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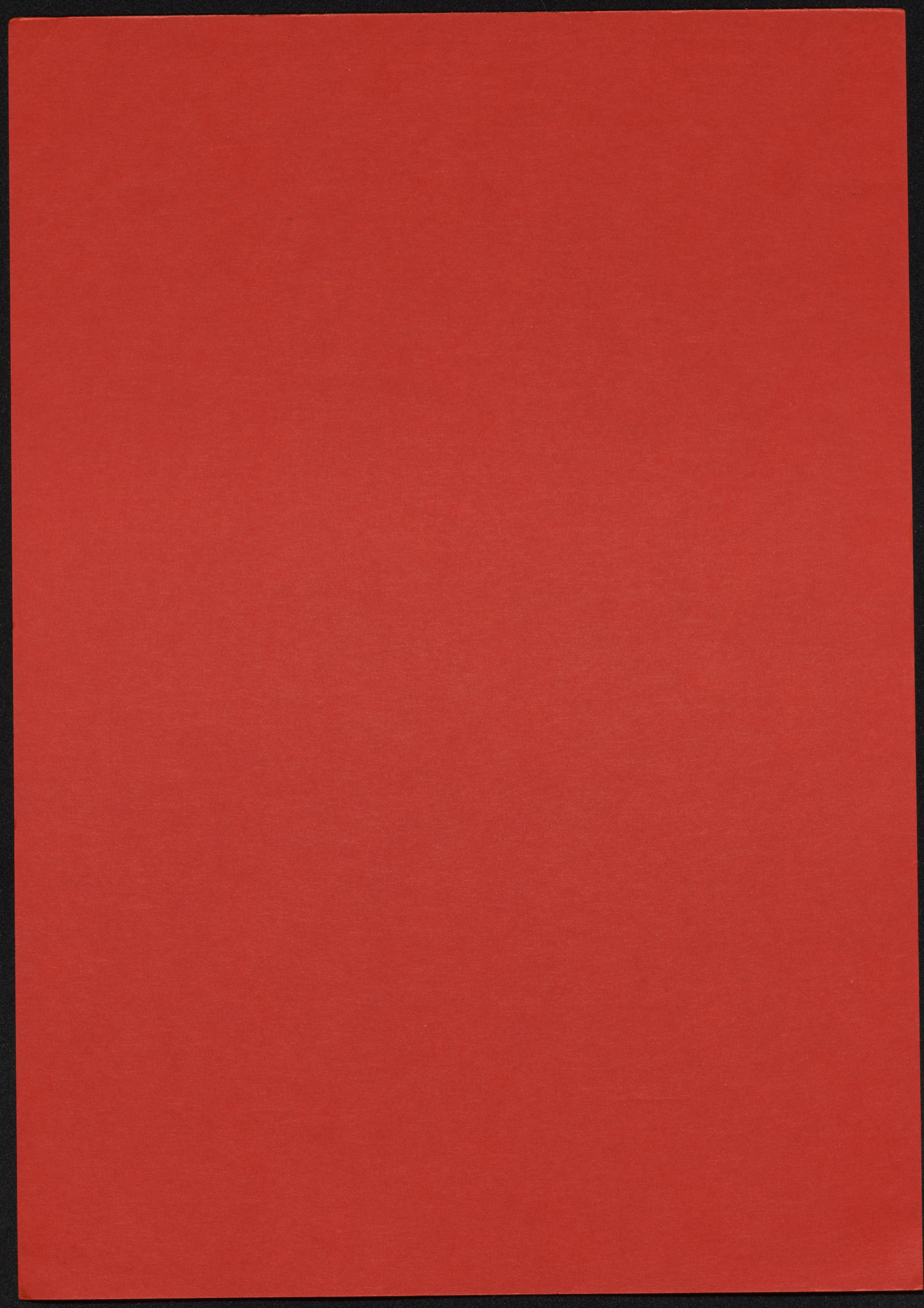
The Development of the Ghana Sugar Industry 1960-70

An Exercise in ex-post evaluation

P.P. van der Wel



Institute of Social Studies |
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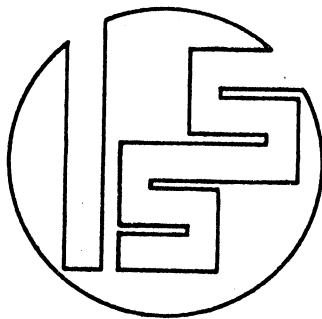
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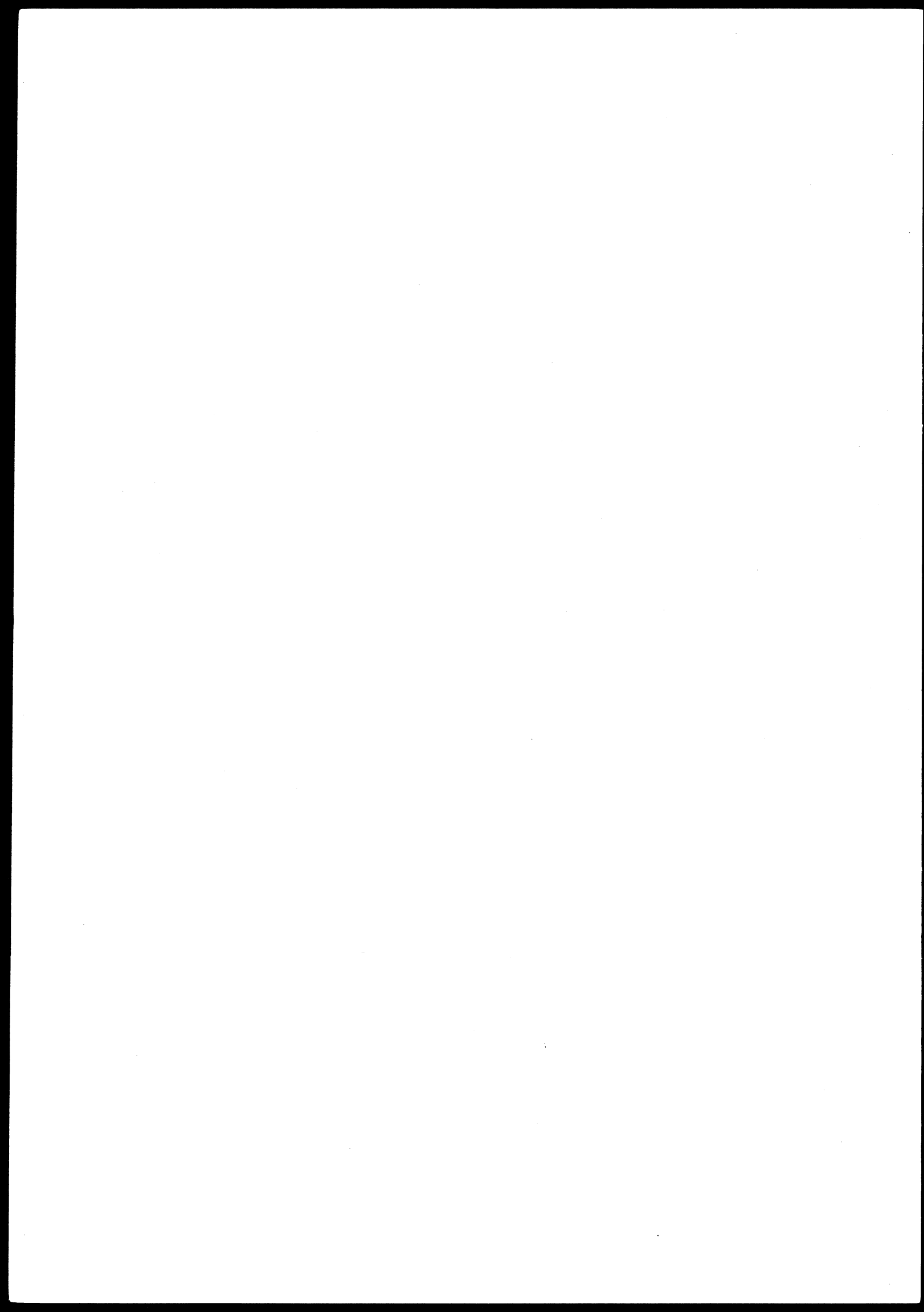
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P.P. van der Wel

Working paper. The views expressed in this paper are those of the author and not necessarily those of the Institute of Social Studies. (Occasional Paper No. 26, January 1973)

