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Agenda item 4a

BI - AND MULTILATERAL AID GRANTED ✓
BY THE UNITED KINGDOM TO DEVELOPING COUNTRIES
IN THE FIELD OF THE CONSTRUCTION INDUSTRY

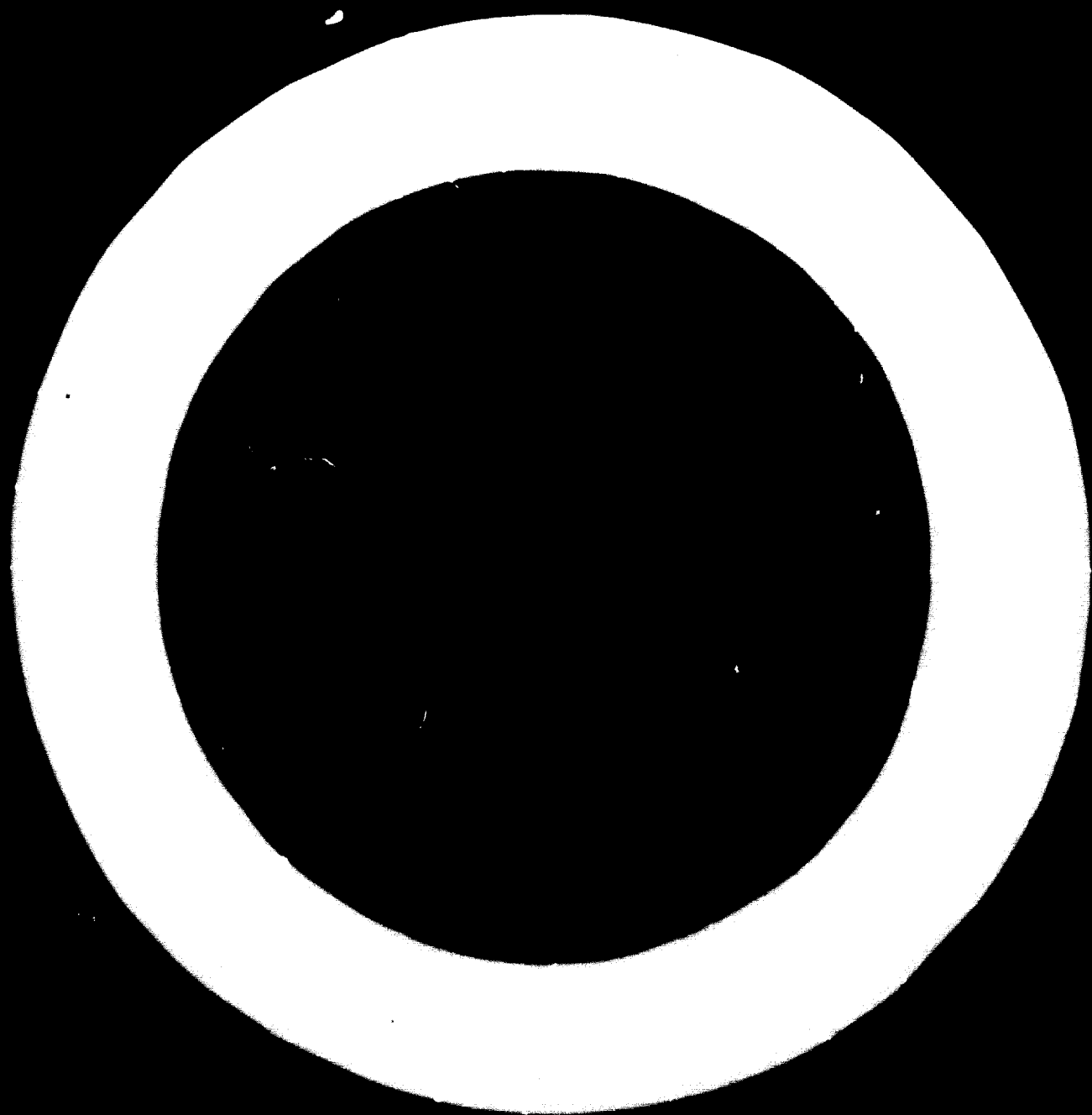
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SUMMARY

Although a considerable amount of assistance has been available for many years on the financing of individual capital projects, it is only recently that the U.K. has embarked on work that is specifically intended to promote the growth and stability of indigenous construction industries in developing countries.

