficult drought years is that the VP material which KTDA introduced appears less drought-resistant than stump tea.

The Growers

26. The Authority aimed at drawing smallholders into tea production as an addition to, rather than a substitute for, their current subsistence farming. The tea would be grown on land thus far under-utilized, but with suitable altitude, soil, precipitation, etc. Because of its economic attractiveness, and because Africans had for much of the colonial period been effectively prohibited from cultivating tea and several other cash crops, there was very strong smallholder interest in entering tea production in the early sixties.

27. Originally, the size of plots was limited so as to spread the income benefits as broadly as possible. But by the time KTDA was established, the CDC and World Bank were both pressing the Authority to

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7/ Vegetative propagation is a process in which the bushes are grown from cuttings taken from a "mother bush," rather than from seeds.

expand the average holding to a more economically viable size: one acre, or approximately 0.4 ha., was considered desirable. It was argued that farmers with holdings smaller than this would not find it worth their time to harvest the tea and carry it to collection centers. In fact, the average tea holding grew from 0.18 ha. in 1960-61 to 0.4 ha. in 1970-71 (where it has more or less remained). However, in the 1960's some farmers circumvented restrictions on new admissions by planting tea illegally. They obtained bushes by stealing (from commercial estates, KTDA nurseries, or their neighbors), by persuading registered relatives or neighbors to buy extra plants from KTDA for them or supply them with VP cuttings, or by subdividing existing plots without informing the Authority. By the late 1960s, unlicensed planting was enough of a concern for KTDA to impose a Development Charge on anyone growing tea, to declare an amnesty so that illegal growers could be registered, and to require that farmer VP nurseries be licensed.

28. It has been argued (for example in Steeves, op. cit.) that the Authority's minimum acreage restrictions and its concern to regulate new entrants discriminated against poorer farmers, and that these were the farmers who resorted to illegal planting with the acquiescence of junior extension staff, with a consequent loss of an important degree of KTDA control. The holding size issue is a complex and uncertain one: analysis of the distributional effects of KTDA operations, for example, is hampered by lack of good data on the socio-economic characteristics of tea growers compared to the generality of households in tea areas. It is also true, as we discuss in Section IV, that a rational holding size norm established in the 1960s may need revision in the new conditions of 1982. There is no convincing evidence, however, that the restrictions led to very substantial

illegal planting, nor to a consequent deterioration of husbandry standards because illegal growers were not within the Authority's purview. On the basis of KTDA's knowledge about current acreage yields, no significant upward deviation can be detected from expected leaf production: in other words, there do not appear to be large deliveries from illicit acreage. Secondly, even if substantial unregistered holdings do exist, there is no detectable evidence of poor quality leaf being insinuated into the KTDA buying system--although there may be a small amount of illegal domestic selling of sun-dried tea from unregistered sources.

29. KTDA has encouraged farmers to participate in policy discussions and implementation of decisions. The elected divisional and district tea committees, the provincial tea boards, and farmer representation on the KTDA Board itself have comprised the formal institutional channel for advising the tea land allocation process, for transmitting KTDA policy information, and for forwarding grievances. Originally the lower-level bodies were dominated by KTDA staff, and largely functioned to communicate downwards what the Authority wished, but the growers have increasingly taken the initiative. A second means for farmer participation has been buying of shares in individual KTDA tea factories. Currently about 15,000 farmers, or approximately 10 percent of all KTDA farmers, are holders of about 1.6 million shares in the 16 tea factories so far incorporated as public companies. Dividends on these shares are limited to 8% until factory loan obligations are repaid: apart from the monetary incentive of shareholding, however, the device gives farmers an interest in KTDA performance and some voice in operations. (It is however true that shareholding tends to be concentrated among wealthier growers, with possibly a corresponding increase in their already substantial influence in

KTDA affairs.) Third, a less formal communications channel consists of periodic visits to farmers by KTDA senior extension and headquarters staff, to find out about grower progress first hand (rather than relying solely on reports from the field staff). Senior staff make much of this commitment to firsthand contact with growers, and it is clear that the growers are vocal and independent in return.

Factory Operations

30. Although KTDA originally comprised only an extension and leaf production operation, it began taking over the previously privately run factories in the late 1960s. KTDA now operates 27 factories and envisages an eventual total of 39 factories, counting those now planned or under construction (see factory locations as of 1980/81 on map, p. 6). During KTDA's movement into the factory sector, it cooperated very closely with the private tea companies, which contributed valuable assistance in the establishment and initial management of KTDA factories, and in training Authority staff.

31. Significantly, KTDA factories operate on a semi-autonomous basis, with their own financial accounting systems. One exception involves the occasional decision by KTDA to borrow resources from healthier factories in order to help out factories just starting up or experiencing unavoidable difficulties. Factory managers exercise a fair degree of independence in staffing, technical and other aspects of operations.

Indicators of Success

Expansion

32. Besides being the largest and most successful smallholder tea scheme in the world, KTDA has been the main force sustaining the rapid growth rate of Kenyan tea industry in recent years, to maintain tea as the

second largest export crop (after coffee). The expansion of Kenya's tea output is indicated below. Smallholder output has increased enormously--from about 1,200 metric tons in 1965 to over 30,000 tons in 1979/80--as a result of rapidly expanding KTDA acreages. Estate production has increased much more slowly, but from a much larger base and mainly by marked improvements in productivity, since estate acreage has not grown very much over the last decade. The estates produced 18,600 tons in 1965, compared with about 62,000 tons in 1979/80. Smallholder tea has accounted for roughly one-third of total annual marketed tea output by volume since the mid-1970's, and somewhat more than one-third by value because KTDA tea quality is higher than that of the estates.

Table II. Growth of Kenyan Tea Production
(Thousands of metric tons)

1960	1970	1975/6	1979/80
13.8	41.0	59.4	96.6

Sources: Dan M. Etherington, Smallholder Tea Production in Kenya: an Econometric Study, East African Literature Bureau, Nairobi, 1972, p. 6; World Bank data.

33. The commercial estates have produced somewhat lower quality tea than KTDA because of the different economics of estate production. High quality plucking becomes more difficult to organize and supervise as holding size increases--even on peasant plots, KTDA maintains that leaf quality tends to decline as holdings rise above 0.4 ha. and rely increasingly on hired labor. Given family labor commitment and the fact that KTDA growers have no other legal outlet to secure a return on their tea investment (in contrast to estate laborers who may be able to secure

work elsewhere), the Authority has up till now been in a strong position to insist on its premium tea policy.

34. Smallholder tea land has expanded steadily under successive KTDA planting plans: figures are given below. The current phase of acreage expansion will be completed in 1982, and it is unlikely that substantial further expansion will be undertaken in the near future.

Table III. Expansion of Smallholder Tea Land

	Hectares	Cumulative
First Plan	4,492	4,492
Second Plan	6,404	10,896
Third Plan	13,863	24,759
Fourth Plan and Fifth Plan to 1981	28,827	53,586

Sources: Figures for the first three plans from World Bank data. Figures for 1972-80 from Kenya Tea Development Authority: 1979-80 Annual Report and Accounts, Nairobi, December 1980, page 12, for 1981 from KTDA.

The 7,776 new growers who were registered in the 1980-81 crop year brought the total number of growers to 137,832; the average plot size remained at roughly 0.39 ha.

Operating Costs

35. Despite the rapid expansion, KTDA has succeeded in containing its operating costs over the years. Once the basic organizational structure was securely in place, KTDA's costs per grower and per hectare began to fall sharply in real terms.[8/] The relevant figures are set out in Table IV.

8/ Some costs fell because of the expansion: haulage unit costs, for example, were reduced as tea regions became more intensively planted.

Table IV. KTDA: Average Annual Operating Cost (per Grower and per Hectare)

Year	Cost per Grower		Cost per Hectare	
	Current KSh.	Constant(1980) $	Current KSh.	Constant(1980) $
1962-63	249	132	1367	727
1970-71	257	116	731	331
1979-80	357	76	1370	193

Sources: Calculated from World Bank data and KTDA Annual Report and Accounts.

Grower Incomes

36. There is no comprehensive economic evidence on the effects of tea development in Kenya on smallholder incomes, nor of income distribution effects in the tea areas generally. What is immediately obvious even to a casual observer, however, is the economic buoyancy of the tea districts, the improved infrastructure, and the high standards of house construction by tea growers compared to rural Kenyan standards. World Bank figures derived from the second IDA project suggested that a smallholder planting an acre of tea in 1965 would have enjoyed an increase in net income which would reach 250% by the time the tea was mature, in 1974. More recent calculations by the Commonwealth Development Corporation9/ and by Danish researchers,10/ which are broadly compatible with each other, suggest a net annual income for the "norm" grower (0.4 ha. under tea) of about KSh.