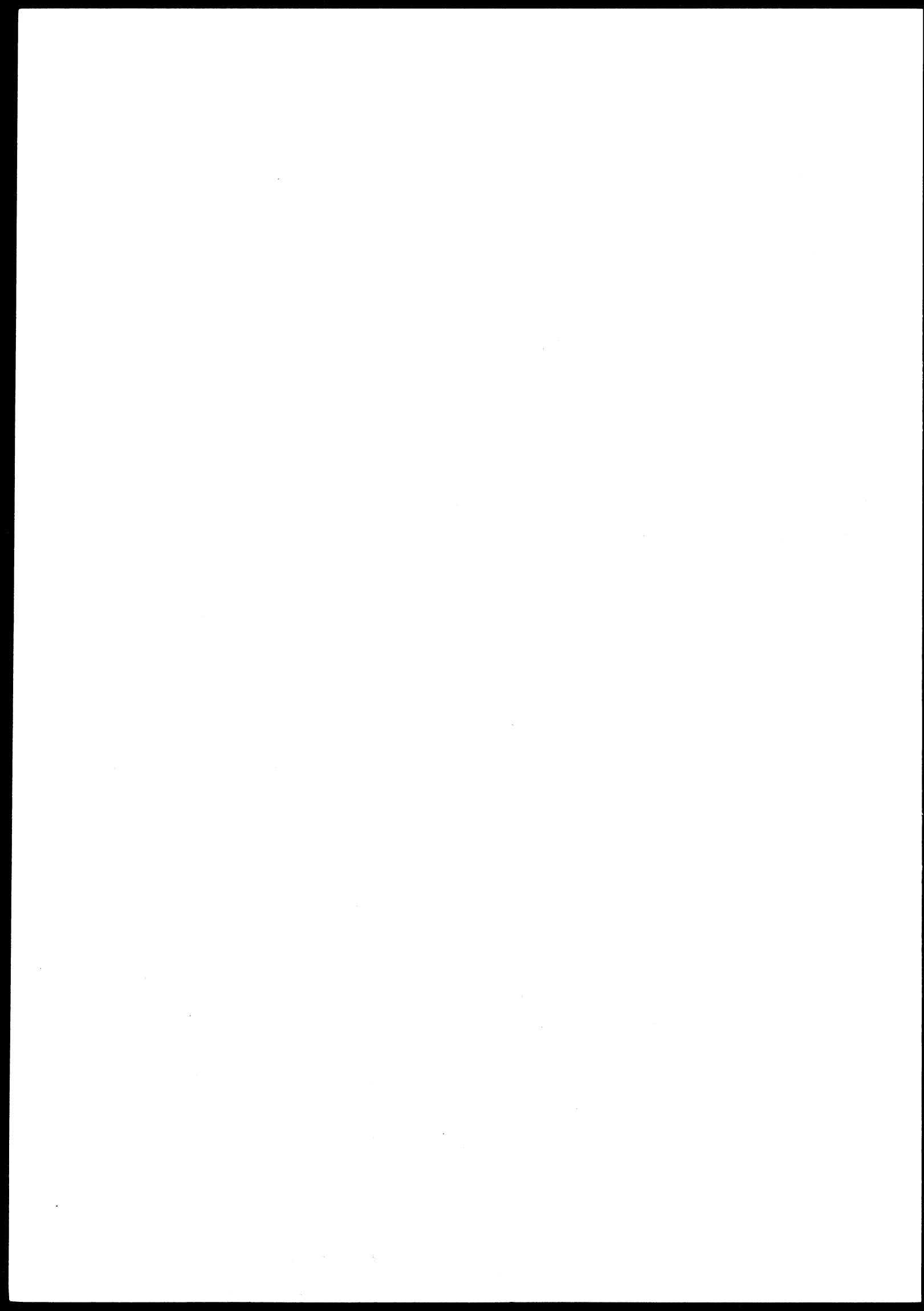


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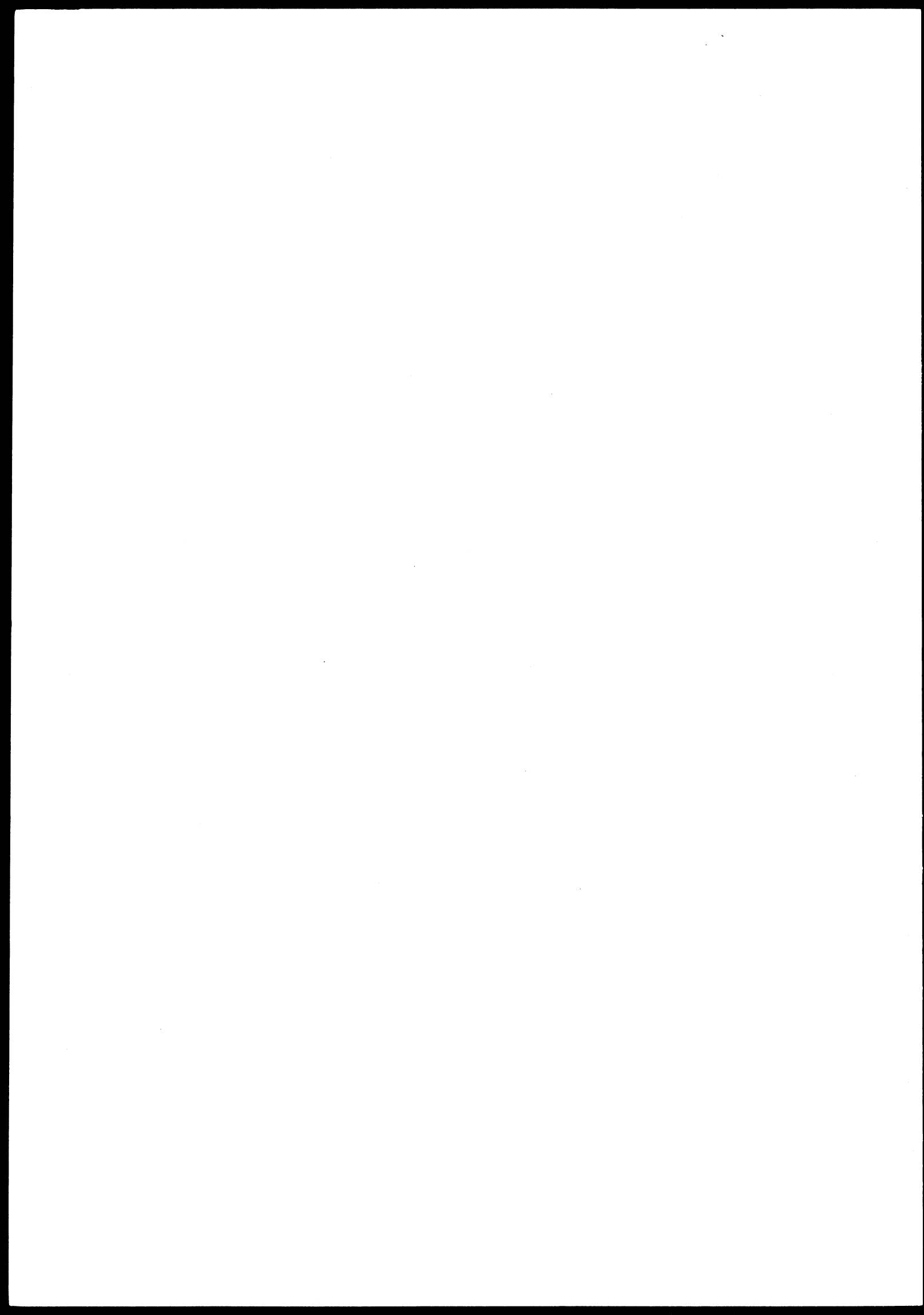
P r e f a c e

This is the first report on a study which we started during a two-year stay (1968-1970) at the Social Studies Project of the University of Cape Coast. It deals with the performance of the Ghana Sugar Industry, i.e. with the performance of the two projects carried out at Komenda and Asutsuare.

The present report contains very little in the way of factual information about the two projects; neither does it attempt to present a detailed analysis of the many different factors which caused the projects to deviate from the original project plans. It tries to explain what we had in mind when undertaking this study and how our original ideas had to be adjusted after confrontation with the actual project histories (Sections 1 and 2). How far all this is relevant, either to project analysis in developing countries in general, or to future project work in Ghana, will be discussed in the final part of this report (Section 3).

The discussions in sections 2 and 3 already anticipate some of our major conclusions. These will be discussed in more detail in subsequent reports, which will contain a full analysis of the history of the preparation, implementation and operation of the projects over the period 1960-1970.

The Hague, September 1972



O. INTRODUCTION

O.1 The two cases studied: Komenda and Asutsuare

The Komenda and Asutsuare Sugar Projects, which are the subject of this study, were both prepared and implemented in the public sector between 1959 and 1966 and have been in operation as state enterprises since 1967 and 1966 respectively.

The actual performance of these projects has deviated considerably from the plans, estimates and predictions, which formed the basis for their appraisal and the decision to invest. Both factories were planned to reach their full capacity production of respectively 24,000 and 15,000 tons of sugar p.a. during the third year of operation, i.e. 1967-68 in the case of Asutsuare and 1968-69 in the case of Komenda.¹ Their combined output of 39,000 tons would then have covered about 55-60% of domestic consumption, which over the period 1966-69 stood at an average of 70,000 tons p.a. Actual output has, so far, remained far below the targets set for the first years of production. During the campaign-year 1968-69 the combined output of the two factories amounted to 4,125 tons, i.e. 10-11% of full capacity output.

Comparison of actual outputs with capacity outputs, and of the latter with the size of the domestic sugar market, leads to one fairly obvious conclusion, viz. that

1 As will be discussed in later reports, the capacity output of Komenda is often quoted as being 12,000 tons of sugar p.a. The capacity output given here and used throughout the rest of our study, viz. 15,000 tons p.a. is that given in the feasibility study of the suppliers of the factory (*Economic Report Regarding the Construction of a Cane Sugar Factory at Komenda*, Prague, 1962, mimeo). Our reason for using this figure is that the final decision to go ahead with the Komenda scheme was based--as far as we know--on the data given in this report. The explanation of such diverse capacity output figures for one and the same factory lies in the fact that the rated capacity of a sugar factory can only be defined in terms of potential throughput of cane per day (1,000 tons in the case of Komenda). The output that can be attained depends on the throughput per 24 hrs., the percentage of sugar recovered from the cane (which was assumed to be about 10%) and the number of crushing days per season (which was assumed to be about 150), with a possible maximum extension to 165 days per year. Those reports that quote a 12,000 tons capacity output for Komenda assume a crushing season of 120 days net, a figure which is indeed consistently used in all reports on Asutsuare (capacity output 24,000 tons p.a., i.e. crushing capacity 2,000 tons per day, sugar recovery 10%, 120 crushing days p.a.), but which is much lower than that used in the above-mentioned report, which departs from the estimates in an earlier report of a group of Dutch consultants (*Report regarding the Development of a Cane-Sugar Industry in Ghana for the Ghana Agricultural and Industrial Development Corporations*, Amsterdam/The Hague, April 1960).

the presence of under-utilised capacity in the Ghana sugar industry is certainly not due to the creation of excess capacity. On the contrary, judged by the mere size of demand there would be scope for extension of existing capacities and even for an additional sugar project. The target of the Seven-Year Development Plan 1963-64 to 1969-70, namely the establishment of 4 state-owned sugar factories with a combined capacity of 100,000 tons by 1970² was certainly not so unrealistic from the point of view of size and prospective growth of the domestic sugar market.