In fact, although the series of 'one-off' management training courses for local contractors that have been organised in a number of African countries over the past few years by the UNECA have been valuable initiatives, there is a general lack of appreciation of the potential role of an indigenous construction industry in national development. Yet governments and development agencies are important clients of the industry and are thus in a strong position to influence the performance and direction of construction activity.

This general gap in aid programmes led the U.K.-based Intermediate Technology Development Group to put forward a proposal for 'Technological and Procedural Guidance to the construction industries of less developed countries.' This project was financed by the Overseas Development Administration, Foreign and Commonwealth Office (then the Ministry of Overseas Development) for the initial period 1969-72.

In order to avoid too great a degree of diffusion of work and interest, it was decided that this initial project should be limited mainly to African countries, and particular attention was given to work in Nigeria and Kenya. Since inadequate construction management skills were identified as one of the main constraints on indigenous construction capacity in a number of African countries, it was decided that the attention of the project should be concentrated on two particular areas of work:-

1. The identification of relevant management techniques for indigenous building contractors.
2. The subsequent exploration of appropriate teaching material and effective management techniques.

In Nigeria a series of four day 'conventions' were held for contractors and government offices of each of the six Northern States. At these conventions, prepared teaching material covering elementary management skills for small building firms was presented to the participants, using a variety of techniques including lectures, seminars, films, exhibitions and dramatisations. Visual aids also formed a vital part of the programmes, as it was felt that the many contractors with a limited experience of formal education would find it easier to absorb visually-presented and enlivened material rather than merely verbal expositions. Since relatively few of the participants were really fluent in the English language, it was encouraging that they showed themselves willing and able to absorb the information and techniques presented to them and felt that they could be usefully applied in their working life.

The experience gained in Nigeria led to an invitation to work with the training staff of the Kenya National Construction Corporation on the preparation of specialized course material for use in their training programme for Kenyan building contractors. This gave the project team an opportunity to further develop their training methods and media in the rather different economic and social environment of East Africa.

As a result of these opportunities to study at first hand the reaction of practical African businessmen to a construction management training programme, ITDG have produced a series of teaching aids, which can form the basis of a comprehensive construction industry training programme. It is suggested that subject areas which should be particularly emphasized in such a programme include:

1. the business management of a contracting firm including marketing, book-keeping and accounting, estimating and tendering, cost control, budgeting and forward planning.

2. the operational management of building projects including contract procedure, site layout and organisation, job programming, plant management and maintenance, purchasing and storing of materials.
3. personnel and supervisory management with particular emphasis on intermediate technologies and labour-intensive techniques.

The final section of the paper proposes certain measures to encourage the organisation of modern construction production in developing countries. It emphasises the fact that the one resource which is usually in abundant supply in developing countries is unskilled manpower, and that many construction industry operations are capable of adjustment to maximise their local labour content. Many of the difficulties that stem from the greater strain that is thereby thrown on managerial and technical resources can be minimised by the prior implementation of properly planned training and development schemes.

Following a discussion of the initiatives of the Kenya National Construction Corporation in this field, the paper emphasises the importance of formulating policies covering tender procedure, contract finance and administration most likely to encourage the development of a capable, self-reliant indigenous building industry.

1. FORMS OF ASSISTANCE TO DEVELOPING COUNTRIES IN THE CONSTRUCTION FIELD.

- 1.1 The latest published figures for the United Kingdom's overseas aid expenditure ¹ show that the aid programme together with other contributions to development amounted to a total gross figure of £277.9 millions in 1971, compared with £218.8 million in 1970. The nett figure for aid disbursements, taking into account capital repayments was £255.8 millions or 0.42 of the Gross National Product. These figures compared with £188.9 millions or 0.37 per cent respectively in the previous year.
- 1.2 Nett private financial flows in 1971 were considerably larger at £416.7 millions or 0.74 per cent of GNP. Thus total (private plus official) nett flows in 1971 amounted to £652.5 millions, representing 1.15 per cent of GNP or rather more than the 1 per cent of GNP target set for donor countries by the United Nations Conference on Trade and Development in 1968. However, the 0.7 per cent target for official aid has not been reached and the proportion of official aid declined sharply from 0.53 per cent in 1964 to 0.37 per cent in 1970. Although it is again beginning to rise, the British Government does not accept the need for a separate official aid target.
- 1.3 Of the £268.9 millions gross disbursements under the aid programme, some £238.5 millions was in the form of bilateral aid, and £30.5 millions was channelled through international agencies such as the International Development Association and the United Nations Development Programme. Of the total

1. British Aid Statistics - Statistics of Economic Aid to Developing Countries. 1967-71. H.M.S.O.

bilateral aid, £48.4 millions were in the form of financial grant, £121.6 millions were inter-Government loans, £53.4 millions were for technical assistance of various kinds and £15.2 millions were advances to the Commonwealth Development Corporation.