9/ W.D. Ware-Austin and P.T. Durham, "Review of the Kenya Tea Development Authority," Commonwealth Development Corporation, June, 1980.

10/ Mogens Buch-Hansen, "Agro-Industrial Production and Socio-Economic Development: A Case Study of KTDA Smallholder Tea Production in Buret, Western Kenya," Working Paper No. 11, Institute of Geography, Socio-Economic Analysis and Computer Science, Roskilde University Centre, 1980.

3,850 for a mature tea garden in 1980. These estimates attempt to cost labour at prevailing rates, rather than assume family labour with low or zero opportunity cost. This is a realistic procedure, since it is widely recognized that hired labour is extensively used even on below-norm tea plots, in contrast to the original family-labour conception, and that members of many tea-growing families work for wages outside their holdings.11/ Poor and/or landless inhabitants of the tea areas have therefore derived direct benefit from wage employment on tea gardens, and to a much smaller extent from employment at the tea factories, as well as benefits from the roads, electricity and other infrastructure introduced to some areas by KTDA.

37. Actual incomes for most growers must be substantially lower than the calculations referred to above--because of lower actual yields, because of smaller than average holdings, and because of immature tea. Thus KTDA paid out KSh. 365,286,422 to growers for the crop year 1980/81. Deducting the greenleaf cess of 31 cents per kilo from the gross proceeds, and excluding the 16,311 new growers who registered between 1978 and 1981 (and who would therefore be delivering no leaf), the Authority paid KSh. 320,452,099 net to 121,521 growers. Average grower income from tea, net of cess but gross of labour, fertilizer and other costs, was therefore KSh 2,637. In the previous year, which was less severely affected by drought, average grower income calculated on a similar basis was approximately KSh. 2,900. These figures are very close to the level of per capita GNP (though somewhat below average private sector agricultural

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11/ Some evidence about hired labour is discussed in Etherington, op. cit., and Buch-Hansen, op.cit.

wages). Given that no growers derive their income exclusively from tea, they indicate a comfortably above-average standard of living for Kenyan tea growers.

Conclusion

38. KTDA's record, while certainly not without problems, is clearly very impressive, particularly in contrast to the generally poor record of smallholder tea schemes in South Asia and indeed in other parts of East Africa. In Uganda, Tanzania and Mauritius, for example, tea authorities with some formal similarities to KTDA have experienced major difficulties, and have not been able to produce benefits to producers and to the national economy comparable to KTDA's. A comprehensive comparison of the performance of different smallholder tea schemes would doubtless highlight instructive differences in the climatic, political and economic environment as components of differential performance. These produced important institutional constraints in some cases. The Tanzania Tea Authority, for example, had to take direct responsibility for managing former private tea estates when it was already struggling to meet smallholder planting targets and to overcome resource and management problems. In Uganda, the Tea Growers' Corporation had a much more diverse clientele than KTDA (including very large growers), and less direct control over field operations because of the intermediary cooperative structure. In Mauritius, the Tea Development Authority has become essentially a (heavily subsidized) public employment program, with the people who were intended to be independent growers becoming paid employees of the Authority, with low productivity and strong political resistance to any change in their status. It is important, therefore, to assess the institutional features of KTDA itself which appear to have made a major contribution to the success of Kenyan

peasant tea--and whose absence or deterioration would very likely precipitate serious difficulties.

Section III. ACCOUNTING FOR KTDA's SUCCESS

39. The preceding section provided an outline of KTDA's organization and its achievements. Despite past and current difficulties, the record is one of outstanding success--sufficiently so to require better explanations than the generalities of "good management," "clear objectives," and so on.

40. Some of the reasons largely external to KTDA have already been touched on. There were favourable internal and technical conditions for smallholder tea production by the early Sixties after the removal of the colonial brake on African cash-crop development. In addition, over most of the last two decades world tea prices have made tea an attractive crop for African producers. The conjunction of domestic and international economic conditions was therefore very encouraging, and external finance was made available on attractive terms.

41. Nominal economic attractiveness of a cash crop has not always been a sufficient condition for its development, however. A number of African examples can be cited where a mix of technical difficulties and inappropriate government policies have produced stagnation or decline rather than output growth even in apparently attractive crops. In some instances, indeed, crops with high earnings have proved irresistible targets for government taxation and control, to the point of drastically reducing incentives to grow them.

42. Kenya's smallholder tea industry has been spared such attentions. Government has not levied special or onerous taxes on tea,12/ nor have there been non-tax mechanisms of any importance for reducing

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12/ The initial loan agreement with CDC in 1960 in fact specified that Government would not place an export tax on tea over the loan's 20-year life.

peasant tea proceeds.13/ The general government policy stance has been to maintain the operational autonomy of the Authority as the body managing the smallholder tea programme, and to reap the benefits directly mainly in the form of foreign exchange and indirectly in the increased output and economic vitality of the tea growing regions. In notable contrast to many other cases of public enterprises in Kenya and elsewhere, government has by and large resisted the temptation to interfere in operational matters, or to be frequently involved in managerial changes (although the Government intervened directly to replace KTDA's general manager in 1980).

43. Aside from the evident effectiveness of this policy in economic terms, there are two broadly political factors helping to explain the government's attitude--factors which might not, of course, recur in other circumstances.

44. The first lies in the origins of KTDA, or rather its predecessor, the Special Crops Development Authority. In the early 1960's many of the progressive colonial officials who had pressed for the expansion of African agricultural opportunities were concerned about possible developments--breakdown of control over the rate and quality of cash-crop expansion,14/

13/ See Accelerated Development in Sub-Saharan Africa: An Agenda for Action (World Bank, 1981) p. 56 for nominal protection coefficients for selected export crops in some African countries. Though the database is of uneven quality, it clearly indicates that Kenya tea growers have had a relatively low rate of effective taxation on their crop. A partial exception to this generalization, however, is the fact that KTDA (as well as the estates) is compelled to devote about 15% of its production to Kenya Tea Packers (KETEPA) for domestic sale at prices substantially below world prices. However, effective December 1981, the Kenyan Government did increase the price which KETEPA must pay to KTDA and other producers.

14/ This was already happening rather rapidly in the case of coffee planting.

and the possibility that a future independent government's policies would interfere with or reverse the strategy of agricultural development already underway. The SCDA, therefore, was intended to secure expert control over smallholder tea development, in a form which was in large part independent from day-to-day government influence. From the beginning, therefore, KTDA had a more deliberately designed form of autonomy than did some of the other parastatals involved in agriculture.

45. The second factor determining KTDA's early policy environment was the political importance of the tea-growing regions, and of the actual and potential growers themselves. Tea is concentrated for the most part in the thickly populated areas of Central, Rift and Nyanza provinces--all important regions in the political map of Kenya. Moreover--although no socio-economic survey of growers appears to exist--peasants growing tea were not from the poorest segments of the rural population, but generally from the "middle peasant" categories which have traditionally formed the bulk of government's political support, with a substantial leavening of larger and more prosperous growers from the peasant elite who tended to form the district political leadership cadre.

46. KTDA's good performance would not in itself have guaranteed its autonomy, even though the Authority's profitability and efficiency were strong arguments in favor of operational independence. Those arguments have been buttressed, however, by the strong support for autonomy on the part of the foreign assistance agencies helping to finance tea development and also within the Authority's domestic constituency. The natural, financial, economic and political environments were therefore rather favourable--and, perhaps equally important, relatively stable (this is, of course, partly circular, since it is KTDA's continuing good performance

which helps to maintain those favourable circumstances). What of the internal institutional arrangements which underpin KTDA's performance? The emphasis, in what follows, is on the extraction of themes which run fairly consistently through the institutional and managerial practices of the Authority. There is a potential cost of oversimplification in this approach, of course. If the objectives are both to provide a systematic account of KTDA's success and to draw some lessons of potentially wider applicability, however, then coherence and systematic explanation are essential--provided it is acknowledged that in the real world the unexplained residuals of any particular case are likely to be substantial.

47. Three themes are emphasized below: deliberate institutional design; control over strategic processes; and incentives and accountability.