But to-day, nearly 9 years later, the same target appears of course highly unrealistic if we think of the capital and managerial resources which would have been needed to build and bring into operation successfully 4 large-scale sugar projects over a period of 7 years, not to speak of the administrative capacity of the government agencies responsible for the preparation and the implementation and operation of these and the numerous other large-scale projects initiated in the public sector after 1960. As we shall see below, bottlenecks in the supply side (and more specifically those affecting the managerial, administrative and capital resources mentioned above) have been the major factors hampering the development of the two sugar projects which formed the subject of our study. Of these scarce resources capital should in our opinion certainly not be mentioned in the first place. Ghana in the early 1960s seems, retrospectively, a classic example of an economy which--at least in the public sector--was pushing its rate of investment beyond its "absorptive capacity". Not the availability of capital, but the "inability to invest in soundly conceived development programs and projects that can be carried out well and operated economically upon completion"³ appears to have formed the major bottleneck.⁴

2 See *Seven-Year Development Plan*, Accra, October 1973, p. 70, Table 5.2 (p. 103) and Table 5.5 (p. 119).

3 The definition of "absorptive capacity" used here is that of Waterston; vide A. Waterston, *Development Planning; Lessons of Experience*, Baltimore, 1965, p. 300.

4 This statement needs to be qualified in a number of respects: (1) though it was fairly easy for Ghana to obtain all kinds of suppliers' credit to finance imported equipment, this was probably not that easy for the complementary investments needed to make use of this equipment; (2) the fact that medium-term debt was often used to finance projects with relatively long gestation periods and the fact that most projects took a longer time to be completed and to be put into operation than had been foreseen, led to a drastic reversal of the situation in the second half of the 1960s. During that period capital did indeed become the great bottleneck (vide pp. 13-14 below).

0.2 Research objectives

The major objectives of our study of the two sugar projects were:

- a) a detailed reconstruction of the history of the two projects, covering the projects' preparation, implementation and actual operation, i.e. a period of about 10 years, and showing what was originally envisaged and what actually happened.
- b) an analysis of the factors which had been, or are still, responsible for the considerable differences between actual and planned performance.
- c) an analysis of the possible relationship between the emergence of problems on the one hand and, on the other, the specific structural characteristics of the projects and the interaction of these with the social, political and economic environment in Ghana.

These research questions obviously need further explanation including a definition of the concepts used. We would first like to explain, however, how our study originated. What made us ask these questions, what made us choose these two specific projects as the objects of our research, and, last but not least, what did we expect to be the relevance of our research?

1. ORIGINAL IDEAS AND HYPOTHESES

Our interest in the two sugar projects was not based on the mere fact that both had run into problems. What struck us and made us interested in their histories were (1) the type of problems which both had apparently encountered, and (2) the fact that these problems appeared to be fairly characteristic of quite a few agricultural processing projects carried out in developing countries.

1.1 Komenda and Asutsuare: the apparent problem of raw material supplies

According to our first and, admittedly, rather imprecise information, the poor performance of both projects was mainly due to delays and other problems connected with the agricultural aspects of both, i.e. the development of the raw material supplies to the factories. Both factories seemed to have been completed according to schedule and to be well designed and well adapted to local conditions. Neither were there any indications of major difficulties originating from the operation of the factories. There were obviously great difficulties in reaching efficient operation as witnessed by a low to very low sugar recovery and a very high fuel consumption, but these difficulties appeared to be due to the insufficient and irregular supply of cane and its low average quality rather than to problems located in the factories themselves.

It also became quickly apparent that the development of the agricultural parts of both projects had not only deviated in time, but also in substance from the projects as originally conceived and accepted for implementation.

While the original plans were completely based on large-scale irrigated plantation production, the projects as actually developed depended partly on plantation cane, partly on cane grown by a large number of "outgrowers", i.e. individual or cooperatively organised farmers. This constituted not only a major change in the organisation of production; it also meant a change-over from a rather intensive form of irrigated agriculture (the original concept) to a less intensive form with lower yields per acre and mainly dependent on rainfall. None of the relatively small and dispersed "outgrowers" farms had irrigation facilities; neither was there any indication that the irrigation of these farms might eventually be considered. The plantations also turned out to depend largely on rainfall as the planned irrigation systems had not been completed, while those sections that were ready had hardly been utilised. Though the plans for irrigation had not been officially abandoned, it seemed that serious doubts had been expressed about their economic justification. While the original consultants had been of the opinion that irrigation was indispensable, later consultants thought that rather extensive methods of cultivation under rainfall alone might be more economical.

1.2 Problems of agricultural processing projects: some hypotheses

We cannot pretend that at the time of starting our study (or even now a few years later) we could present hard empirical evidence showing that problems experienced by agricultural processing projects carried out in developing countries would usually arise from the agricultural aspects of the operations. What we were certain about, however, was that the two Ghanaian projects were by no means unique cases and that quite a few elements in their histories were rather a repetition of what had been observed in many similar projects in many parts of the developing world.

In earlier work we had enjoyed the opportunity of almost daily contact with a group of tropical agronomists involved in consulting work in a variety of tropical countries and on a wide range of food and industrial crops. Through this contact we got to know of quite a few projects which, like the two Ghanaian projects, had run into problems through delays and other problems in the development of the agricultural raw material supplies. What was even more interesting, however, was that most of the accounts of our colleagues seemed to imply that agricultural projects (or agricultural parts of mixed projects) were by nature more uncertain and more likely to run into problems than industrial (parts of) projects. When they returned from their missions their accounts, though of course different in detail, usually revolved around one or more of the following themes:

- a) the high degree of uncertainty in agriculture with respect to technology as well as physical and social environment;
- b) the "difficulty" of successfully implementing and

- operating agricultural projects (or the agricultural parts of mixed projects);
- c) the general underestimation of the degree of uncertainty and difficulty in agriculture by those locally responsible for the initiation and development of agricultural or partly agricultural projects.

Though these three themes were in the majority of cases not explicitly mentioned, the project histories we heard were usually replete with concrete examples.

Uncertainty. Crops sometimes turned out to behave quite differently from what had been expected on the basis of experience elsewhere under what had been considered more or less similar conditions. This resulted sometimes in poorer results than had been expected, sometimes in better results, e.g. a crop doing quite well without irrigation, while rainfall figures would have indicated a solution with irrigation. In the same general category were also the examples of poor results or unnecessary expenditure incurred due to the recommendations of consultants with wide experience elsewhere, but which had been acquired under conditions different from those in the area concerned. An indication of the general degree of uncertainty was finally the fact that our colleagues were sometimes the "n"th expert called to advise on a new project or on the problems of an already implemented one. The type of uncertainty discussed varied with the nature of the project. Examples of uncertainty related to the social environment figured most prominently in the discussion of projects for the introduction of a new crop or new methods of production amongst a large number of traditional farmers.

Difficulty. The relative difficulty of implementing and operating agricultural projects as compared to industrial projects was often stressed, especially in the case of projects which, like our two sugar projects, combined agricultural and industrial (processing) activities. As outsiders, i.e. as non-agronomists, we were indeed often impressed by the examples given: the importance of timeliness in agricultural operations and the relatively high penalties resulting from non-timeliness in the form of lower yields, lower quality of crops or higher costs; the exacting requirements of a large-scale processing unit as to regularity, quantity and quality of raw material supply, demanding a highly organised form of agriculture with relatively high requirements with respect to managerial and technical know-how; the large number of variables in agricultural production and their complex interrelationships.

Underestimation of degree of uncertainty and difficulty. It seemed that in most cases the manufacturing for example of sugar or palm oil, i.e. the processing of crops in factories was seen as a new and unknown activity, meriting detailed study by foreign consultants and demanding initial management and supervision by expatriate

personnel and a number of years of training of local managers, supervisors and operators. The development of the raw material supplies to the factories appeared on the other hand in many cases to be seen as much less problematic or, in the more extreme cases, as something which would take care of itself. The presence of a wild-growing variety of a particular crop (or the cultivation of a local variety by local farmers) seemed often to be taken as a sufficient indication that conditions were favourable for the growing of a commercial crop. That economical processing or the quality of the end product will often demand the cultivation of specially bred varieties with different soil or climatical requirements or different susceptibility to diseases and pests, was a point which--understandably enough for us--was not always fully appreciated. The same lack of appreciation was noticed in regard to the special character and skill requirements of agricultural operations which are closely geared to large-scale processing units, which, for the optimal utilisation of expensive capital installations, demand close integration of agricultural and processing operations during the stage of implementation as well as actual operations.

What we hoped to find out through a detailed study of the history of the two Ghanaian sugar projects was therefore:

- a) how far the substantial deviations from plans and expectations were in these two cases indeed related to the uncertainties and special difficulties which seemed to have played such an important role in many other agricultural or partly agricultural projects in developing countries;
- b) the precise nature of these uncertainties and difficulties and the distinctive features of agricultural projects or agricultural processing projects underlying these.

1.3 The nature of our exercise: a study on project performance

What we had in mind was a study of project performance, i.e.

1. an analysis of the factors which had caused actual outcomes to differ from plans and expectations, and
2. an analysis of the possible relationships between these differences and the projects' major structural characteristics, both being agricultural processing projects of a specific type.

This implied that the question whether the projects should have been selected for implementation, i.e. could be considered "worthwhile" on the basis of the available information or could be considered the "best" from the set of available alternatives, is not explicitly considered. What we were interested in was the quality of the information on which decisions were based (the predicted outcomes), rather than the question whether the decisions

were rational, given this information and the decision-maker's criteria. This means of course that a number of interesting and relevant questions about the projects will not be dealt with. We may clarify this with an example of such a question, one that in Ghana was often brought up in discussions about the two sugar projects.

It was often argued that instead of locating one project in the Central Region (Komenda) and another in the Lower Volta area (Asutsuare), it would have been "better" if both projects (or only one bigger unit) had been established in the latter area, which seemed to have the best conditions for sugar production. It was also argued that concentration of sugar production in one area would have offered more scope for further industrialisation based on the utilisation of by-products (e.g. paper and cardboard manufacturing from bagasse), while one large unit would moreover have led to the realisation of economies of scale in processing. It is indeed quite certain that the alternative of concentrating in one area was never considered. It may also well be that this alternative would have been a "better" choice, though a judgment on this point would lead us of course into the thorny problem of speculating about the criteria which were applied at the time the decisions were made.⁵

A more general point is that the measures of profitability applied in evaluating the projects were certainly not of the type which would lead to socially efficient choices. What was used was in the best case a simple measure of private profitability. There are therefore indeed reasons to assume that the decisions to select the two sugar projects (and for that matter many other public sector projects in Ghana) were non-rational, i.e. represented a choice from among the discovered alternatives which did not maximise the decision-maker's pay-off function, while the discovered alternatives only constituted a small subset of the possible alternatives.⁶ What

5 Though concentration of sugar production in the Lower Volta area might well have resulted in lower costs per unit of output, i.e. in a larger net contribution to national income, there are no reasons to assume that the latter was the Ghana Government's only criterion for deciding about projects. There are indeed some indications that the choice of the Komenda project was also related to a policy, admittedly vaguely formulated, of "bringing industries to the Regions", and therefore also served the objective of a more equitable distribution of development over the different regions of the country.

