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PLANNING CRITERIA AND THE PLANNING PROCESS¹

I. Introduction.

This paper is intended to provide the basis for a discussion of planning procedures appropriate in the formulation of a 5-year plan in the situation in which Uganda finds itself. It outlines some general principles which, from an economist's point of view, should provide guide-lines. The points made are in no sense original. They are intended to provide a framework for a discussion of a practicable planning method.

The paper, dealing as it does with general principles, will seem to the practical planner quite academic in tone. It seems likely that the possibility of applying such principles will be limited by the scarcity and cost of planning personnel. In so far as this is true, it is still appropriate that there should be an attempt to define "second best" methods.

ii. Planning Criteria.

A plan can be just a list of projects which seem desirable on a variety of ill defined criteria. Such a plan is probably better than no plan at all. If projects are specified in a planning document, then those responsible for the implementation of the plan have a set of guidelines within which to work and may proceed more vigorously than in the absence of any set of plans. If implemented properly a written plan enables each of the sections of the economy to have knowledge of the plans for other sectors, which facilitates coordination and integration and helps to encourage the private sector to implement their part of the plan.

Hopefully, however, a plan can be more than just a list of projects drawn up without a careful consideration of the consistency and efficiency of the plan taken as a whole. The consistency (or feasibility) of a plan may be viewed as a requirement to be met by a plan in a number of senses.

- (i) The investment requirements for each of the projects taken together should be no greater than the maximum amount of savings which can be generated if the target rate of growth for the economy is achieved. Since the individual projects will be drawn up by different committees and different people, there must be some master control over the total investment allocated to each sector in order that a realistic plan emerges in terms of the total investment required.
- (ii) Secondly, the amount of foreign exchange used up investment projects and the recurrent foreign exchange costs of each sector taken together should not exceed the total foreign exchange earnings during the life of the plan. Foreign exchange earnings include receipts from exports (less cost of consumer goods imports) and total long term capital imports either in the form of foreign government loans and grants or in the form of foreign private investment.

1. The principles discussed in this paper are treated in more detail in a book by the present authors with the assistance of C. Russell, Accounting and Economic Planning, Makerere University College, 1964, Part II pp.69-131.

Foreign exchange of course, is necessary for the purchase of imported goods and materials. For Uganda the foreign exchange cost (import content) of a project is nearly synonymous with the cost plant and equipment. Some sectors of the economy will also have high recurrent foreign exchange costs. This is particularly true of transport, for example, where petrol costs may be significant.

- (iii) The skilled manpower necessary to implement the investment projects plus the skilled manpower used in the day to day operations in each sector should not exceed the skilled manpower available. This seems like an obvious point, but unless there is a central check on the skilled manpower requirements of all projects together, there is no way of ensuring that consistency in this sense will be achieved.
- (iv) During the planning process each of the committees responsible for drawing up projects for the sectors may be allocated a specified amount of capital and also given a target rate of output for that sector. The target rate of output must be achievable with the capital allocated.
- (v) Finally, the plans for each of the sectors must be consistent with each other. Investment projects in one sector may only be worth-while if they are coordinated with investments in another sector. The recurrent operation of activities in one sector may require a coordinated and constant supply of intermediate inputs from other sectors. This type of consistency may be termed internal consistency. Internal consistency is a special problem with reference to the distribution, transportation, maintenance and engineering and public utilities sectors. The targets for these sectors must be set to ensure internal consistency.

While consistency is important and any realistic plan must contain some implied checks for consistency, a over-concern for consistency could result in plans less ambitious than would be possible. A very unambitious plan almost automatically will be consistent. Consistency only becomes difficult to achieve if the plan envisions an attempt to fully mobilize all the resources available in the economy. Targets must be set high enough so that a maximum effort would be required. High but achievable targets may in themselves stimulate the effort and encourage a full mobilization of resources.

Beyond the problems of consistency (or feasibility), lies the second major criterion which any reasonable plan should at least make an attempt to satisfy, that of efficiency. There may be many different feasible sets of plans which fully mobilize all resources, but among those sets of plans one would hope to come up with one that is not wasteful of resources in the sense that the return on the projects included in the plan are below the returns which could be achieved by alternative projects. In other words one wants to make the best use of the limited resources available. The resources which can be expected to be acutely limited in an East African environment are capital foreign exchange, and skilled manpower. The planned use of these resources within the limits of availability should be as closely as possible, maximize the sum of

monetary and non-monetary returns. If no attempt is made to maximize returns, then perhaps the plan will be a useful exercise but of limited value to the country,

In order to maximize returns, two conditions must be satisfied. The scarce or limited resources must be allocated among the various sectors in an optimal fashion. Secondly, within each sector, the scarce resources must be allocated among the different projects in an optimal manner. That is, the proper amount of limited resources must be allocated to each sector and given the allocation for each sector, the returns within the sector should be maximized.