Institutional Structure

48. Perhaps the most striking and important features of the Authority as an institution are:

- the deliberation and care which went into its initial design;
- the emphasis (before it became universally fashionable) on comprehensive and integrated service provision;
- the development of a strategic planning capability to maintain organizational innovativeness; and
- the emergence of a distinctive structure and process of managerial control, based on clear and uncomplicated objectives.

49. The political-economic anxieties of the terminal colonial period were, it has been pointed out, partly responsible for the deliberation with which the new entity was designed. It is apparent from the Working Party report and from other sources that the structure and functions of the new

authority were very carefully defined, and the relevance of different institutional models for Kenyan conditions and for the particular circumstances of cash crop development assessed. One key feature of that design was an emphasis on the financial and operational autonomy of the new body. There was an evident intention to insulate the Authority from financial dependence on government: setting-up and development costs were therefore to be financed largely by external sources (CDC, with latter participation by the World Bank and other agencies). The introduction of the leaf cess gave KTDA financial autonomy in day-to-day operations at a later stage, when smallholder tea bushes began producing leaf. Financial autonomy, an important prerequisite in this case, was complemented to a large extent by operational independence. It was intended from the outset that the Authority should have operational control over the crucial aspects of tea production, and that control, wide from the outset, was rapidly consolidated in the field and factory sectors as KTDA developed.

50. KTDA has therefore developed as a highly specialized, comprehensive, vertically integrated commercial concern--although its origin in the Special Crops Development Authority in principle might have led to the development of a laterally integrated, diversified entity.

51. That organization of KTDA, shown in Figure 1, is a sufficiently good illustration of the functional divisions and vertical integration of the Authority. A static and formal rendering cannot, however, answer some of the remaining important questions, to which we now turn.

The Sequence of Strategic Control

52. How has KTDA developed and maintained a tightly managed mode of operation, characteristic in many respects of efficient manufacturing enterprises, when its productive base--peasant tea growers--is not in an

analogous position to a firm's labour force, but is atomized and autonomous?

53. A crucial part of the answer, as the Introduction suggested, lay in a sequenced control of certain strategic aspects of the cycle of tea production.

54. In the early stages of smallholder tea development, the most important determinant of the scheme's success was the Authority's ability to control the quality both of the productive stock (the tea stumps from which pluckable bushes would grow) and of the producers themselves. From the outset, therefore, would-be growers had to be registered with SCDA/KTDA, and to obtain a license from the Authority permitting the issue from government nurseries of a specified number of tea stumps. The centralization of the tea nurseries in 1964 consolidated the Authority's technical control over quality, and provided its field development staff with an important resource for securing high standards among the smallholders who had been licensed after a--sometimes difficult--selection process.15/

55. The contrast between the record of planting control for tea and for coffee is instructive. While control of tea acreages and growers was largely successful during the 1960's, comparable attempts to control the acreages and grower quality in coffee broke down in 1963-64, as would-be growers rushed to establish or augment coffee shambas after the government announced prospective tight planting restriction for all Kenya coffee. The

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15/ Note that the quality of planting material also compensated to some extent for any of the errors of judgment or influence-peddling which are almost inevitably present to some degree when access to a prized resource is administratively allocated.

hitherto quite strict official control could not be sustained because planting material--coffee seedlings--existed outside government auspices, in the cooperative society nurseries which were of course ultimately within the growers' control, not the government's. With control of that crucial resource not in government's hands, subsequent attempts to rectify overplanting through the uprooting of illegal coffee and the establishment of additional regulatory powers were far more vulnerable to evasion and political counter-attack, and were largely reversed.16/

56. This is not to argue that government control over the crop choices of peasants was necessarily desirable, nor that the reasons it was undertaken were identical in the two crops discussed here.17/ The KTDA's tight control over tea planting, however, greatly reduced the uncertainty of its operating environment in three crucial respects: it had an effective resource to influence the composition of its clientele, to exercise close control over the quality of the initial stock of tea bushes, and to induce growers to co-operate with the extension structure it was putting in place.

57. That locus of technical control remained of central importance throughout the Sixties. New growers were being recruited in the successive tea development schemes. The First Plan, completed in 1963/4, involved bringing the total to some 20,000 growers on 10,500 acres; the Second and

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16/ G. Lamb, Peasant Politics, Julian Friedmann and St. Martin's Press, London, 1974, pp. 83-109, deals with political pressures on coffee policy in this period.

17/ In the case of coffee, for example, there was no great planting quality issue, but a policy issue of acreage restriction under the Intrernational Coffee Agreement and of maintaining a certain acreage balance between smallholders and estates.

Third Plans had brought those numbers to 53,000 growers and 47,000 acres by 1971. At the same time, existing growers were being encouraged to bring their holdings up towards the one-acre norm which was, and remains, the Authority's target.

58. By the beginning of the Seventies, however, smallholder tea was well established, and peasant growers were beginning to pluck leaf in substantial quantities. In the ten years between 1961 and 1971, smallholder green leaf production rose dramatically from 464,000 kg to about 20 million kg. The crucial point was now the control of leaf quality and of manufactured tea.

59. While extension agents and leaf officers could teach and encourage farmers to pluck to a high standard, the most controllable aspect of this phase of production lay within the factory. The factory's industrial manufacturing operations could be closely monitored and controlled: moreover, the factory could exercise considerable influence over leaf quality through its function of buying (and if necessary refusing to buy) leaf from collection centres.

60. Direct KTDA involvement in factory operations from the late Sixties onward therefore had an additional logic over and above any "natural" tendency for organizational growth or any political impetus to extend public sector activities in the rural sector. The factories provided the Authority with leverage directly linked to plucking operations and leaf quality, and therefore strengthened the position of leaf officers and extension staff in their interaction with growers. The factories became one more component of the coherent, incentive-based system of controlled institutional tension which KTDA embodies.

61. There is a further point to be borne in mind. The maturing of a substantial proportion of planted tea, the increasing experience of the growers and technical advances in tea cultivation made possible--perhaps made inevitable--a relaxation of direct control over planting material by the Authority. Vegetative propagation was an appropriate, cheap and efficient means of infilling gaps and gradually increasing individual holdings, once the quality of the initial stock was established. Agricultural assistants could--and do--continue to assist growers in achieving high cloning standards, but the primary technical emphasis has moved along the chain of production to the factory. Meticulous control at the factory not only affects the efficiency with which leaf is converted into made tea: it also has an influence backwards on the standard of cultivation and plucking.

62. The instrument of planting material control has therefore been largely retired from KTDA's apparatus of technical controls. This may have been inevitable, since it is unlikely that experienced growers would have taken long to master the new vegetative propagation technology.18/ The residual control afforded by the licensing procedure, in any case, still provides KTDA with some oversight of grower access.

63. Both phases of strategic control--over planting, and over factories--helped to reduce the uncertainties inherent in dealing with a large number of small producers. In part this is true because both were

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18/ In FY 80, for example, almost half of the growers' total demand for about 32 million VP cuttings was met from growers' own mother bushes.

technically critical to the quality of production: concentrating institutional resources on these elements therefore tended in itself to improve quality. The controls were especially effective, however, because they also conferred some indirect institutional leverage over other aspects of tea production--field standards, receptivity to extension advice and plucking practices--which were not within the direct control of the Authority, and because they established a basis for instituting a highly effective incentive system upon which much of KTDA's performance now depends.

The Incentive and Accountability System

64. The institutional structure of KTDA is designed to secure relatively self-contained specialized functional divisions, but a smooth flow of information both laterally and hierarchically, and effective collaboration between staff performing different functions. That level of efficient institutional operation cannot be built on exhortation nor on the mere exercise of authority--especially since the majority of stakeholders in the system (the growers) are autonomous, not employees. In an organization as geographically widespread and socially diverse as KTDA, enforcing accountability by direct managerial supervision and control would have been very difficult and probably prohibitively expensive. It was important, therefore, to build incentives and sanctions into the structure and routine processes of the institution, rather than to rely purely on managerial volition to secure efficiency, co-operation and high performance. KTDA has managed to induce such performance to a remarkable degree. How does this incentive system work for different sets of stakeholders?