6 For a classification of economic decision models according to the degree of rationality in the behaviour of the economic agent, see K.J. Cohen and R.M. Cyert, *Theory of the Firm: Resource Allocation in a Market Economy*, Englewood Cliffs, 1965, p. 308. Though the focus of this book is on the role of business firms in the resource allocation process, much of it and especially Part 3 (New Approaches to the Theory of the Firm) seems highly relevant

interested us, however, was not the degree of rationality of the decisions, but the fact that these were obviously based on expected outcomes which for one reason or the other were not borne out by the projects' actual performance.

Why we chose to concentrate on performance and the problems of its prediction may already be clear from the way in which our study originated. The point will be more fully argued in section 3.1 below, when discussing the relevance of our exercise.

2. CONFRONTATION WITH REALITY

The preceding sections have provided an outline of the basic ideas we had when we started our study. Actual confrontation with the two projects and our first attempts at an analysis showed a number of factors which we had overlooked or whose importance we had underestimated.

2.1 Inadequate preparatory work vs. inadequate implementation

As possible causes of observed differences between actual and planned project performance we had been mainly aware of possible inadequacies or uncertainties in the information and the predictions on which the decisions had been based.

While expectations about a project's costs and benefits and, consequently, about its "worthwhileness" or profitability (however measured) are based on:

- a) technological information: the different combinations of inputs that will result in certain quantities of output;
- b) anticipations or forecasts, relating to the future course of variables outside the control of the decision-maker: availability of inputs in certain quantities and qualities at certain prices and at certain times, the possibility of selling certain quantities of output at certain prices and at certain times; and
- c) anticipated future actions of the decision-maker himself: investment, implementation and production schedules and budgets;

we had been mainly thinking of errors and uncertainties in a) and b) as possible explanation for the deviations of actual from planned performance. What we had more or less assumed was that if it had been decided to implement the projects, anticipated future actions c) would have been translated into actual actions. This assumption turned out to be far from realistic: in neither of the two cases is there any close correspondence between what was envisaged and what was actually done. The major characteristic of both projects appeared to be that they had *not*

for the study of the role of other economic agents, e.g. governments, in the resource allocation process.

been implemented according to plan, that they had entered into operation when they were only partially completed, and that after entry into operation the means to acquire the necessary inputs to operate the projects were not always available in the right quantities and at the right times. This meant that our enquiry acquired a distinctly different slant from what we had originally envisaged. What we had thought would become a study of inadequacies and uncertainties in the information used for making project decisions, became--because of the nature of the two specific cases studied--much more a study of how this information was used (or not used) in actual decisions and the implementation of these. This does not mean that inadequacies and uncertainties in the preparatory studies could not be studied or would not have played some role. It became only more difficult to judge to what extent these had been or were still playing a role. Comparison of e.g. actual cane yields (20-30 tons per acre) with estimated yields (40-47.5 tons per acre) does obviously tell us little about possible errors or uncertainties in the original estimates, when actual yields have been obtained largely without irrigation, without an adequate and timely supply of fertilisers and without a very large input of expertise, all of which were assumed to be made available in the original studies.

2.2 Dependence on local raw material supplies as a major factor

We were interested to find out how far the projects' problems and shortfalls in performance were related to their major structural characteristics. We had tended to see the latter, however, as mainly determined by the fact that both were partly *agricultural* projects, depending for their success on the development of local supplies of an *agricultural* raw material. The whole idea of undertaking our study had in fact originated because we hoped that a study of these two projects might tell us more about the uncertainties and vulnerability of agricultural projects and agricultural processing projects in general.

We fairly soon realised that the mere fact that both projects by their nature had to depend on *local* raw material supplies was a second distinctive structural characteristic. If a project involves the processing of a raw material which by the nature of the process (a substantial reduction in weight or bulk) or by its own nature (perishability) has to be produced in the vicinity of the processing unit, the production of the raw material and its processing have to be studied and executed as integrated parts of *one* project.⁷ A sequential solution, e.g.

7 This is an example of complementary investments and more in particular of the extreme case where each of the complementary investments is a prerequisite of the other. Vide H. Bierman, Jr. & S. Smidt, S. Smidt, *The Capital Budgeting Decision*, 3rd ed., London, 1971, pp. 77-81, for a brief discussion of economically dependent investments and their administrative implications.

starting with processing of imported raw materials, followed later by backward linkage into raw material production is impossible. Neither would it be possible to start with raw material production for exports, to be followed later on by forward linkage to the processing stage. It is clear that this holds good independent of the nature (agricultural or non-agricultural) of the raw material in question.

This may appear to be so self-evident that it hardly needs stressing. That it is not will be borne out by the histories of the Komenda and Asutsuare projects, of which the raw material producing and the processing components have been (and in certain respects are still being) treated as more or less independent. That they were neither the first in this respect is shown by Killick's brief account of the history of a few earlier Ghanaian ventures based on local raw material supplies.⁸ Killick's conclusion is well worth quoting:

The lesson to be learned from these examples is not that local materials are inferior or inevitably unreliable but that when a project is planned on the basis of local raw material supplies the source of supply must, for planning purposes, be treated as part of the project itself. To treat these two aspects as even semi-independent is to⁹ invite trouble, as has been found in a number of other projects."

2.3 The dominance of environmental conditions

What we had certainly underestimated was the extent to which the histories of the two projects had been determined by the specific traits of the socio-economic and political environment in which they had been prepared and implemented and were being operated. We had become interested in the uncertainties and difficulties of a specific group of projects (agricultural and agricultural processing projects) carried out in "developing countries". This means that we had a certain environment in mind. We had also realised that, while the uncertainties and "difficulty" of this type of projects might be related to their specific structural characteristics, the actual emergence of problems would be largely conditioned by certain traits of this environment. The latter we tended to see, however, as a number of general conditions, which would be fairly common to developing countries, including Ghana. The high degree of uncertainty in agriculture might be partly connected, we thought, with the fact that agriculture is closely bound to nature, that prediction of the relationship between inputs and outputs therefore demands information about quite a few elements of the physical environment (rainfall, relative humidity, temperature, hours of sunshine, their

⁸ See W. Birmingham, I. Neustadt and E.N. Omaboe (eds), *A Study of Contemporary Ghana, Vol. I, The Economy of Ghana*, Chapter 12, "Manufacturing and Construction," by A.J. Killick, p. 291.

⁹ *Ibid.*

variations throughout the year and their variability from year to year, soil conditions, etc.), while this information (like many other types of information) is relatively scarce and unreliable in developing countries. Given its special information needs and given the general lack of this information, predictions about outputs might therefore more often prove to be wrong in agriculture than in manufacturing, where the technical relationship between inputs and outputs is in most cases hardly influenced by differences in physical environment.

The fact that agricultural operations usually have to meet deadlines imposed by nature--crops have to be planted before a certain time, fertilisers to be applied within certain time limits, while the growing of a crop cannot be speeded up by applying a larger dose of inputs over a given time interval--means that in agriculture a high premium is put on timeliness (or a high penalty on non-timeliness) as compared to manufacturing activities. This means in turn relatively high requirements with respect to managerial skills as well as to the regular and timely availability of inputs, and consequently a relatively high propensity to run into trouble in an environment where the fulfilment of these requirements is rather uncertain.

These examples will be elaborated and others will be added when we go into the actual project histories. The reason why we have brought these up here is that the influence of these more general environmental traits on the performance of the two sugar projects appeared to be completely dominated by certain traits in the environment which were specific to Ghana during the 1960s, i.e. during the period relevant for our study.

2.3.1 The general economic situation in Ghana

The first and most general of these environmental factors was the gradual deterioration of the general economic situation as a result of severe balance of payments problems. Large increases in expenditure on imported consumer and producer goods and a more or less stagnant level of export proceeds led to a rapid depletion of foreign exchange reserves, which were quite substantial at the time of independence (1957), but were more or less exhausted at the start of the Seven-Year Development Plan 1963/64 to 1969/70.¹⁰ Import and foreign exchange controls, introduced in 1961 to curb the rising trend in balance of payments deficits and gradually tightened in the following years, did not only lead to a scarcity of imported consumer goods, but also made their impact felt

10 See for example Birmingham *et al*, *op. cit.*, Chapter 14, "External Trade" by A.J. Killick, pp. 357 ff.

in domestic production, at least in those sectors--and these form the majority--which directly or indirectly depend on imported raw materials, semi-finished products, equipment and spare parts.¹¹ The actual restrictions in the quantities of imports were moreover not the only factor creating problems for utilising or maintaining existing productive capacity. The mere introduction of elaborate administrative controls and the way in which these were operated also led to a much more irregular flow of imported commodities, which after the depletion of initially still available stocks manifested itself in a succession of periodic shortages. From 1964 onwards under-utilisation of existing and often just newly created capacity because of lack of raw materials, and breakdowns in existing capacity because of maintenance problems, became a regular feature of the Ghanaian economy.¹² An important part of the history of the two sugar projects, viz. that of their implementation and entry into operation, turned

11 In fact no sector of the economy remained unaffected in the long run. Even the production of local foodstuffs for the market, which in itself demands hardly any foreign inputs, was affected viz. through the gradual deterioration of infrastructure and transport facilities. See R.M. Lawson, "The Markets for Foods in Ghana," in E.H. Whetham and J.I. Currie (eds), *Readings in the Applied Economics of Africa, Vol. I, Micro-Economics*, Cambridge, 1967, p. 175.