Most of the United Kingdom's bilateral aid continues to be directed to Commonwealth countries, and in 1971 the figure was over three-quarters of the total at £218.0 millions. Of this £93.3 millions went to Commonwealth countries in Asia, £65.0 millions to those in Africa and £24.5 millions to the Carribean. A large proportion of the total bilateral aid programme consists of direct technical and training programmes and at the end of 1971 there were 12,881 British men and women, financed bilaterally from U.K. public funds, serving in the developing countries.

4 Although a considerable amount of assistance has been available for many years on the financing of individual capital projects, it is only recently that the U.K. has embarked on work that is specifically intended to promote the growth and stability of indigenous construction industries in developing countries. This is perhaps surprising since the U.K. construction research organisations, particularly the Overseas Division of the Building Research Station and the Tropical Section of the Road Research Laboratory, have made a very significant contribution to research, classification and dissemination of information on design and construction techniques and the proper use of materials. Unfortunately, this leaves many developing countries heavily reliant on imported building materials and expatriate skills for their construction capacity and, more seriously, for their long-term economic health, without co-ordinated training and development plans to encourage the growth of local construction capacity.

1.5 Many direct economic disadvantages are associated with the external supply of building materials and construction services, besides the fact that this situation makes the country concerned uncomfortably dependent on these sources for its commercial health. For example, in many African countries in the recent past expatriate firms had a virtual monopoly of government-financed construction work as well as effective dominance in the private industrial, commercial and housing sectors. Since inclusion on approved lists of contractors and invitations to tender have, understandably, been based on evidence of experience, adequate financial and physical resources, together with high attainments in the art and science of construction management, it is particularly difficult for indigenous entrepreneurs to make their way in the industry without assistance. Thus the expatriate firms are well placed to maintain their position, raising capital locally, spending much of it on imported machinery, materials and expatriate staff and then exporting their profits at the end. Thus, of the half of their capital expenditure that most developing countries spend on building and civil engineering works, a substantial proportion is spent externally and a major chance to create valuable employment opportunities is lost.

1.6 Few countries and development agencies have even recognised the scale of the problem and the consequent need for a comprehensive approach to the encouragement of a self-sufficient local construction industry. Yet governments are important clients of the industry and are thus in a strong position to influence the performance and direction of construction activity. There are growing signs that many developing countries wish to see the indigenous contractor playing an increasingly important part in the implementation of their development plans.

7 Examples of the sort of assistance that has been given to these industries are the series of 'one-off' management training courses for local contractors in a number of African countries that have been organised over the last few years by the Economic Commission for Africa. These have been valuable initiatives but, due to their 'one-off' nature, could only serve as a demonstration of the possibilities of contractor training which could be consolidated by a properly-planned training programme.

8 A more sustained example of systematic contractor training and development is the Kenya National Construction Corporation Limited, which is a joint venture between the Kenya Government and NOARD, the Norwegian aid agency. It was set up in 1967 with the aim of training indigenous contractors and thus enabling them to undertake a larger proportion of the building and construction work in the country. Although it is organised as a limited company, the Corporation operates wholly within the public sector and a majority of the Directors represent interested Government Departments. The Corporation assists local contractors in three ways:

- Allocation and supervision of Government and other contracts.
- Short term loan finance to provide working capital.
- Training and educational facilities.

An assessment of the training aspects of the work of the Corporation during its first five years is given in an Intermediate Technology Development Group publication written by the author. 1

1 - The National Construction Corporation, Kenya: a Study of an African Contractor Training Corporation. IT Building Information Paper No. 7.

1.9 However it was clear that there was a general lack of appreciation of the potential and needs of developing construction industries. Thus the U.K. Intermediate Technology Development Group Limited, a U.K. based non-profit making development group, put forward a proposal dated 18th October, 1968 for "Technological and Procedural guidance to the construction industries of less developed countries." The general aim of this project was to help improve the efficiency of local building operations in developing countries by making available to local construction industries guidance on appropriate technology and business procedures. This project was financed by the Overseas Development Administration, Foreign and Commonwealth Office (then the Ministry of Overseas Development) for the period 1969-72.