The Growers

65. For most smallholder tea growers in Kenya, the primary original incentive to plant, care for, pluck and deliver tea was simply that it allowed a far more lucrative use of land than those uses to which it was previously put. For many growers this remains true. In the upper reaches of the altitude on gradient ranges for tea, the opportunity cost of tea land is low, particularly where dairy marketing structures are not well developed. However, tea must compete with both subsistence and other cash crops for labour, and in some cases with the latter as alternative uses for tea land. Over a quite wide range of intermediate tea land, coffee, pyrethrum and cattle are realistic alternatives; indeed in the last few years relative prices for coffee and pyrethrum in particular have risen substantially against tea, and produced worrying diversions of labour from tea.

66. The sanction against actually uprooting tea, however, is the very high exit cost. The three-plus years of preliminary cultivation (to say nothing of credit obligations and recurrent costs) represent a very big investment for small growers, which they can ill afford to write off against a short full-production period. Moreover, coffee (but not of course pyrethrum) is a substitute crop with very similar characteristics of long gestation and high initial cultivation requirements.

67. But while costs would deter most growers from abandoning tea even under more adverse conditions than those of recent years, the task for KTDA is to maintain positive incentives to deter a switch of labour to other activities, relative neglect of bushes and a decline in the quantity and quality of leaf deliveries.

68. The first of those positive incentives is that KTDA provides a "first payment," for green leaf on a monthly basis all year around given

the continual growing season for tea--a payment which goes out to growers from KTDA headquarters against their individual deliveries to leaf collection centres. From 1977-81 that payment was KSh. 1.00 per kg. of green leaf, raised in 1977 from a long-standing level of 88 cents. In 1981 the first payment was increased to KSh. 1.11 per kg. Growers are therefore assured of a steady monthly income, based on their previous month's deliveries, rather than having to wait (as in the case, for example, with coffee) until their crop is processed and sold. The regularity of payment is highly prized by the growers, and the Authority has devoted considerable resources to making the greenleaf accounting and payment system streamlined and efficient.

69. This "security" incentive in the payment system is complemented by a price incentive, provided by the variable annual "second payment." The aggregate second payment is declared annually by the Authority: its distribution among growers, however, reflects not only their leaf deliveries by weight but the world market prices actually fetched for the tea from the factory at which the particular grower's leaf is processed.19/

70. There is, therefore, a direct link between the quality of plucked leaf (the single biggest field determinant of the quality of made tea) and the second payment return to the growers. The variation in payments between factories is quite wide, even though almost all KTDA tea falls within the premium quality range. In FY 1980, for example, the mean second payment was approximately KSh. 1.71 per kg. green leaf, with a range of KSh. 1.24 to KSh. 2.63.

19/ KTDA is auctioned or contract-sold with individual factory identification in the sale papers and stencilled on the tea chests themselves.

71. It is clear, however, that this price incentive has some ambiguities. Firstly, there is a classic "free rider" problem: since second payments are at the same rate for all growers delivering to a single factory, any individual grower may be tempted to deliver a greater weight of poorer quality leaf in the belief that he or she could benefit from the high-quality plucking of others. Secondly, growers are aware that transport and factory operations also affect the quality and therefore price of the made tea, and might therefore hold KTDA to be primarily responsible for the level of payments.

72. The free-rider problem is mitigated by both leaf-buying procedures and group pressures. At leaf collection centres, growers can be--and often are--instructed to re-sort their bags of leaf before they are accepted for weighing, if a preliminary examination shows them to be substantially short of the recommended "two leafs and a bud" standard. All KTDA field staff, moreover, constantly emphasize to growers the connection between plucking quality and second payments, and the consequent damage to common interests if some individuals fall short. The effect of consequent group pressure is enhanced by making weighing and recording procedures at collection centres as public as possible--a practice which also increases grower confidence in the probity and accountability of the collection staff.

73. The second potential problem--that growers might wish to shift responsibility along the process of production--is primarily dealt with by machinery for grower participation. Firstly, prominent growers sit on the district tea committees, and there is grower representation on the board of KTDA itself. Secondly, growers are encouraged to become shareholders in their factories, and do so in increasing numbers. Roughly one grower in

ten is a factory shareholder, with an average shareholding of just over KSh. 500 yielding a dividend in FY 80 of about KSh. 40 per shareholder. Shareholding and representation on factory boards confers influence, increases knowledge and reduces the distance between factory and KTDA management and the grower community, with positive effects on leaf standards.20/. It is worth noting the contrast between this "corporate" model of grower participation and the more common cooperative types.

74. Grower incentives are thus a shrewd blend of security, price incentives and common-interest peer pressure, backed in the final analysis by the high cost of tea. This blend can be adjusted. The 1981 increase in the first payment from KSh. 1.00 per kg. green leaf to KSh. 1.11, for example, was not an increase in prices paid to farmers, but a transfer from second-payment funds, in effect. KTDA's calculation was that an increase in growers' regular monthly income from tea was required to compete with other potential agricultural activities--including in particular growers going to work as daily-paid labour on tea estates. Further moves in this direction are open to the Authority as circumstances dictate, although there may be serious cash-flow constraints if grower remuneration is weighted very heavily towards the first payment.

75. An important feature of grower incentives is that they interlock, as we shall see, with the incentives and sanctions facing other participants in smallholder tea production--to form a system which for the most part reinforces high standards of performance.

20/ It should be remembered, however, that these solutions are more relevant to larger and more prosperous growers, who tend to predominate on boards and committees and to become factory shareholders. Some KTDA officials are worried that small growers may come to feel alienated from the organization, and are, in addition, harder put to find the labour necessary for high quality plucking.

Field Staff

76. Although particular features vary from one staff category to another, the Authority's field staff encounter broadly similar incentives, which may be grouped under four headings--terms of service, accountability to KTDA, grower pressure, and factory demands.

77. Most field staff are not permanent KTDA employees, but are seconded from the Ministry of Agriculture, their formal employers. They have a small salary premium, but general terms of service are identical to other ministry employees of equivalent grade. KTDA takes care, however, to make employment attractive by a variety of minor perquisites: somewhat better transport and housing conditions, vehicle loans, and so on. In addition, KTDA is considered "elite" employment (symbolized for example by the uniform worn by KTDA field staff), and therefore high performance is more likely to be forthcoming to prevent re-assignment to Ministry duties.

78. The accountability of field staff to KTDA is tightly organized. The structure of authority is intended to enable close supervision at successive levels. Supervisory staff are, however, fully stretched even though the formal "span of control" does not seem so wide as to preclude effective management of field personnel. Field staff are also required to maintain careful written work records--for example, leaf records and field report books are required of leaf officers and agricultural assistants respectively. These records seemed to be well designed, so as to provide adequate information rather than to overwhelm managers with irrelevant "noise." Inspection and follow-up visits by supervisory staff are frequent, and work records are often checked against supervisors' resulting firsthand information.

79. It will already be apparent that tea growers are better placed than most small farmers to exert influence on the agencies servicing them. Both formally (e.g., through the KTDA Board and the Tea Committees) and informally in direct discussion with KTDA staff, the growers are vocal about their needs and quick to point out field staff shortcomings. It is also evident that grower voluntary contributions (for example, in funding and building leaf collection centres) legitimize their demands for counterpart performance by KTDA staff.

80. Finally, the demands of the factories encourage high performance from field staff and growers alike, as the preceding section on technical control discussed. For field staff, the task is to assure both leaf quality (two new leaves and bud) and, as far as possible, a smooth sequence of plucking and delivery to assist optimal rather than lumpy factory throughput. The factories have greater leverage over the former than the latter: lumpy deliveries are a consequence of post-rain "flushes" of growth, as well as intensified plucking when children are home from school, or at the end of the month to ensure maximum payment for that month. These phenomena are only marginally susceptible to staff smoothing efforts.

The Factories

81. It is established KTDA policy that the Authority wishes the tea from its factories to compete at the premium end of the market. For factory managers at least as much as for other stakeholders, this policy provides an important measure of accountability. Their output can be --and is--closely monitored, and the impersonal yardstick of market price is the major test. The general incentive environment for factory managers, therefore, is KTDA's quality policy itself.

82. More specifically, however, the organization provides managers with wide operational autonomy--and its counterpart, responsibility--in running their factories. The Authority maintains careful technical scrutiny of factory operations21/, and financial oversight through its role as managing agent and secretary to individual factory companies. Nevertheless, the autonomy of factory managers is real, and applies not only to technical processes within the factory itself, but also to leaf acceptance, tea grading and hiring and firing of labour--all of them potentially sensitive areas both commercially and socially. Within that framework, factory managers (many of whom are young, given the rate of factory expansion) are able to call for technical and problem-solving help on more senior group, regional or national staff.