12 A major source of information on this and other periods are the *Economic Surveys*, published annually by the Central Bureau of Statistics, Accra. These do not only contain excellent factual information, but throughout the years have maintained a high standard of objectivity and candour in discussing and criticising the results of government policies and their administration. The first references to shortages of consumer goods and raw materials and to the "bottleneck that developed in the administration and issue of import licences" can be found in the *Economic Survey 1963*, which, however, does not yet mention any repercussions on domestic output apart from those in the private building and construction industry (*op. cit.*, paragraph 58). How quickly the situation deteriorated is shown by the *Economic Survey 1964*, which mentions that "most of the manufacturing enterprises experienced many difficulties during the year in obtaining import licences for their raw material requirements and spare parts," and states that "It has not been possible yet for those responsible for the issue of licences to evolve a machinery that will enable the industrial sector of the economy to be provided with its allocation of foreign currency at the appropriate time. As a result some of the establishments have had to run at less than optimum capacity for certain periods of the year" (*op. cit.*, para. 285). The *Economic Survey 1965* shows that in that year the value of gross manufacturing output increased by only 0.8% in real terms as compared to 23% and 8% in 1963 and 1964 respectively; this notwithstanding the maintenance of a high level of investment in new capacity over a number of years (*op. cit.*, paragraphs 83 and 282 ff.). "The main cause of this stagnation was the system of import licensing which did not function as smoothly as was required with the result that most manufacturers were unable to satisfy their requirements of raw materials and spare parts." (*op. cit.*, para. 282).

out, therefore, to lie in a period in which the performance of *all* kinds of productive units, in the public as well as in the private sector, in the directly productive sectors as well as in supporting services and infrastructure, became increasingly conditioned by constraints on the national economy as a whole.

What is even more important is that these constraints, which initially mainly affected the utilisation and maintenance of installed capacity throughout the economy, in the second half of the 1960s, also resulted in a drastic curb on all investment activity, thereby not only affecting the undertaking of new, but also the completion of already partially completed projects, such as the two sugar projects. In the early 1960s the level of investment in the public sector had been increasingly financed by large-scale foreign borrowing, which to a large extent took the form of short to medium term suppliers' credits, and resulted in the rapid accumulation of a huge foreign debt. The fact that short to medium term debt had in many cases been used for projects which would have required long-term finance and the fact that the shortage of foreign exchange in itself led to longer than normal gestation periods and underutilisation of newly created capacity made it increasingly difficult for the Government to meet the rapidly rising external debt servicing charges.¹³

The NLC Government which came into office after the overthrow of the Nkrumah Government in February 1966 was forced to postpone the servicing of the foreign debt and to introduce a policy of consolidation, reducing considerably the level of domestic investment in order to bring national expenditures into line with currently available resources. This policy, which aimed at the better utilisation of previously made investments, i.e. at development with relatively little new investment following a period of "investments without development"¹⁴ did indeed improve the situation slowly and gradually, but could do so only to a limited extent. A policy of austerity in import licensing resulted in major improvements in the balance of payments on current account for the years 1966 and 1967, while a shift in the composition of imports towards raw materials, spares and machinery started to alleviate the

13 The *Economic Survey 1965*, which was published after the coup of February 24, 1966, is the first to provide a more or less reliable picture of the Central Government's indebtedness. (*Op. cit.*, paragraphs 109-117.) It shows that the sharply increased external debt consisted of 82.5% of suppliers' credits and points out that these credits--with repayment periods of 5-6 years--were amongst others used to finance physical and social infrastructure projects with long gestation periods.

14 See *Two-Year Development Plan, From Stabilisation to Development: A Plan for the Period Mid-1968 to Mid-1970*, Accra, 1968, pp. 7-8.

major constraint which had held back the utilisation of domestic productive capacity in almost all sectors of the economy. Shortages of imported raw materials, spare parts and complementary capital goods continued nevertheless to be a major factor well into 1968,¹⁵ while the prospects of moving back to a more adequate level of investments before the end of the decade remained extremely bleak because of increasing debt servicing charges following the resumption of debt servicing in 1968. How bleak the picture was to remain in this respect was clearly brought out in the Two-Year Development Plan for the period mid-1968 to mid-1970 which stated that "the level of new aid including IMF drawings (net) and suppliers' credit will hardly suffice to offset the servicing of existing debts and repayment of short-term arrears. In other words, no net inflow of resources from abroad can be expected from these items over the Plan period."¹⁶

This was then the situation in which our two projects were implemented (or not implemented) and had to start their operations--a situation in which the near-breakdown of the economy as a whole was such a dominating factor that our study of the performance of two individual projects tended to bring out more about these environmental constraints than about the special uncertainties and difficulties of the specific type of project studied. While we had started off with the idea of a study on the performance of agricultural and agricultural processing projects in a developing country, it became gradually clear that our final product would lean more heavily towards a study of project performance in Ghana during the 1960s. While looking for the general we were more and more confronted with the specific, at least with regard to the projects' environment. As will be shown later a fair amount of general points can still be brought out with respect to the projects' characteristics and the uncertainty and vulnerability related to these. While all projects in Ghana--whatever their type--were adversely affected by the country's general economic situation the highly dispiriting experience with the two sugar projects and indeed a number of other agricultural projects are certainly attributable to some of these projects' special characteristics.

2.3.2 The organisation of the public sector

A second specific trait in the projects' environment of which we initially underestimated the importance is related to the political-administrative environment in which both projects have been implemented and are being operated.

While the deterioration of the country's general economic situation caused a disruption of the orderly flow

15 *Op. cit.*, p. 52.

16 *Ibid.* p. 12.

of capital and current inputs to all economic activities, whether in the private or public sector, the performance of the public sector was moreover conditioned by one more important constraint, viz. the administrative capacity of the agencies responsible for the implementation and operation of public sector projects. Considering the whole complex of factors covered by this blanket term, i.e. considering not only the quantity of staff available and its qualifications but also the organisation structure of the public sector and the rules and procedures governing its actions, conditions appear to have been prohibitive for the maintenance of the required flow of resources to the two sugar projects and--for that matter--to all the numerous other projects initiated in Ghana's public sector during the first half of the 1960s.

We shall not yet go into details here as our subsequent reports will contain extensive references to this particular complex of factors. That the raw material producing and processing components of both projects have been treated as more or less independent--as already pointed out above--is just one example of the way in which the histories of the projects were influenced by the fact that both belonged to the public sector. That this happened can only be explained by the fact that the organisation of the public sector followed the traditional ministerial and departmental structure of Ghana's civil service, in which agriculture and industry belonged to the domains of different ministries. An effective machinery for coordination did not exist and proved to be very difficult to create after the need for it had been recognised.

Much of what has been said above about the dominating influence of the general economic situation on the projects' performance could be repeated here with respect to the political-administrative environment. Our study of the performance of two individual projects tended to bring out more evidence of the constraints affecting all public sector projects in Ghana than of the specific uncertainties and difficulties which we thought to be inherent in the type of projects studied and on which we had originally intended to focus our attention. In the hierarchy of decision-making within the public sector our attention shifted, moreover, gradually from the project level to higher levels of decision-making, or to put it in geographical terms from Komenda and Asutsuare to the centre, i.e. Accra. It became gradually clear to us that much of what had happened at Komenda and Asutsuare during implementation as well as actual operation had been largely determined by decisions at the centre, decisions which in many instances had moreover been made in a rather uncoordinated fashion with respect to the projects' different components.

The fact that in the case of the two projects studied shortfalls in performance appeared to be mainly due to environmental constraints some of which affected all economic activities while others affected, in particular, the public sector does not of course invalidate our original hypotheses about the possible relationship between these shortfalls and the particular structural characteristics of the type of projects studied. It only means that the history of the two cases studied made empirical verification of these hypotheses more difficult. An analogy may serve to clarify this point. If of two crops, A and B, crop A is more resistant (less sensitive) to adverse weather conditions (e.g. periodic drought conditions) than crop B, this will be clearly reflected in yield differentials in years with periodic droughts. Not or much less so, however, in years with prolonged droughts or with adequate rainfall throughout the year. In the case of the two sugar projects environmental conditions were adverse to such an extent that they--in terms of the analogy just used--could be characterised as approaching prolonged drought. All economic activities were affected and all projects showed delays in construction and entry into operation and shortfalls in performance during actual operation.¹⁷ Only in so far as the two sugar projects could be shown to have even poorer records than most other public sector projects would it be possible to relate performance to project characteristics. The detailed and extensive information which would be required for a systematic inter-project comparison makes this a well-nigh impossible task at least within the scope of this study. There is, however, one easily observable point on which the history of the two sugar projects compares rather unfavourably with most manufacturing projects carried out in the public sector during the same period. While the latter showed in quite a few cases a rather rapid recovery after their ailments and those of the economy in general had been diagnosed and treatment started, the cases of the two sugar projects and indeed of a few other agricultural processing projects have been dragging on endlessly with only slow and minor improvements.¹⁸ This is the more

17 An important and notable exception was the Volta River Project. Important because of its being the largest single project in Ghana's history. Notable because all the factors which negatively affected other public sector projects (fragmentation of responsibility over different agencies, the consequent problems of coordination, dependence on annual budget allocations, etc.) did not affect this project which was executed and is operated by a semi-autonomous body, the Volta River Authority. The creation of an organisational structure best suited to carry out and operate a project successfully--an aspect which was long neglected in the case of other public sector projects--was in the case of this important project not neglected. See for example "Ghana: the Volta River Project" in J.A. King, Jr., *Economic Development Projects and Their Appraisal*, Baltimore, 1967, pp. 128-155.

18 Notable examples are 3 fruit and vegetable processing projects, which after a 7-8 year history were about to be commissioned in

striking as there has been no lack of diagnosis of the projects' troubles, as we found out already soon after starting our enquiry. It only seemed that something in the nature of the projects made it more difficult to overcome these troubles. The internal organisational characteristics of the public sector and the more general constraints affecting the economy as a whole seemed to remain insuperable barriers to a rapid improvement, notwithstanding reforms in the former and a gradual improvement of the latter.