III. The Planning Process - First Stage.

How are the criteria of consistency and efficiency incorporated into the planning process? The first stage in the planning process is to choose a target rate of growth for the whole economy. The rate of growth of the economy depends to a large extent on the rate of capital formation - the proportion of gross domestic product which goes into investment. In general the greater the rate of capital formation the greater the rate of growth. The rate at which capital is formed depends first of all on government tax and expenditure policy, secondly on private domestic saving and the propensity to invest out of savings, and thirdly on the rate at which foreign investors are willing to import capital into the country. Private domestic and foreign investment can be influenced by government taxation policy, government attitudes toward private domestic and foreign investors, government policy towards import protection and export taxes or subsidies, and the amount of economic infra-structure which the government is willing to provide for new industries. There is a limit, however, to the amount of investment which the government can undertake itself and the amount of private domestic and foreign investment which can be stimulated. Thus there is a limit on the achievable rate of growth. Initially, at least, a high rate of capital formation means that consumption must be reduced. Even if the government decided to takeover all the investment, there is a limit imposed by political considerations on the amount of goods the consumer is willing to give up. It must be kept in mind, however, that although initially consumption must be reduced to increase the rate of capital formation, the mechanics of growth indicate that in a relatively short period of time, the level of consumption may soon surpass the level which could be expected from a lower rate of capital formation. The first decision then must be to determine the best rate of capital formation and the target rate of growth corresponding to that rate of capital formation. This decision should be made, of course, at the highest level by cabinet ministers in consultation with the central planning bureau.

IV. The Planning Process - Second Stage.

The next stage in the process is to translate the overall growth objective into a set of target rates for the individual sectors or to allocate the overall investment target to the individual sectors. For example, Clark and Van Arkadie (EDRP 42) attempted to use a simple model of economic growth in Uganda to define the investment effort needed and the structural change likely for the achievement of the overall growth targets the Uganda government had set itself. This analysis involved no

attempt to study the likely project composition of the next plan and, insofar as there were differences in the expected rates of growth of the different sectors, these were derived either directly from assumptions regarding the desired structural change or flowed from the high levels of aggregate investment resulting from the overall growth goal. There was no analysis of the rates of return within the detailed sectors.

At this stage it is probably necessary that the balance between major sectors be set more by reference to an a priori view of the strategy of development than by an empirical analysis of costs and returns. Moreover, because the detail involved is still very limited problems of co-ordination are not crucial. As the plan is translated into detailed projects with specific locations the problem of co-ordination of different parts of the plan becomes critical. That is, the bill for total transport investment is likely to be consistent with a range of different manufacturing expansion programmes; however, when a particular manufacturing plant is created, then some part of the overall transport investment bill must be allocated to quite specific transport facilities complementary to the particular industrial project. Further, the total investment effort has to be allocated between the various sectors in a fashion which is both consistent with the growth goals of the particular sectors and with the overall investment effort initially envisaged. If the investment is allocated to the various sectors inefficiently, the growth target for the economy may not be achieved.

v The Planning Process - Third Stage.

The third stage of the planning process is the allocation of investment among the different projects in each sector. At this stage of the planning process a much wider range of administrators must be included than at the earlier stages, which were mainly the concern of the highest political authority and the central planning staff. This stage therefore involves the most serious administrative difficulties as it probably involves many advisors who are not familiar with the rationale of planning but are included because of special expertise within their own field. This stage is crucial because it translates the overall objectives into the actual projects which give reality to the grand design.

The task of the central planner at this stage is one of co-ordination and communication. There are two tactics the central planning staff must adopt. First they must explain as fully as possible to the sectoral planning groups the overall strategy of the plan and the place in the strategy of their own sector. Secondly detailed guidelines for project evaluation within the sector should be provided.

Before treating these two points in detail, it is worth-while to consider the administrative questions of the means of communication between the central planning group and the sector groups. There is a range of possibilities. Each sector group will contain a member of the central planning staff who is responsible for maintaining a two-way flow of information. The central staff can issue documentary material both in the form of specific terms of reference and in the form of more general information regarding progress and design of the plan. Finally all those participating in the planning process could be called together from time to time into a general planning conference for the general exchange of ideas and to receive, from the highest level, some sense of common purpose and feeling of what the plan is to achieve as a whole.