83. That accountability to the Authority is matched to some degree, as we have seen, by answerability to the grower community. The growers depend on the factory, once high-quality leaf has been delivered, for ensuring a premium-priced out-turn, and they have both formal (shareholding) and informal (via field staff, or directly) channels to complain if their expectations are not met. Several factory managers pointed out, moreover, that continued poor performance in the face of such complaints could lead to a secular downward trend, since growers would not bother to pluck to a high standard if factory performance was not commensurate.

84. The factory management career structure which underpins accountability is still developing, given the rapid rate of factory

21/ Technical supervision is being strengthened by the establishment of a Chief Factory Superintendent and five Group Factory Managers in 1982.

construction in recent years, and the continued Africanization of senior posts. As the system settles down, however, it is likely to allow not only for managers' lateral movement (to larger or new factories, etc.) but also for upward mobility. KTDA intends ultimately to have one group factory manager for every seven tea factories, with a further headquarters-level Superintendent grade.

85. KTDA's record of factory management is a good one. The individual factories are on the whole efficiently run, although some of them have suffered from external difficulties such as low initial leaf deliveries, delays in delivering equipment and in construction or extension, and power unreliability. Because of the small number of privately-managed factories in the KTDA system (only four out of 24 in recent years), a proper statistical comparison between KTDA- and privately-managed factories is not possible. Nevertheless, statistics for production efficiency (the made tea:green leaf ratio) and for tea quality (growers' second payment as a reasonable proxy for factories' realized tea prices) indicate that KTDA factories were performing at least as well as factories managed for KTDA by private companies.

Senior Management and the Whole System

86. The above broad decomposition of KTDA's incentive and accountability system is incomplete without reference to those responsible for strategic management of the Authority as a whole. For senior management, the incentives are largely imposed by the external environment. It is then their task to create or adapt institutional structures so that the Authority's internal constituencies respond efficiently. KTDA has managed to do this. Indeed, it is one of the striking features of KTDA that the managerial response to external demands (for growth, price

competitiveness, Africanization, or whatever) has on the whole been robust, expansionary and innovative, rather than defensive or seeking governmental protection--although there are some indications that management may be beginning to react defensively to current pressures, as Section IV indicates.

87. The major external incentive driving KTDA management is of course the world tea market. In the short run, prices have tended to fluctuate quite widely; in the longer run, the outlook appears to be one of prolonged gradual decline in real terms. KTDA management has consistently refused to insulate itself from that market, for example by building up large reserves (or deficits) as so many agricultural marketing organizations in Africa have done. In 1981, the accumulated green leaf price reserve was KSh. 15.38m., a mere 4.2% of current (1981) payment liabilities to growers, while the 1981 accretion to the reserve represented only 0.14% of current leaf payment liabilities.

88. The only other reserves maintained by the Authority are a Factory Finance Reserve (1981 accumulation KSh. 4.2m.) and a Fertilizer Finance Reserve (1981 accumulation KSh. 21m.). In the former case, the reserve is designed to provide temporary finance for factory construction in advance of loan disbursements, and in the latter to finance fertilizer purchases to be recouped from later sales to growers. Neither significantly reduces the need for commercial responsiveness on the part of the Authority. They are relatively trivial in size.

89. In a potentially adverse international market this competitive leanness may even be seen as inordinately high-risk, particularly when downward price pressure on tea may induce a switch of grower effort towards other crops. There are two discernible reasons for KTDA management having adopted the "risky" strategy.

90. Firstly, there is still a good deal of room for improvement in peasant productivity. The average made tea production of peasant growers is approximately 700 kg. per ha. of mature tea, compared to average production on commercial estates just over 2,000 kg made tea per ha.22/--the highest levels in the world. Some but by no means all of the differential is accounted for by the higher plucking standards and premium tea production of the smallholder sector, so that there is price correction to be made for productivity differentials. Maintaining peasant responsiveness to market prices is seen as an important component of the package of incentives necessary to induce improvements in grower productivity towards estate levels, even accepting some increase in the risk of growers switching towards other activities. The same incentive reasoning is applied to productivity standards and cost controls within KTDA's processing and marketing operations.23/

91. Secondly, non-commercial financing, in the sense of large surpluses or deficits, would invite government intervention and control such as KTDA has not yet experienced. It is not merely that large surpluses are an attractive political resource; it is also that KTDA autonomy from government is in general predicated on efficient performance. Management sees its operational freedom to be assured only by

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22/ "Review of Green Leaf Yields: Kenya Tea Development Authority," W.D. Ware-Austin and J.J. Rhodes, Commonwealth Development Corporation, February 1982.

23/ The General Manager's report for 1980, for example, refers proudly to the role of "improved management...[and] tighter costs and expenditure control" in permitting a higher second payment, despite drought-induced lower leaf yields and only a modest increase in the general level of tea prices.

high standards of efficiency and the maintenance of high export earnings; managers perceive, too, that dissatisfaction on the part of growers would be an additional reason for political intervention. As one senior manager put it,

> "Growers ask us: 'Why should you ride around in a car, while I have to walk? I am paying for you.' The only answer we can give which satisfies them is that we are efficient and make more money for them. Otherwise, they would soon complain to the President."

92. Market, government and growers thus all provide incentives for efficient management--incentives which the Authority has up to now been willing to accept. The "corporate ideology" behind that willingness cannot be explained solely in terms of self-interest or outside pressure, however. It also has had elements of technocratic and nationalist esprit de corps. Pride in the success of KTDA as an indigenous Kenyan achievement is very apparent, and KTDA's substantial and effective public relations effort is built around that fact. The importance of external finance is freely acknowledged, but the ability of KTDA to use that finance to build an integrated and successful public-sector industry is also emphasized. There is no doubt that KTDA managers are keenly aware of comparisons between their performance and that of privately-managed factories and estates--not least because KTDA is much more completely Africanized than is the private tea sector.

Conclusion

93. It is apparent from this review that certain institutional policy choices have been critical: meticulous organizational planning, commercial orientation, operational autonomy, and close control over key technical processes, for example. Within those strategic and more or less consciously set parameters, the Authority has established an incentive and

accountability system which is to a significant degree self-reinforcing. There is, in other words, an incipient tension between different stakeholders--growers, field staff, factories, senior management--in which it is in each group's interests to evoke high performance from others, and in which each group also has some sanction or incentive power to do so effectively. Output and efficiency do not, as is so often the case, therefore primarily depend on one particular set of actors, who may either be insufficiently motivated or see their efforts vitiated by other groups with conflicting interest, over whom they have little or no control. Instead, KTDA has deployed the potential conflicts of interest to drive the institutional system rather than to obstruct it.

IV. CURRENT ISSUES AND CRUCIAL CHOICES

94. A dominant theme running through KTDA's institutional experience has been the importance of organizational flexibility. Despite considerable background work and deliberation, the planners did not know enough in advance to set up a "perfect" organization immediately, nor could they anticipate all the changes which would affect it over the years. It would have been unrealistic to expect otherwise. In fact, the SCDA and later KTDA did go through a variety of changes and adaptations. Now, with the Kenyan economy in serious difficulty and the world tea market outlook worrying, KTDA faces new decisions, and will need to undergo further adaptations to maintain its enviable record.

95. Tea production in 1980/81 dropped abruptly, due largely but probably not entirely to two years of drought (rain is considered to be the most important climatic factor necessary for sustained high yields of tea). Greenleaf production in crop year 1980-81 was aproximately 146 million kg against KTDA's projections of 206 million kg. The immediate drop in the Authority's income (because of the reduction in cess revenue) has put it under severe financial pressure, at a time when its operating costs (especially for transport of leaf and of staff) continue to rise inexorably. The resulting deficits, if sustained, present the Authority with difficult choices, given that it has deliberately avoided building large reserves to draw on in difficult times. Requests to government for special assistance could raise the possibility of more direct intervention in its affairs than has been the case so far. KTDA could increase the cess, which has been pegged at 31 cents for some years--but probably only with disincentive effects on growers whose tea proceeds have already

declined from the levels of previous years. Or it could review and strengthen its cost management in an effort to improve efficiency yet further.

96. A substantial increase in the greenleaf throughput, however, would without doubt have greater effects than such financial adjustments, and indeed would be necessary for them to be effective. The key area for improving yields lies in cultivation standards, according to the February 1982 CDC study of greenleaf yields (op. cit.). Smallholder standards of fertilizer application, plucking and weeding remain below the optimum, contributing to productivity lower than on the commercial estates. But these factors are symptomatic of deeper causes; they suggest that extension is still not as effective as it could be, and that research may either provide inappropriate information for smallholder cultivation of tea or lack good ties with KTDA extension. Some progress might be possible in the short run, but the underlying causes of low cultivation standards will take some time to resolve--changes in extension operations, discussed below, are a good example.