3. QUESTIONS OF RELEVANCE

Much of our work bears, of necessity, a descriptive character. In order to be able to answer our main research questions we had to attempt a rather detailed reconstruction of the two projects' histories, while the dominant influence of certain environmental factors also forced us to look far more and much further outside the projects' boundaries than we had originally envisaged. We see these descriptive parts, however, as being subsidiary to the explanatory part of the study. Our major aim was not to write a piece of micro-economic history or to paint a picture of the way in which the Ghanaian economy and, more in particular, its public sector developed under the influence of the policies initiated by the Nkrumah Government. What we really hoped for was that the analysis of the experience with the two Ghanaian sugar projects would provide at least some results which would be useful in the preparation, evaluation and implementation of future projects. In discussing the relevance of our research we shall therefore mainly concentrate on the question in which respects and to what extent the outcomes might contribute to the improvement of future project work.

That we have deliberately limited our study to an analysis of project performance, comparing predicted with actual outcomes, already indicates that we are mainly dealing with questions related to the preparation and implementation of projects. We shall have little to contribute to questions of project evaluation and project choice in developing countries, i.e. to such issues as the use of shadow prices, which have been and still are subject of wide discussion. Why we have chosen to concentrate on project performance and its prediction, rather than on questions of "allocative efficiency" is the first point to be taken up in this section. A second point is to what extent a study, dealing only with two projects of a certain type carried out during a particular phase in

1970. See *The Annual Estimates for 1969-70, Part I*, Vol. IV, Accra, July 1969, p. 11 and *Ghana's Food Industries 1968; an Economic Analysis* by E. Reusse, FAO/UNDP, Accra, April 1968, pp. 90 ff.

one country's history, will be relevant to future project work in general. A third and final point is the relevance of the study to Ghana, namely, how far can our findings contribute to the improvement of future project work, more in particular to that in the public sector, and how far will these findings still be useful to further improvement in the performance of the two projects studied?

The order in which we shall deal with these questions has not been chosen arbitrarily. It indicates that, all the time, we have been looking for the general, of course within the limitations imposed by a study of two particular cases.

3.1 The relevance of ex-post evaluation

The process of reaching an investment decision is a specific example of the more general process of choosing between alternatives. In this process two vital steps can be distinguished viz. (1) predicting the consequences of alternative actions and (2) distinguishing preferred combinations of consequences from less desirable ones, a step which entails the use of criteria.¹⁹

In the large body of literature on project appraisal--alternatively christened project analysis, cost-benefit analysis, investment planning, capital budgeting, etc.--the second step has received by far the most attention. Much of the discussion has centered round the choice and application of investment criteria and the closely related questions of valuation and enumeration: which prices are to be used in the valuation of costs and benefits and which consequences, i.e. which costs and benefits, are to be included in the appraisal? An example which is of special relevance to project appraisal in developing countries is the discussion on social cost-benefit analysis, which aims at measuring a project's contribution to national economic objectives and which entails the valuation of inputs and outputs at "accounting" or "shadow" prices and the inclusion of external effects in the estimation of costs and benefits.²⁰

The relevance of the discussions on social cost-benefit analysis (and on other more general topics such as the treatment of uncertainty, problems of capital

19 Cf. R.N. McKean, *Efficiency in Government through Systems Analysis*, New York, 1958, p. 27.

20 See for example I.M.D. Little and J.A. Mirrlees, *Manual of Industrial Project Analysis in Developing Countries*, Vol. II, *Social Cost Benefit Analysis*, OECD, Paris 1969. The Bibliography (*op. cit.*, pp. 269 ff.) contains a selection of the most important publications in this field from the early 1950s onwards.

rationing, indivisibilities and project interdependence) to project appraisal in developing countries cannot be denied. There is, however, some room for skepticism about the immediate impact which the introduction of social cost-benefit analysis could be expected to have on the "quality"²¹ of investment decisions in developing countries. This skepticism is not based on the fact that "the subject is not one where techniques are fully accepted"²² or on the unavoidable time lag between the development of new techniques and their general application. On the contrary, these last two points would in themselves constitute forceful arguments for giving high priority to the further development and introduction of these techniques. The fundamental reason for our skepticism is of a quite different nature and is based on the relatively heavy emphasis which appears to be placed on refinement and improvement of evaluation methods and techniques (step two in the decision-making process) at the relative neglect of improvements in the first step (predicting the consequences of alternative actions). It would appear, to put it in plain terms, that the state of knowledge about the methods and techniques of project evaluation and selection has got out of line with the state of knowledge about the behaviour of projects in developing countries, i.e. with the knowledge necessary for predicting the consequences of the implementation and operation of projects, including the risks and uncertainties which are inherent in these predictions and in the assumptions on which these are based. At the risk of overarguing our case, we would like to repeat that this is not an argument against social cost-benefit analysis. The only point we want to make is that there is more to making "correct" or "good" decisions about the undertaking of new projects than a correct translation of basic performance estimates into a measure of a project's social profitability, indicating its expected contribution to national economic as well as non-economic objectives.²³

21 In order to avoid any possible misunderstanding it should perhaps be pointed out that the term "quality" as used here only refers to the "correctness" of a decision *given* the decision-maker's value system. It only refers to the question how far a decision actually contributes to maximising whatever one wants to maximise.

22 Little and Mirrlees, *op. cit.*, p. 7.

23 Taylor distinguishes three conditions which have to be met for a decision to be "good" or "correct": "It is possible to determine, at least within limits, whether the alternatives considered were those actually available, whether the consequences anticipated were those which in fact would have ensued, and whether the choice made was the one to be preferred, given the individual's value system. If all of these conditions were met, then the decision may be said to have been 'good' or 'correct'." See D.W. Taylor, "Decision Making and Problem Solving," in R.M. Cyert and L.A. Welsch (eds), *Management Decision Making*, Penguin Modern Management Readings, Harmondsworth, 1970, p. 34.

Comparison of actual outcomes of projects in developing countries with anticipated outcomes seems to point to recurrent weaknesses in the basic information on which decisions have been based, as well as to defects in the process of decision-making itself, i.e. in the way in which this information is used in arriving at actual decisions and in implementing these. In a report of a symposium on industrial project evaluation which was held in 1965 attention was drawn to "the frequent disparities in many developing countries between the project as evaluated and the project as implemented and operated."²⁴ Hirschman in his now well-known analysis of a number of IBRD-projects says, when discussing the possible bias in his sample because of the exclusive reliance on World Bank projects:

Fortunately (at least for my research!) I found, upon looking more closely, that not one of the projects I had selected had been free of serious problems. It became quickly apparent to me that all projects are problem-ridden; the only valid distinction appears to be between those that are more or less successful in overcoming their troubles and those that are not."²⁵

Within Ghana the Komenda and Asutsuare projects which are the subject of this study, are not isolated examples either of projects troubled with serious problems.²⁶ Our own confrontation with project experience in the field of agriculture and agricultural processing (see pages 4-6 above) and more general discussions with colleagues about agricultural development and agricultural policies had gradually led us to see the problems of decision-making in developing countries and particularly in the agricultural sector as problems of predicting the outcomes of alternative actions (investment decisions, policy measures), or to put it the other way around, as problems of finding out how to achieve certain accepted goals. Analysis of past project histories, as attempted in this study, might give us--we hoped--some indication of the type of factors which contribute to the frequent disparities between anticipations and actual outcomes in projects carried out in developing countries. Careful assessment of these factors in future projects might lead to more realistic

24 *Report of the Interregional Symposium on Industrial Project Evaluation*, Prague, Czechoslovakia, 11-29 October 1965, United Nations, New York 1966, para 143. Selected studies presented at the Symposium were published separately as: *Evaluation of Industrial Projects*, UNIDO Project Formulation and Evaluation Series, Vol. I, U.N., New York 1968.

25 A.O. Hirschman, *Development Projects Observed*, Washington C.D., 1967, pp. 1 and 3.

26 We have not yet made a systematic effort to collect and analyse information on the many other projects carried out in Ghana over the past 10-15 years. For the time being we can only refer to the accounts of Killick and Reusse, which were already mentioned above (vide footnotes 8 and 18).

estimates of project performance and to a more explicit enumeration of all the conditions that would have to be fulfilled, both within and outside a project's boundaries, to ensure its successful implementation and operation.

The above is of course nothing more than an argument for the usefulness of carrying out a "post-mortem" or ex-post evaluation study,²⁷ which is what our study of the two Ghanaian projects actually amounts to. It is interesting to note that over the past two or three years the need for more continuous and organised "ex-post evaluation" work, in contrast to hitherto isolated efforts such as ours, has become increasingly accepted in the circles of aid and project administrators. A recent paper by Cracknell gives an excellent summary of the developments in this field and of the purposes and problems of ex-post evaluation.²⁸ It distinguishes two major functions, viz. (1) the management function, i.e. the organised "feedback" of data and ideas to improve the preparation, evaluation and implementation of future projects and (2) the audit function. The former, which is learning from past project experience to improve further project work, is the major objective of the present study, as has been outlined above.

3.2 The relevance to other projects

The analysis of only two specific projects--as carried out in this study--will obviously not yield all the factors which may be relevant to project behaviour in developing countries. Among the factors found to be relevant to the two cases studied, there will also be quite a few which are of little or no relevance to projects of a completely different nature or carried out in a different socio-political environment. It is, however, not necessary to put too much stress on these rather obvious limitations. In so far as our analysis succeeds in explaining the behaviour of the two projects in terms of their different structural characteristics and the interaction of these with specific traits of the socio-political environment, the relevance of our findings can be extended to a much wider group of projects, viz. to all those which share at least one of these characteristics, and to a much wider group of environments, viz. all those which share at least one of these traits. In the case of the sugar projects one such major characteristic is, for example, the fact that their successful implementation and operation demands

27 We must admit that we knew neither of these terms when we started our study. The first one has this quality that it accurately reflects the type and nature of the work involved, viz. careful and patient dissection. It suggests, however, wrongly, that the patient is dead which may be, but is not necessarily the case. The second and more respectable term now seems to be generally accepted.