1.10 The original project proposal put forward four main hypotheses:

1. The 'intermediate' level of construction, which lies between the traditional activities of rural builders and the advanced technology of European-type enterprises, is of particular importance in developing countries: and the need is to promote the business and industrial efficiencies of this category of construction activity.
2. The performance of intermediate-level construction represented by such key individuals as the small contractor, the manufacturer, merchant and foreman can be improved by making available to them guidance devised specifically for their needs. It is believed that the kind of information most urgently needed relates less to the design of buildings which has received more emphasis in the past, than to technology and procedure necessary to the whole process of construction from materials extraction to assembly.
3. While there are some pointers to the kind of information needed by intermediate level builders, there is much

less certainty about ways of effectively communicating it to them.

- 4. It was recognised that the direct influence of one small team working in this field was bound to be limited. It was therefore intended to organise the programme in such a way as to draw upon the appropriate specialists and research and professional institutions throughout the course of the enquiry in such a way as to prepare the ground for an extended application of the findings.

In order to achieve the general aim, in accordance with the above hypotheses, ITDG put forward four individual objectives.

- 1. It would first be necessary to determine the precise nature of the guidance to be given, within the overall framework of technological and procedural guidance in accordance with the needs of the accessible users.
- 2. This would involve the identification of groups of potential users, so that it would be possible to establish how appropriate knowledge and information could be communicated to them.
- 3. The preparation of training material, covering technological and procedural guidance in the form best suited to the needs of intermediate level builders in developing countries.
- 4. To prepare the ground for an extended application of findings to expand and build on the inevitably limited direct influence of the IF Building project team.

2.

THE GRANTING OF ASSISTANCE BY THE UNITED KINGDOM TO
DEVELOPING COUNTRIES, ESPECIALLY OFFERING THEM THE OPPORTUNITY
TO ESTABLISH OR IMPROVE CONSTRUCTION INDUSTRIES.

2.1

The first decision that was required was whether to base the project in the United Kingdom or in a specific developing country. Although the latter course had obvious attractions, it was felt to be too limiting for the initial research phase for the following reasons:

1. The project utilises and interprets work on construction policy, management development and adult educational methodology, that is much more readily available in the U.K.
2. An important aspect of the project's task was seen as motivational, in the sense of emphasising the crucial role of an efficient and effective local construction industry in the implementation of development programmes. This required a close and continuing relationship with international government, development, aid and research bodies based in the U.K. and in Europe.
3. It was realised that the research findings would have more general relevance and application if based on work in a range of different countries and regions. A project with this spread is more easily administered from a European base.
4. It is easier to obtain high calibre staff to provide specialist advice, if they do not have to sever all contact with their institutions and centres of expertise and learning in the U.K.
5. The production of adequate teaching/learning material is easier and cheaper in the U.K., and the material itself has a more general relevance if it has been tested in a number of different countries and regions.

2 In order to avoid too great a degree of diffusion of work and interest it was decided that this initial project should concern itself mainly with African countries, and particular attention was given to work in Nigeria and Kenya.

3 Inadequate construction management skills were identified as one of the main constraints on indigenous construction capacity, irrespective of the way in which that capacity was organised. Whether building is done by private contractors, government-owned units, cooperatives or self-help groups, the need for effective and flexible management of resources is crucial. Although a good deal of attention has been given to the design of buildings of various kinds, the cost and durability of the structure depends to a very great extent on those concerned with the process of construction - In Nigeria and Kenya the local building contractors. Thus it was decided that the attention of the project should be concentrated on two particular areas:-

1. The identification of relevant management techniques for indigenous building contractors.
2. The subsequent exploration of appropriate teaching material and effective management techniques.

4 In Nigeria work started with government-registered building contractors in the northern States. One reason for the project starting its practical research work in Nigeria was the recognised high cost of construction and the need for economies. The Nigerian Development Plan 1962-68 commented: 1

"The (Federal and State) Governments hope to effect considerable economies so as to provide the same amenities at much cheaper cost both by bulk purchases

1 - Federal Government of Nigeria National Development Plan 1962-68.

"and simplified design. By the use of raw materials, proper timing and above all by rigid adherence to accepted tender procedures, as well as by increasing the degree of standardisation, it is hoped that such costs can effectively be lowered".