97. The immediate financial pressures, however, are also connected with longer-term strategic issues which the institution's leadership must resolve: how should KTDA set about consolidating and maturing this key export industry, and what is the implication for the organization, style and management of KTDA itself, now that the Authority is entering a period of non-expansion for the first time in its history?

98. The strategic issue which arises most immediately is that of planting. The current planting plan will be completed in 1982. The new plan calls for a halt on planting by new growers in order to bring present growers' holdings up to desirable levels, to concentrate extension

activities on improving productivity, and to maintain high-quality leaf standards.

99. The halt on planting by new growers may have secondary effects, posing new problems for KTDA. First, the authority recognizes the need to reduce its extension staff under the new plan, and will return 590 JAAs to the Ministry of Agriculture, from whence they were seconded. What effects this will have on the extension organization and staff morale remain to be seen. A second more subtle problem has to do with labour on existing tea plots. If (as seems to be the case) labour is emerging as a key difficulty on many existing plots--either because of wage competition from estates or because of other economic activities competing for family time--then there is clearly a risk in consolidating around the existing grower population. (On the other hand, hypothetically, would the costs of supervision and other overheads for a new small-grower expansion be justified by the prospect of increased leaf returns of sufficient quality, on the grounds that the new growers would apply more labour more consistently to their tea?)24/

100. Given some improvements in data and good analysis, these questions can be clarified to some extent. The completion of an adequate tea census, for example, would enable comparison of numbers of bushes with leaf deliveries, and enable conclusions to be drawn about productivity and cultivation intensity for different categories of grower. But they also

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24/ The issue of whether to extend tea cultivation to smaller growers than at present is sometimes posed in terms of social or distributional objectives, with a production or efficiency trade-off. This does not clarify the issue particularly, since the choice must still be made one way or the other, on production grounds, even if social considerations are ignored.

emphasize that KTDA is likely to have to change its own structure and operations in future as well.

101. The present organization, as we have seen, proved extremely effective in managing the dramatic expansion and vertical integration of the small-holder tea industry. It built, deliberately, on "middle peasants" whose resources--and resourcefulness--established a strong base for that expansion. If the rapid expansion phase is over, as it almost certainly is, then KTDA will have to adapt key aspects of its operations.

102. One area where changes seem needed is the extension service. The better established growers now know as much about tea as most of the extension workers. However, their leaf yields are still well below potential, and their techniques of production inferior to the estates. Successful growers are therefore likely to need fewer extension contacts, but at a higher level of technical sophistication--particularly over such research-linked questions as drought-proneness of different VP varietals and optimal fertilizer use. These are questions which probably require better qualified extension workers than most of those presently in place, and a different organization of extension services. At the same time, newer or less sophisticated growers will continue to require more frequent contacts, and special emphasis on improved cultivation standards. The new plan calls for increasing the existing farmer:extension staff ratio from 179:1 to 250:1, but using the new computerized greenleaf collection data for identifying underproductive farmers. (The effectiveness of this quantitative diagnosis remains to be proved). Although such changes may be difficult to manage smoothly, they have the potential benefit of establishing cost-effective career development structures for extension staff--an important factor in maintaining morale and commitment when the

period of major expansion is ending. A comparable issue arises in the factory sector, where the career structure for managers will be important in retaining KTDA-trained high quality personnel, and ensuring continued efficiency in made tea production. The CDC report recommends that KTDA staff salaries be competitive with the commercial sector, in order to maintain staff quality.

103. The Authority thus faces important choices in four crucial--and obviously interrelated--areas. It must resolve current, perhaps growing, pressure on its finances. It must advise government on--and implement--strategic decisions about the organization of the smallholder tea industry, if planting is indeed halted. It must improve the technical base and productivity of its growers in the face of apparently increasing difficulties in maintaining commitment of sufficient labour to tea. Finally, it must devise and implement structural changes within KTDA itself--especially in extension, financial control and the incentive structure--to maintain its record of innovation and effectiveness. The success of the institution has so far been predicated on continuous expansion, both in tea acreages and into new functions (factories, international marketing, etc.). It will be a severe test of the Authority's continued creativity for it to manage the industry and improve efficiency in circumstances closer to a steady state--and to do so, moreover, when the relatively favourable economic and financial conditions which accompanied the expansion period are no longer present.

V. WHAT CAN WE LEARN FROM KTDA?

104. KTDA does not provide a "model," either of rural development or of public enterprise, which can be transferred more or less intact to other countries or other circumstances. What can be done, however, is to extract certain features of KTDA which are, from a managerial and institutional point of view, unusually instructive--and which stand in marked contrast to common patterns of inefficiency and ineffectiveness in agricultural development and public sector intervention.

These features may be summarized as follows:

- organizational autonomy;
- control of strategic resources;
- effective accountability system; and
- effective incentive system.

Organizational Autonomy

105. There is nothing new in emphasizing that relative freedom from constant government interference is a basic requirement for enterprise effectiveness. What is striking about KTDA is that its autonomy was consciously designed from the outset in both financial and operational terms, and stemmed in part from the peculiar circumstances of divided political authority and concern about future policy at the end of the colonial era. The maintenance of that autonomy over the ensuing two decades can be attributed to two factors. Firstly, KTDA's consistent success meant that factors which often motivate governments to interfere were absent--like large losses necessitating baling out, or incompetence necessitating reforms. Secondly, the political pressures which may have existed for interference (e.g., KTDA as a possible source of patronage,

etc.) were countered by the powerful domestic political constituency which the tea growers became, and to some extent by the external sources of financing which had a stake in KTDA's development.

106. In many circumstances in developing countries this fortunate combination is not replicated. Performance, even in a basically sound institution, may be uneven; the institution's "clients" may be economically weak and politically disorganized rather than effective and articulate; and the material basis of the organization (the commodity or service with which it deals) may not produce the revenue stream to put it in as strong a financial position as KTDA's.

107. Nevertheless, there are two points of general validity which can be derived from KTDA's experience under the heading of autonomy.

108. Firstly, if the objectives of the institution are clearly defined from the outset, a set of performance standards can be derived against which the institution can be evaluated, and government action designed accordingly. This process can also be valuable in clarifying the extent to which the institution is being entrusted with wider welfare objectives, whose costs can be estimated and taken into account in the financial relationship between the institution and government. In KTDA's case, these secondary welfare objectives were not very significant. The organization's political-economic relationship with government was correspondingly simplified.

109. Secondly, it is of primary importance that government policy affecting the organization is implemented with strict propriety, i.e., through the institution's board or comparable body, on which government will in most cases hold the dominant position. This has the effect of preserving the operational responsibility of institutional management,

while enforcing accountability for performance to the board and through it to government itself. Direct intervention, for example in staff appointments or day-to-day management, can vitiate painfully acquired morale and effectiveness, among both managers and staff, extremely quickly.

110. The converse problem must also be acknowledged: of successful institutions attracting resources and skills so as to weaken other parts of the public (or indeed private) sector. As we have seen, this has happened to some degree with KTDA, although the precise effects on Government or on the private sector are very difficult to gauge. For some purposes this flow of resources may be seen as an efficient market-surrogate allocative mechanism. It is clear, however, that the effects on public institutions which cannot by their nature generate substantial revenues may be unwarrantably severe, with adverse effects on overall institutional effectiveness and on social equity. The general policy stance adopted by government in the Kenyan case seems broadly correct: to ensure that grower beneficiaries paid as soon as possible for KTDA's services from the income streams generated by tea development, and to place some limits on the conditions of employment which KTDA could offer to field staff. The broader regional and interpersonal distributional issues could not in any case have been dealt with within KTDA itself; there would certainly have been high costs in efficiency if this had been attempted (e.g., by imposing social service obligations, or by milking KTDA revenues).

Control of Strategic Resources

111. Organizational autonomy does not count for very much if the organization does not command the resources necessary to function effectively, or does not deploy them with appropriate priorities. Autonomy was an important but not sufficient factor in KTDA's success; it would be a mistake to allow autonomy to eclipse the importance of the other factors.