28 B.E. Cracknell, *The Purposes and Problems of Ex-Post Evaluation*, paper read at the Nuffield College Oxford Conference, Sept. 1971, mimeo.

coordination of component project activities belonging to different sectors of the economy (in this case agriculture and industry). This characteristic and the fact that responsibility for government activities in these and other relevant sectors traditionally rested with different ministries account for quite a few of the problems experienced with the the Ghanaian sugar projects, as was mentioned above (see page 15). We shall discuss these problems, namely the disintegration of both projects into a number of separate projects, executed in a largely uncoordinated fashion by different government agencies, more extensively in later reports. At this stage we merely want to point out that the relevant project characteristic fits a much wider range of projects than those analysed in this paper. The problems which were experienced in this respect with the Ghanaian sugar projects would appear to be relevant to all projects which either demand a high degree of vertical integration (like the sugar projects) or are of the multiple-purpose type and therefore demand close coordination of component activities cutting across traditional fields of professional and administrative responsibility. This is not to say of course that all projects which share this characteristic will necessarily experience the same problems, or, if they do, experience them to the same degree as the two Ghanaian sugar projects. It only means that these projects, for their successful implementation and operation, require the fulfilment of certain conditions such as closely coordinated management of different component activities, and are consequently liable to run into trouble if the particular environment in which they are situated cannot meet these requirements. The government agencies responsible for public sector projects in Ghana could *not*, as probably many of their counterparts in developing as well as developed countries if faced with the responsibility for a type of activity, which fell largely outside their field of experience and which moreover would demand action and reforms which would be contrary to established rules and procedures and to the values traditionally attached to these.

The practical relevance of all this to the judgment of future projects should be obvious. A sound judgment on any new project would demand (1) identification and explicit enumeration of conditions which have to be met for the project to perform as laid down in preparatory studies, and (2) an explicit judgment of the likelihood that these conditions can be met by the particular environment in which it will be situated.²⁹

29 This is exactly what most project studies omit to do. They are usually full of implicit, i.e. hidden assumptions and therefore hardly ever fulfill the second condition. Uncertainty, the treatment of which gets much attention in literature on project evaluation, is hardly acknowledged in the majority of project studies. Vide P.D. Henderson, "Investment Criteria for Public Enterprises," in R. Turvey (ed), *Public Enterprise*, Penguin

It became therefore a major aim of our study to find out which particular configuration of project characteristics and environmental traits explains the behaviour of the two sugar projects. Such an analysis is essential if an ex-post evaluation study is to contribute significantly to the improvement of future project work. The many ways in which actual project performance in developing countries may (and does) deviate from the basic estimates in feasibility reports are already fairly well known,³⁰ even though published evidence seems on the whole rather scarce. While a mere description of past project experience might lend further support, for example, to the statement that "despite exceptions, it has been the rule in developing countries that projects take longer to complete than is allowed for in the project report,"³¹ this information is in itself not very helpful. In order to improve future estimates of, for example, construction periods by specifying the assumptions about the environment underlying these estimates and testing these assumptions against the actual characteristics of a new project's environment, one would like to know which environmental traits have been insufficiently allowed for in past projects and to find out which projects are more vulnerable in this respect or are subject to a relatively high degree of uncertainty.

To the best of our knowledge Hirschman was the first to point out the importance of recognising the "connections

Modern Economic Readings, Harmondsworth 1968, pp. 135-136, which states that ". . . it is remarkable how often project analyses present single values for prospective costs and benefits, with little indication that the outcomes depicted may not be realized and with no consideration of the likelihood and characteristics of other possible outcomes." (*Ibid.*, p. 136). The absence of an explicit enumeration of environmental conditions and of an acknowledgement of the uncertainty in these may not be that serious in project analyses for projects in developing countries, where e.g. performance estimates will be largely based on past experience in more or less similar conditions, and where the "hidden assumptions" stand a good chance of being quite close to reality. The situation is of course completely different in developing countries where the environment is unknown to the majority of those involved in making project studies and where many of the relevant characteristics of the environment are also unknown in the sense that little information is readily available.

30 See for example Little and Mirrlees, *op. cit.*, pp. 16-18, where this problem is fully acknowledged and a number of quite common deviations are mentioned.

31 *Ibid.*, p. 17.

between the technical or economic characteristics of projects and their performance in different socio-political environments".³² We would here like to acknowledge our intellectual debt to Hirschman's book which was published late 1967 and which we were lucky to receive only a few months after having started our work on the two Ghanaian projects. Though from the outset of our work we had envisaged an analysis which would bring out the special vulnerability and difficulties of a specific group of projects, sharing certain structural characteristics, the formulation and further development of our ideas owe much to Hirschman's stimulating and original analysis.

3.3 The relevance to Ghana

3.3.1 Solution of immediate problems vs improvement of future project work

It is not without a certain amount of diffidence that we approach the question of relevance with respect to the projects themselves. Our main reason for this follows logically from the nature of our study, which is to look backward, trying to explain what has gone wrong and why, rather than formulate recommendations to improve the situation in which both projects found themselves. Though the one does not preclude the other, our study of the two sugar projects tended by its nature to yield more results relevant to future projects, than findings which would be immediately useful to decisions on the operation and further development of the projects themselves. Many of the problems experienced by both projects belonged to the past, i.e. were bygones which as such could no longer be corrected and were therefore no longer relevant to decision-making. Though they had been responsible for the waste of resources and therefore had negatively affected the projects' "overall performance", they could no longer influence the projects' future course. A good example of a problem which lies in the past is the delay in the completion of the water supply system for the Komenda factory, which caused the factory to stand idle for more than a year after it had been completed and was otherwise ready for operation. In so far as the analysis of this particular delay points to delays in starting the particular activity (construction of water supply) due to current administrative rules and procedures or the administrative capacity of the agencies involved, this might in the short run be taken into account when scheduling future public sector projects, e.g. by introducing longer "lead times" for obtaining approval and actual disbursement of funds. It might in a somewhat longer time perspective point to reforms in administrative (e.g. budgetary procedures) or to a strengthening of the agencies involved. In so far

32 *Op. cit.*, p. 6.

as the delay was due to delays in the actual execution of the activity, this might be taken into account in the estimation of "activity durations" and in the scheduling of similar activities in future projects, or lead to action to increase the availability of those resources which appeared to have formed bottlenecks in the past.

All this is certainly relevant but only to future projects and not to the two projects studied. If we are somewhat diffident in stressing the relevance of this type of findings, it is therefore not because of any doubt about their relevance but rather because the situation in which we found ourselves: a situation in which the need for analysis of the immediate problems at hand (what should be done about the two projects?) often seemed to be much more glaring than the need for "learning lessons from the past". To all those directly involved in the projects whom we contacted in the course of our research--officials at the ministries, local managers at the project sites, small farmers and village cooperatives growing cane for the factories--the relevant question was, for obvious reasons, "what should be done?", a question to which our study could only contribute in a number of minor ways, while we moreover lacked the technical knowledge and the experience which are needed to arrive at detailed recommendations.³³

33 The sort of dilemma created by competing demands for analysis in immediate support of decision-making and analysis to improve the long-run quality of decision-making is probably symptomatic of any situation where--as is the case in many developing countries--the necessary analytical skills are still in short supply. It is the dilemma faced by the senior planning adviser, who under the pressure of circumstances, finds himself drawn into the minute detail of day-to-day decision-making, contrary to his job-description as well as to his own judgment of the type of work he most usefully could perform. It is also the dilemma faced by university departments, which often find some of their most able staff members absorbed by work on government advisory committees which consequently diminishes their capacity to contribute in the way of long-term research. It is in short a dilemma which more often than not tends to be resolved in favour of the immediately felt needs, which may explain the low priority which in the developing countries has so far been given to ex-post evaluation, but certainly does not justify this low priority. In the case of Ghana one cannot help being struck by the repeated occurrence of problems which might have been avoided if decision-makers had had the benefit of analyses of past experience. That the history of the two sugar projects was in certain respects a mere repetition of that of earlier ventures based on local raw materials (see p. 10 above) is a case in point. That the relative neglect of ex-post evaluation is universal and not restricted to developing countries is shown by Cracknell's discussion of the relatively poor record of aid-donor agencies in this

It is true that our comparison between actual and planned performance also served to identify (and explain the origin of) quite a few problems in the actual operation of both projects, i.e. in recurrent activities which--unlike past problems of implementation--are still susceptible of improvement. It is, however, needles to say that to identify a problem and to explain its occurrence is something quite different from formulating detailed proposals for its solution. To perform the latter function one needs the specialised technical knowledge and experience of the consultant, a role which we could not and did not intend to perform. One of the problems which has continually played a rather central role in the actual operation of both projects is, for example, that of the supply of seasonal labour for harvesting. It is a problem that even during the most recent campaign (1971/72) has not been solved and is largely responsible for the irregular and insufficient daily supply of cane to the factories and for the prolongation of harvesting beyond the optimal season. It is a problem which is not difficult to identify and which in recent periods has received wide public attention, amongst others through the spectacular mobilisation of large groups of students to participate in harvesting the cane. It is also a problem whose origin is not difficult to ascertain at least for the purposes of our study. It is an example of an aspect of the projects which has hardly received attention in the original project studies, or--to put it in another way--about which too easily assumptions were made in arriving at performance estimates.³⁴ To arrive, however,

respect (*op. cit.*, paragraphs 7 and 16) and by Haveman, who with respect to public investment in the United States has pointed out that "Only very recently has it been possible to find any significant research at all that focuses on the economic results of public undertakings after they have had the time to develop a performance record." See R.H. Haveman, *The Economic Performance of Public Investments: An Ex Post Evaluation of Water Resources Investments*, Baltimore and London, 1972, p. 1.

34 In the case of Komenda it appears that all estimates were based on the tacit assumption that seasonal labour could be easily recruited locally, i.e. in the near vicinity of the project site, and--being unskilled--could be recruited at the minimum daily wage rate. Though the original consultants considered the availability of labour to be an important factor and certainly had some doubts about this assumption, there are no indications that this matter was ever seriously studied. Their very first report, which examines seven possible locations within the then Western Region (comprising the area of the present Western and Central Regions), already mentions the availability of labour as one of five important locational factors. (See *Interim Report Sugar Survey Ghana*, Amsterdam, September 1959.) The major conclusion of this report, viz. that "of the areas considered only

at a reasonable recommendation for a long-run solution of this problem one would have to know the alternative manual and mechanical methods available for the different operations involved, such as cutting and loading, be able to provide reasonable estimates of the investment and current costs of the alternatives available and of their physical performance, assuming the availability of management and supervision with a certain level of technical expertise and experience.