We have suggested that the guidance given to the sectoral groups must include as full an explanation as possible of the overall strategy of the plan. The reason for this goes to very heart of the theory of comprehensive planning. Comprehensive planning is essential for development because it breaks through the vicious circle in which poor development in one part of the economy limits the expansion which seems possible in the other sectors. Comprehensive planning, by co-ordinating a number of sectors and adapting public policy to the needs of expansion, plans a growth in markets and of facilities which would not otherwise seem possible to the individual businessman or particular government department. That is, the suggestions within the plan being made for the expansion of one sector will only seem reasonable in the light of the planned growth of the other sectors. Quite apart from detailed analysis of local markets which will obviously depend on the behaviour of other parts of the economy, the more general set of overall expectations must depend on what is happening throughout the economy. Put another way, the right degree of ambition will only be achieved by the sectoral groups if they understand and accept the grand design for growth and change.

For this purpose as much of the picture of what is going to happen to the economy, implicit in the second stage of the plan, should be transmitted to all individuals participating in the planning process as is consistent with the desires of the planning authority to avoid premature public commitment to specific targets. This involves an interpretation in non-technical terms of the planning documents produced at the second stage of the plan.

At the third stage of the planning process problems of consistency become most acute and at this stage more specific attempts can be made to achieve efficiency. In addition to communicating the overall strategy decisions concerning the plans to those on the sectoral working parties at the very outset, the planners or planning committees should also be given some detailed guidelines or criteria for choosing among the various investment projects. If no criteria are given, then there is the danger that sectoral planners will trot out their pet projects and schemes. The various sector plans are likely to be uneven in quality and based on a variety of, and perhaps conflicting, criteria. An initial set of plans for each sector, once submitted, tends to acquire the ardent support of those who formulated them. Vested interests are created which tend to make it administratively difficult to change the initial set of plans. Hence much importance should be attached to ensuring that the original plans are formulated along reasonable lines.

The guidelines given to the sectoral planners should specify that both monetary and non-monetary returns to various projects should be considered. Government policy toward different types of non-monetary returns should be specified. An appeal to non-monetary returns should not be used to justify any project but the value to be placed on different types of non-monetary returns should be stated fairly specifically.

Secondly, the guidelines should emphasize that certain resources are relatively scarce and need to be economized. The resources which are to be economized probably include foreign exchange, skilled labour, and capital. In general it is probably safe to say that local costs - both recurrent and capital, - are relatively less scarce in a real sense than

foreign costs. A no less real problem may arise, however, if both the public and private sectors find it difficult to finance local costs. In the case of Uganda which lacks a central bank, financing of local costs could be a problem for the next five year plan. It is imperative that some aspects of the plan deal with the problem of obtaining the necessary local finance. It would be a tragedy if the government had to plan on being severely restricted in the amount of local capital which can be raised especially for financing labour intensive projects or projects which include large inputs from the construction industry which tends to run at excess capacity except during periods of very high rates of growth.

Ideally in drawing up the sectoral plans, the sectoral committees should make a full cost benefit analysis of each project. Where this is not possible, at least an attempt should be made to calculate the ratios of capital, import costs, and skilled labours to value added. In general all of these ratios ought to be minimized. In many (probably most) cases these requirements conflict, e.g. a low ratio of import costs to value-added may be accompanied by a high ratio of skilled manpower to value added. In such instances one of the ratios can be given priority, depending on which of the resources is deemed to be the most scarce. For example a maximum value may be placed on the skilled manpower and capital cost to value added ratios and the sectoral planners told to choose those projects which minimize the foreign exchange costs per unit of value added.

If full project evaluations can be made, then one of two approaches can be used: (1) Each sector is given a target and the committee responsible for plans within a sector is told to minimize the cost of achieving the specified target rate of output on the basis of their project evaluations. (2) A specified amount of capital is allocated to each sector and the sector committee told to maximize the total returns (value of output less costs) on their allocated amount of capital. For some sectors it is extremely difficult to formulate gross output targets. This applies especially in the case of government activities, social overheads and other services. In these cases the solution may be to use the second planning method - allocate a given amount of capital and ask the sectoral planners to maximize the returns. For example, this procedure would probably be desirable in the case of the transport sector. It is extremely difficult to assess the results of any project in terms of an increase in output of vehicle-miles or ton-miles, especially for projects where the main benefits are in the decrease in transport costs which evidences itself in an increase in output of other sectors. For some sectors, however, it would be relatively easy to set targets in terms of gross output. For these sectors the first planning method would be used. This would result in a combination of the two planning procedures for which it would be more difficult to set out general principles to follow but which would be the more feasible in practical terms.

Cost Standardization.