112. KTDA had little cause for complaint about its formal powers; indeed, these are potentially (and in the early days were often in effect) autocratic. The Authority, as we have seen, had direct powers over all aspects of production, processing and marketing except for tea roads. We have suggested, however, that comprehensive control was less important than "strategic" control. It was more important to control planting initially, and processing later on, than to have nominal authority over all aspects of the smallholder tea industry.

113. Organizational resources were therefore concentrated on the tasks which were strategic to each phase of development. This stands in marked contrast to many other examples of institutional development, where the drive for bureaucratic growth often simultaneously creates both organizational redundancy and under-deployment to key functions.

114. Determining crucial objectives for different phases, securing the capability to achieve those objectives sequentially, and deploying the resulting institutional resources effectively are vital managerial tasks. They are peculiarly difficult, perhaps, in conditions of innovation and development, where prior experience is scarce, outcomes are uncertain, and the opportunity cost of skilled personnel is high. KTDA could draw on the valuable experience of the estate sector for many technical and managerial questions, but for the central decisions about how to set up and run an effective smallholder-based tea industry it was largely on its own, with few models to draw on. Concentrating on the critical control variables was an effective strategy for reducing risks.

Effective Accountability System

115. The way KTDA's network of accountability works to enhance efficiency has already been extensively discussed, and its general

implications for other development institutions will be apparent. Two points may be worth re-emphasizing here.

116. First, within KTDA itself accountability is a structural feature, built into the way different segments of the organization--extension, leaf collection, processing, and headquarters functions of management, accounting and marketing--work in relation to each other. The information system underpins that structure, as we have seen, in such a way that it is generally in the interests of each participant both to secure adequate performance from others along the production chain, and to provide the information whereby management can readily identify sources of difficulty. Unlike many development institutions, KTDA has not therefore been built on unrealistic premises about what motivates staff performance. Thus while there is no doubt that good morale contributes to KTDA's efficiency, this is a "virtuous circle effect" of the basically sound and effective organizational structure--and of course of the resulting buoyancy of the smallholder tea sector. Again, training has been effective because it has not been regarded as a solution in itself for performance problems, as is so often the case, but as giving staff the skills to perform as well as the institutional structure required them to do. Accountability for meeting the Authority's performance standards drives the system and motivates skill acquisition and pride in work--not the other way round.

117. Secondly, KTDA is accountable externally as well--particularly to its growers. We have pointed out that this is to some extent an "objective" accountability, since it is not in KTDA's power to remove itself from the grower's influence, whether at the level of an individual grower's complaints about leaf grading at a district tea committee, at national political level, or--most significantly--in growers' economic

responses to the set of incentives with which the market, mediated by KTDA, presents them. This involuntary accountability has been an important safeguard for growers against possible abuse of the Authority's monopolistic position. In this respect, it may offer interesting lessons on the reform of African agricultural marketing monopolies in general, whose overall record is controversial but whose disincentive and distorting powers over client farmers have frequently been demonstrated.

118. KTDA's example shows that this combination of internal and external accountability can yield very good results. The individual and collective interests of the clients--in this case the growers--are forcefully represented, but the internal structure ensures that this operates as a further pressure for general institutional efficiency, rather than for the particular collusive advantage of some participants at the expense of others. How such accountability systems can be established will obviously vary widely from case to case: indeed, it may often be difficult to institute such systems ex ante, necessitating an adaptive and experimental approach to this aspect of institutional design. The principle, however, seems unassailable, and deserves careful attention in institutional planning.

Effective Incentives

119. The basic set of incentives for both growers and KTDA is provided by world market prices, and we have noted that KTDA's incentive policy has been to avoid insulating either itself or its growers from market influences. This sustained economic pressure is used to enhance the drive for premium tea production by demonstrating the direct link between premium prices and grower returns. It also enhances the competitive leanness of KTDA itself.

120. There are evidently risks in such a strategy, however. Particularly where producers do not have substantial reserves to draw on, adverse short-term price movements may of course produce longer-term withdrawal. KTDA's solution--the first regular and second variable payment system--has the great merit of providing farmers with a highly-prized secure monthly cash income, maintaining the quality incentive with the seasonal second payment, and yet staying within the bounds set by market prices. The effectiveness of this system can best be judged, perhaps, by observing that grower effort in tea has by and large been maintained in the relatively difficult years after the 1977 boom, even in the face of substantial relative price shifts in favour of pyrethrum and coffee. If the more troubling signs in 1981 of grower movement away from concentrating on tea are sustained, however, it is likely that the Authority will have to experiment further with its security/incentive mix, perhaps by shifting a greater proportion of greenleaf payments to the highly-prized regular monthly payment, so as to provide growers with greater security in hard times.

121. KTDA's experience suggests that an incentive mix of this type may have great attractions for organizations dealing with small producers, provided that the cash flow generated by the agricultural output permits such regular payments, and provided that incentives within the institution provide compatible signals to staff.

122. The combination of accountability and incentives has been peculiarly powerful in KTDA's case, in large part because of the strong role of external elements--growers, lenders and prices--in influencing the Authority's decisions, and because of the Authority's commendable determination that these influences should be maintained. There is of

course no guarantee that KTDA or any other institution, however well organized and managed, can successfully withstand radically changing economic circumstances. It is clear, however, that the features singled out for analysis in this paper have imparted a distinctive strength and resilience to the institution to cope with challenges, so long as the basic ground rules of its autonomy, control and accountability remain in force.

123. This paper has discussed KTDA's performance primarily in terms of its internal management, operations and policies, and in terms of the Authority's relations with "stakeholders" in its immediate economic and political environment: the growers, the Government, and the external agencies which have provided it with financial assistance. It would be valuable to extend this analysis, in future, to compare KTDA's achievements firstly more systematically with other Kenyan public enterprises, and secondly more generally with enterprises elsewhere in developing countries which organize smallholder cash crop production and then process and market the crop. It was suggested above that KTDA's success has been greatly assisted by its financial autonomy (on both capital and current accounts) and by the direct financial relationship between the Authority and its growers, whereby KTDA was earning its revenue by providing its growers with a paid service--and was accountable to them in important respects as a result. This is clearly different from arrangements in some other Kenyan public enterprises: the applicability of this direct enterprise-clientele exchange relationship elsewhere in the Kenyan public sector warrants further examination, particularly where enterprise autonomy and degree of subsidy are at issue. Secondly, the contrast between KTDA and comparable tea schemes in East Africa, referred to briefly in this study, could usefully be extended to include comparisons with enterprises engaged in

outgrower and similar schemes for the production, processing and marketing of cotton, copra, rubber and other export crops. Experiences in West Africa and Southeast Asia, involving as they do both public and private companies, could be instructive in this respect, and may well underline some of the features of KTDA's success identified in this study.

APPENDIX

KTDA Finances

Table 1: Summary of Greenleaf Payments to Growers

Table 2: Summary of Grower Sales to Factories

Table 3: Income and Expenditure Accounts

Table 4: Balance Sheet as of 30th June, 1981

Table 5a: Loans Outstanding to Date

Table 5b: Loans Repaid in Full

APPENDIX

TABLE 1: KENYA TEA DEVELOPMENT AUTHORITY

Summary of Green Leaf Payments to Growers

Financial Year	Green Leaf Collected	First Payment	First Payment Per Kg.	As % of Total Distri-bution	Second Payment	Average Second Payment Per Kg.	As % of Total Distri-bution	Total Payment	Average Total Payment Per Kg	Green Leaf Price Reserve	As % of Total Distribution
	Kgs	Kshs	Kshs	%	Kshs	Kshs	%	Kshs	Kshs	Kshs	%
1980/81	145,923,951	145,923,951	1.00	39.89	219,362,471	1.50	59.97	365,286,422	2.50	484,000	.14
1979/80	137,987,883	137,987,880	1.00	36.27	241,808,630	1.75	63.56	379,796,510	2.75	643,000	.17
1978/79	172,094,150	172,297,460	1.00	42.73	230,177,360	1.33	57.06	401,911,780	2.33	873,000	.21
1977/78	151,779,147	151,779,160	1.00	41.99	208,891,720	1.38	57.80	340,670,880	2.38	748,000	.21
1976/77	129,201,280	113,697,080	.88	24.70	328,701,500	2.54	71.40	442,398,580	3.42	677,540	.15
1975/76	88,759,897	78,108,680	.88	53.67	63,702,220	.72	43.76	141,810,900	1.60	3,736,900	2.57
1968/69	22,870,742	20,126,240	.88	92.2	1,697,460	.0742	7.71	21,823,700	.95	216,120	.99