A different but closely related point is finally that as far as the identification of the projects' problems was concerned little could be added that would throw an entirely new light on the situation. There had certainly

the one situated east of the River Pra appears at present to justify further detailed investigations" (*ibid.*) is, however, mainly based on consideration of the other locational factors, viz. availability of water for irrigation and processing, extent and topography of available areas, soil quality and climatic conditions. The report's recommendations for further detailed investigations in this area, which roughly covers the present project area, also mention only the characteristics of the physical environment. The reason given is that "the authorities have assured us that in Ghana wherever there is a demand there will be a plentiful supply of labour" (*ibid.*). That the consultants had nevertheless some doubts about this point is shown by their second report which is the first major report on the Komenda location and presents its findings and recommendations under the proviso that "the availability and willingness to learn of a sufficient labour force in Komenda State tally with the reports received" (Report regarding the Development of a Cane-Sugar Industry in Ghana, *op. cit.*, Summary of Findings and Recommendations, point 21). The final report of the same group of consultants reports positively on the results of two trial plots which were the subject of another proviso in the main report (see: *Final Report regarding the Development of a Cane-Sugar Industry in Ghana for the Ghana Agricultural and Industrial Development Corporations*, Amsterdam/The Hague, January 1961). The proviso with regard to the labour situation was apparently retained. As far as we know there were no further investigations into this aspect by the same or by later consultants. The basic studies on the Asutsuare area contain little on the labour situation, while going into considerable detail on technical agronomic matters (see: *Report on Survey of the Lower Volta River Flood Plain*, Vols. I-V, FAO, Rome, 1963). Though it is stated that "labour required by sugar plantations and a factory will have to be drawn largely from outside the region" (*ibid.*, Vol. V, p. 8), the reports do not go into detail about possible ways of recruitment or about the provision of facilities for seasonal labour. Given the nature of these reports, this could hardly be expected. Contrary to the studies on Komenda, which deal with one project for one crop only, the studies on the Lower Volta area had a much wider purpose, viz. to investigate the potentialities for irrigated agriculture in the Lower Volta River Flood Plain. Sugar was only one among the many other crops that are considered in these reports.

been no lack of diagnosis of the projects' troubles as was already pointed out above (see p. 16/17). Between the middle of 1967 and 1968 extensive reports became available, which were prepared independently by two large consulting firms with a long-standing reputation in sugar cane cultivation and processing and contained detailed recommendations for future action.³⁵ Also the Reusse report, referred to earlier contained a section on the sugar industry.³⁶ Between them these reports had already identified most of the problems facing the projects, while some of these problems had already been identified at an earlier stage.³⁷ What we could contribute in the way of identifying problems was therefore mainly the addition of some detail and extension of the analysis over a slightly longer period than that covered by these reports.³⁸ What struck us indeed more and more during the course of our enquiry was the amount of expertise that had already gone into analysis in support of further decision-making and the little use that apparently had been (or could be) made of it to improve the projects' performance. We shall deal with this point more extensively in our actual analysis and in the following section, where we shall discuss a more or less similar situation with respect to some of our other findings.

35 The first report to appear was that resulting from a brief survey undertaken in May 1967: *A Report on the Sugar Industry in Ghana and its Development*, Bromley, July 1967. The same consultants were later on commissioned to prepare a more detailed study, which was completed in 1968. The second major study was that undertaken by the Development Service Institute of the National Investment Bank, Accra: *Evaluation Report State Sugar Products Corporation*, Accra, September 1967. Appendix 1 of this report, containing the detailed technical studies and the recommendations of the consultants, was separately bound and distributed as: *An Evaluation of the Sugar Industry in Ghana, prepared for the National Investment Bank*, Accra, September 1968.

36 *Op. cit.*, pp. 47-59.

37 See e.g.: *Report of the Agricultural Committee of the National Liberation Council*, Accra, November 1966, paragraphs 22-24 and 181-184.

38 More work has been going on in recent years. Shortly before leaving Ghana in July 1970 we learnt of a research project to be undertaken by ISSER, University of Ghana, Legon on the sugar industry in Ghana. In the meantime a first report has been published, dealing with the demand side: *Structure and Prospects of the Sugar Industry in Ghana, Vol. 1, Demand for and Supply of Sugar in Ghana with Projections of Demand*, by C. O'Loughlin, S.J. Mabey and K. Asiedu-Saforo, ISSER, Legon 1972. Another recent enquiry into the Ghana Sugar Industry is finally that of a World Bank Mission, which visited Ghana in 1971 in connection with an application for a loan to rehabilitate and further develop the sugar industry.

3.3.2 Problems of planning and public sector organisation

Of special relevance to Ghana are of course those findings that relate the projects' performance to specific traits in their environment. It was already mentioned that some of these environmental characteristics turned out to play a much larger role in the history of the projects (and consequently in our study) than we had originally suspected (see pp. 10-11). Much of the projects' performance appeared to be a reflection of the performance of the economy as a whole and more in particular of that of the public sector to which both belonged. While trying to explain the shortfalls in performance of two individual projects, we increasingly stumbled across factors related to national planning, i.e. to decision-making at higher than project level, and factors related to the organisational structure of the public sector and to the rules and procedures governing its actions. The fact that certain environmental factors played such a prominent part in the project histories diminished to a certain extent the general relevance of the two cases to future projects of a similar type; we found it certainly difficult to verify some of our original hypotheses about the relationship between shortfalls in performance and the particular structural characteristics of the type of projects studied. The same fact enhanced, on the other hand, the relevance of our study to Ghana: quite a few of the factors which influenced the performance of the two sugar projects did likewise influence that of completely different projects, especially of those in the public sector, though not always to the same extent or over such a prolonged period.

What struck us again, however, was that many of the deficiencies in planning and in the organisation and management of the public sector which we were able to identify had been known to exist for already quite a long time, indeed for such a long time that they could have been, and in fact had been, identified in advance as potential problem areas. The section on plan implementation and management of the Seven-Year Development Plan 1963/64 to 1969/70 had already stated that "the new tasks in economic growth outlined in previous sections make it imperative to institute some major changes in the machinery of Government to enable it to control economic development efficiently."³⁹ This section of the Plan as well as Omaboe's chapter on the "Process of Planning" in *A Study on Contemporary Ghana*, Volume I⁴⁰ show that already in the early 1960s senior Ghanaian planners were keenly aware of the factors which had hampered earlier planning efforts and of the high priority which should be given to creating an effective machinery for formulating and implementing development plans and projects.

³⁹ *Op. cit.* p. 283.

⁴⁰ Birmingham et al, *op. cit.*, chapter 18, pp. 439-463.

We were therefore again faced by the fact that at least part of our findings were not new but more or less a confirmation of what had been said before, and, what is even more important, had been said at a time when most of what we describe had yet to happen. While the 1968 reports of the consultants, referred to in the previous section, had indicated what should be done to correct past mistakes, the writings of the then Executive Secretary of the Planning Commission and of the then Government Statistician had already indicated in the early 1960s what should be done to prevent many of the problems that would arise in the following years.

That we put so much stress on the fact that much of what we found out was already "known" is not because of false modesty. The major reason is that notwithstanding this knowledge so little had been or could be done to correct or prevent problems. The further we progressed with our enquiry the more we were faced with the question why so little had been or could be done about problems which were known to exist or had been identified in advance as potential problems.

This question is not easily answered and will have to be dealt with more extensively in later reports. At this stage we merely want to point out that the answer will probably have to be sought in two broad groups of distinctly different factors. The first group is related to the process of decision-making and more in particular to the flow of information, i.e. the extent to which information that is available in reports etc. is actually known to decision-makers and taken into account in decision-making. In the course of our enquiry we could not help being struck by the amount of information that seemed to get lost in Ghana, either physically or through the impossibility of retrieving information that was physically available. Reports did get lost, while others seemed to lead a hidden life unknown to those who would have benefited most from their factual contents. A situation which again had not gone unnoticed in the Seven-Year Development Plan, but had apparently shown little or no improvement in the years that followed.⁴¹ If it is true that many of the things we found out were already "known", i.e. had been said or written before, it was certainly not so that all this was known to the agencies which in one way or the other were responsible for the sugar projects. The degree to which responsibility had been fragmented over a number of agencies was certainly a cause for extra complications in this respect.

41 The chapter of the Seven-Year Development Plan on Plan Implementation and Management devoted a separate section to problems of information. It mentions, *inter alia*, "the difficulty to obtain information which exists" and pointed out that "some agencies have had to discuss policy when little was known factually about the thing or situation which their policy was designed to modify, improve or create." (*Op. cit.*, p. 284.)

The second group of factors explaining the lack of corrective or preventive action may be found in the projects' socio-political and economic environment. It comprises those environmental characteristics that are negative attributes in terms of the projects' performance, but have to be accepted as temporarily unchangeable. These are in Hirschman's terminology "traits" that have to be "taken", i.e. have to be accepted as given factors when designing a project or formulating a development plan, in contrast with those characteristics which can be considered "as subject to and ready for the kind of changes that are required for making a success of the project", i.e. "traits" that can be "made".⁴² There are--to put it in plain words--things that cannot be done, and of which it would be unrealistic to assume that they can be done. All the reforms and changes in the machinery of government which were outlined in the Seven-Year Development Plan as prerequisites for its successful implementation,⁴³ at the same time show that the plan was unrealistic or overambitious. The fact that problems are identified or foreseen does not mean that they can be corrected or prevented. In so far as the shortfalls in project performance were indeed due to neglect at the preparatory stage of environmental traits or a misjudgment of the extent to which these could be changed, there is, by definition, little scope for corrective action in the sense of steering the projects back to their predetermined paths. There remains indeed only one possibility, viz. to adjust the projects' design as well as possible to these "new" facts.

42 See Hirschman, *op. cit.*, pp. 130 ff.

43 *Op. cit.*, chapter 14.