In making their project evaluations the crucial point is that the method of calculating costs ought to be standardized. As much as possible costs should be divided into several categories. First of all the distinction between capital and recurrent costs must be made clear. This involves many problems of measurement. For example, the distinction between maintenance, a recurrent costs, and other capital costs is not always clear. Second, the local capital cost (involving purchase of local capital goods) should be kept distinct from the foreign capital cost (involving

purchases of imported capital goods). In a country such as Uganda, this distinction largely reduces to the difference between costs of equipment and costs of construction. The foreign capital cost involves not only direct purchases of capital equipment from abroad but the import content of capital goods produced locally. Third, the recurrent costs, should also be divided between local costs and costs of recurrent imports. Finally, labour costs of highly skilled manpower should be distinct from unskilled labour costs.

Two broad alternative methods of calculating costs are available: (1) costs may be converted to a present value basis (this also requires that the value of all future output be reduced to its present value), and (2) all costs may be reduced to an annual basis. The cost of capital is automatically on a present value basis. Recurrent costs and value of output are normally stated on an annual basis. Thus reducing everything to present value requires the reduction of all recurrent costs and annual outputs to a present value basis which involves the choice of an appropriate discount rate. If everything is reduced to an annual basis, then capital costs must be stated on an average annual basis and appropriate interest charges must be determined. Each of these methods for calculating costs and returns has its disadvantages. The second method is the easier of the two since it does not require a knowledge of the time path of future costs and benefits, but it is not nearly as powerful as the present value basis for distinguishing between projects some of which may take considerable time to reach fruition.

The major difficulties of the present value basis are involved in predicting the future cost and benefit pattern and choosing an appropriate rate at which to discount the future costs and returns. The major difficulties with the annual basis is the determination of the rate of amortization or depreciation, the rate of interest, and the future year for which the annual returns of various projects are to be compared.

The discount rate or the rate of interest on capital should be the same for every project with certain exceptions. The rate which is used should not necessarily be the actual rate on a loan which can be obtained to finance the project. The only instances in which actual loan rates should be used is if it is ascertained that if the finance were not used for a particular project, then that much less finance would be forthcoming for the duration of the plan.

The rate at which the capital cost is to be written off on an annual basis should be related to the actual life of the capital goods. It is not always a simple task to determine the useful life of any capital good. An exception to this procedure may occur if a project can only be financed through short term loans which fall due long before the useful life of the capital goods purchased. The extra cost of financing (including a risk premium to cover possible increases in interest rates) periodically can be added to the cost of the project.

When returns on an annual basis are being compared for different projects, the same future year should be used as a basis of comparison, perhaps the last year of the planning period. The major difficulty with this procedure is that long maturing investments would look bad in such a comparison. In such cases the procedure would be to take several different future years and convert the returns for each of the years into the common year for comparison using an appropriate rate of discount and take the average the discounted annual returns for sake of comparison.

Finally, in calculating costs the central planning committee may want to specify that market prices are not necessarily to be used in calculating returns from projects. First of all a valuation may be placed on non-monetary benefits and secondly, costs may be based on the fact that certain resources may be more scarce than is indicated by the market price while other resources will have a higher price than is indicated by their relative scarcity. The prices which are assigned to various types of benefits and various resources according to their relative scarcity are called "shadow prices".

Re-evaluation.

The planning process as outlined above includes three stages: (1) the formulation of the target rate of growth and target rate of capital formation (2) formulation of specific target rates for sectors and/or an allocation of the available capital to each sector, and (3) The drawing up of sectoral plans to include specific projects. Once these three stages are completed, the planning process is not necessarily finished. Checks for consistency and optimality are in order at this point. The sectoral plans can be combined to check whether they supply a greater amount of capital formation than is deemed feasible or whether the rate of growth implied by the sectoral plans is consistent with the overall target rate of output. Requirements for skilled manpower and foreign exchange can also be checked for consistency.

After checking for consistency, the central planning bureau may want to adjust target rates upwards or downwards or capital allocation upwards or downwards, depending on whether these seem to be a general lack or abundance of the scarce resources to carry out the combined sectoral plans. Secondly, to the extent that project evaluations have been carried out, the targets rates of those sectors where the marginal cost per pound's worth of output is relatively low may be adjusted so that they are relatively higher. Similarly relatively more capital may be allocated to those sectors where the marginal returns per unit of capital are relatively high. Finally the guidelines concerning the choice of projects may have to be changed. If skilled manpower emerges as the major constraint then emphasis must be shifted to the skilled manpower - output ratio rather than the capital-output or foreign exchange-output ratios. If shadow prices are used, the resources which seem to present the major bottlenecks should have their shadow prices raised. Then the sectoral committees can be asked to submit revised project plans on the basis of the new guidelines, target rates, capital allocations and shadow prices. The process may be repeated several times until a satisfactory set of plans emerges.