Source: KTDA Annual Report and Statement of Accounts

TABLE 2: SUMMARY OF KTDA GROWER SALES TO FACTORIES

Financial Year	KTDA Factories			Privately-managed Companies			Total		
	Weight			Weight			Weight		
	Kgs	%	Kshs	Kgs	%	Kshs	Kgs	%*	Kshs
1981	139,379,000	95.51	353,046,000	5,248,000	3.60	12,744,000	144,627,000	99.11	365,790,000
1980	130,647,000	94.68	366,881,000	5,971,000	4.33	13,558,000	136,618,000	99.01	380,439,000
1979	161,155,000	93.64	387,782,000	7,581,000	4.41	15,003,000	168,736,000	98.05	402,785,000
1978	142,200,000	93.69	364,454,000	6,332,000	4.17	14,966,000	148,532,000	97.86	361,420,000
1977	122,229,114	94.60	441,752,580	5,343,207	4.14	18,623,540	127,572,321	98.74	460,376,120
1976	83,765,784	94.38	140,008,940	3,850,539	4.34	5,538,860	87,616,323	98.72	144,547,800
1969+	2,467,720	10.7	2,171,600	20,176,884	88.2	19,981,120	22,644,604	98.9	22,152,720

* Note: Discrepancies (usually less than 1.5%) due to loss of weight in transit

+ In 1969 all factories except one were managed by private sector tea companies.

Appendix Table 5b

KENYA TEA DEVELOPMENT AUTHORITY

LOANS REPAID IN FULL

	Agricultural Loans	Contract Date	Amount Contracted Kshs	Drawings Kshs	Balance Undrawn Kshs	Principal Loan Repaid Kshs
1.	Commonwealth Development Corporation - First and Second Plan Loan	1961 B£900,000	18,000,000	18,000,000	-	18,000,000
2.	Agricultural Finance Corporation	1970	518,800	518,800	-	518,800
3.	Kenya Government	1966	9,312,748.30	9,312,748.30	-	9,312,748.30
4.	Brooke Bond Liebig (K) Ltd.	1970	805,953.95	805,953.95	-	805,953.95
5.	International Bank for Reconstruction and Development	1965	16,629,000	16,629,000	-	16,629,000
6.	Agricultural Settlement Board	1971	829,357.48	829,357.48	-	829,357.48
7.	Short Term Loans - Development Finance Corporation of Kenya	1973/74	4,200,000	4,200,000	-	4,200,000
8.	Federal Republic of Germany	1960	4,240,000	4,240,000	-	4,240,000
9.	Ex-Marketing Board		190,000) 288,520)	190,000) 288,520)	- -	190,000) 288,520)
	Sub-Total		55,014,379.73	55,014,379.73	-	55,014,379.73
	Factory Loans					
1.	George Williamson	1965 B£20,500	410,000	410,000	-	410,000
2.	James Finlay and Company Ltd.	1965	820,000	820,000	-	820,000
3.	Ex-Marketing Board		58,000) 919,000)	58,000) 919,000)	- -	58,000) 919,000)
	Sub-Total		2,207,000	2,207,000	-	2,207,000
	TOTAL		57,221,379.73	57,221,379.73	-	57,221,379.73

Source: KTDA

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Jeffrey Steeves, "The Politics and Administration of Agricultural Development in Kenya: The KTDA", Ph.D. dissertation, University of Toronto, 1975.

World Bank, Accelerated Development in Sub-Saharan Africa: An Agenda for Action, 1981.

World Bank Publications of Related Interest

Adoption of Agricultural Innovations in Developing Countries: A Survey

Gershon Feder, Richard Just, and David Silberman

Reviews various studies that have provided a description of and possible explanations for farmers' responses to the adoption of technological improvements in the agricultural sector in developing countries and finds that uniform acceptance of technological change is rare and that responses differ across socioeconomic groups and over time. Explores new directions for research in this area.

World Bank Staff Working Paper No. 444. February 1981. 67 pages (including footnotes).

Stock No. WP-0444. $3.00.

The Agricultural Economy of Northeast Brazil

Gary P. Kutcher and Pasquale L. Scandizzo

This study, based on an agricultural survey of 8,000 farms, assesses the extent and root causes of pervasive rural poverty in northeast Brazil. The authors review a number of policy and project options; they conclude that courageous land reform is the only effective means of dealing with the problem.

The Johns Hopkins University Press, March 1982. 288 pages.

LC 81-47615. ISBN 0-8018-2581-4, $25.00 (£17.50) hardcover.

Agricultural Price Policies and the Developing Countries

George Tolley, Vinod Thomas, and Chung Ming Wong

This book first considers price policies in Korea, Bangladesh, Thailand, and Venezuela, bringing out the consequences for government cost and revenue, farm income, and producer and consumer welfare. Other effects, including those on agricultural diversification, inflation, economic growth, and the balance of payments are also discussed. The second part of the book provides a methodology for estimating these effects in any country. Operational tools for measuring the effects on producers, consumers, and government are developed and applied.

The Johns Hopkins University Press, March 1982. 256 pages.

LC 81-15585. ISBN 0-8018-2704-3, $25.00 (£17.50) hardcover.

Agricultural Research

(See Publications of Particular Interest, page 1.)

Agroindustrial Project Analysis

James E. Austin

Provides and illustrates a framework for analyzing and designing agroindustrial projects.

The Johns Hopkins University Press, 1981. 224 pages (including appendixes, bibliography, and index). EDI Series in Economic Development.

LC 80-550. ISBN 0-8018-2412-5, $16.50 (£10.00) hardcover; ISBN 0-8018-2413-3, $7.50 (£4.25) paperback.

Spanish: Analisis de proyectos agro industriales. *Editorial Tecnos,1981.*

ISBN 84-309-0882-X, 600 pesetas.

The Book of CHAC: Programming Studies for Mexican Agricultural Policy

Edited by Roger D. Norton and Leopoldo Solís M.

The principal tool of analysis is the sector model CHAC, named after the Mayan rain god. This model can be used throughout the sector to cover short-cycle crops, their inputs, and their markets. It can also be broken down into submodels for particular localities if more detailed analysis is required. The model helps planners weigh the costs among policy goals, which can vary from region to region. This volume reports the experience of using the CHAC model and also presents purely methodological material.

The Johns Hopkins University Press, May 1982. About 664 pages.

LC 80-29366. ISBN 0-8018-2585-7, $35.00 (£24.50) hardcover; ISBN 0-8018-2586-5, $12.95 (£9.00) paperback.

Cooperatives and the Poor: A Comparative Perspective

Uma Lele

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Land Tenure Systems and Social Implications of Forestry Development Programs

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Discusses some social correlates of the design and the implementation of forestry projects. Analyzes the Hill Farming Technical Development Project, undertaken in 1978 in Pakistan with assistance from the World Bank, with respect to the role of land tenure systems and their sociological implications. Suggests alternative development strategies with particular sociological consideration of the potential roles of farmers' self-help strategies, institutional issues, and forestry cooperatives.

World Bank Staff Working Paper No. 452. April 1981. 35 pages (including references, bibliography).

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Nutritional Consequences of Agricultural Projects: Conceptual Relationships and Assessment Approaches

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World Bank Staff Working Paper No. 456. April 1981. 93 pages (including bibliography, appendix).

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Price Distortions in Agriculture and Their Effects: An International Comparison
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Sociocultural Aspects of Developing Small-Scale Fisheries: Delivering Services to the Poor
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World Bank Staff Working Paper No. 490. October 1981. iii + 61 pages (including references).

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Oxford University Press, 1977. 614 pages (including appendixes, index).

LC 77-24254. ISBN 0-19-920095-5, $32.50 (£14.95) hardcover; ISBN 0-19-920098-X, $14.95 (£5.25) paperback.

Agrarian Reforms in Developing Rural Economies Characterized by Interlinked Credit and Tenancy Markets
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LC 75-10896. ISBN 0-8018-1756-0, $20.00 hardcover; ISBN 0-8018-1769-2, $9.95 paperback.

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LC 75-186503. ISBN 0-8018-1386-7, $16.50 (£10.50) hardcover; ISBN 0-8018-1403-0, $6.50 (£4.00) paperback.

Arabic: World Bank, 1976. (Available from ILS, 1715 Connecticut Avenue, N.W., Washington, D.C. 20009, U.S.A.) $5.00 paperback.

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