But these hopes were not fulfilled, and it was later estimated that instead of building costs in Nigeria being 20 per cent below comparable U.K. figures as would be expected from a comparison of price levels and wage rates, the actual difference was only 5 per cent. This was attributed to the high cost of imported materials, high profit margins, contractual inefficiencies, together with wastage of manpower and materials. Furthermore, transportation and distribution difficulties can increase average costs by between 5 and 20 per cent for projects remote from urban centres.

One reason for these high costs is the fragmented state of the indigenous construction industry. There are a great many building contracting firms, although only a small proportion of these have a serious commitment to the industry. Many are basically traders, and others are attracted by the apparent high profit margins that contractors enjoy. This superfluity of contractors leads to a high degree of competition for the limited number of contracts available, although this is not matched by economical prices for the client since the contractor's unit prices have to take account of the sporadic nature of their work load.

2.5 Thus it appeared that there would be considerable advantages to be gained from a greater degree of specialisation and long term commitment to the construction industry on the part of the local contractors, and an initial feasibility

study suggested that the maximal potential was to be found in the six northern states. Contact was made with the administrators at State level concerned with building programmes, and their assessment of the training needs of contractors was checked with the builders themselves. With the cooperation of the State governments a series of six four-day conventions for contractors and government technical officers was arranged.

2.6

At these 'conventions', prepared teaching material covering elementary management skills for small building firms was presented to the contractors, using a variety of techniques including lectures, seminars, films, exhibitions and dramatisations. Visual aids also formed a vital part of the programmes, and it was felt that the many contractors with a limited experience of formal education would find it easier to absorb visually-presented and enlivened material rather than merely verbal material. Thus the conventions were a test of the project staff's understanding of local contractors' needs and whether the teaching techniques were suitable, as well as of the contractors' ability to learn.

2.7

The conventions were a surprising success. Surprising because it had been predicted that proprietors and managers of small-scale Nigerian contracting firms would not leave their work to travel at their own expense several hundred miles for a short course; and successful because all the 150 participants requested further training opportunities of longer duration. It became clear that the great need was for advice on management and business methods, but the problem of training contractors who have had little or no formal education presented a serious challenge. In fact the educational background of the 24 contractors who attended the conventions was as follows (the remaining 66 participants were government officers and others):-

Educational Background	Number of Contractors
No formal education	25
Islamic primary school	13
Local authority primary school	19
More than primary education:	
Secondary school	7
Government Craft School	2
Technical/Trade School	4
Teachers Training College	1
University	3
Total	54

Since relatively few of the participants were really fluent in the English language, it was encouraging that the participants showed themselves willing and able to absorb information of some complexity provided that it was presented a little at a time, with full use of visual and other aids, and in a way that ensured their full participation. A full description of the conventions, together with an assessment of the training needs of Nigerian contractors is given in IT Building Information Paper No. 2.¹

2.8 The experience gained in Nigeria led to an invitation to work with the training staff of the Kenya National Construction Corporation Limited, on the preparation of specialised course material for use in their training programme for Kenyan building contractors. This gave the project team an opportunity to further develop their contractor training methods and media in the rather different economic and social environment of East Africa. As a result of this further opportunity to study

1- "Educational Strategy for Nigerian Building Contractors".
IT Building Information Paper No. 2. ITD. London 1973.

at first hand the reaction of practical African businessmen to a construction management training programme the team produced a series of teaching kits covering various topics associated with the running of a building business in a developing country,

2.9 Each kit has a distinct management theme, such as "How to Estimate and Tender" and "Planning and the Contractor", and consists of two lectures and a dramatisation or simulation exercise which can be adapted to suit the level of the participants. The underlying idea is that an over-theoretical approach to training in construction management and commercial practice is counter-productive, and that there is a great need for training methods and media that can teach a basic business background in such a way that it can be applied by practical men concerned with running building organisations. The kits are intended for use in polytechnics or practical training institutions by teachers of basic building management. They are designed to pre-organise the teachers' material, guide him in its use, and provide accompanying teaching aids. They form a complete elementary management series useful to teachers in many different African countries and situations.

2.10 It is felt that one of the key achievements of the project was to highlight the need for greater attention to the process aspect of construction, with a view to increasing the managerial efficiency of those responsible, whether they are contractors, government employees or members of cooperatives. As a result of the practical work carried out by project personnel in Nigeria and Kenya, it became clear that construction activity in a developing country can suffer considerably from a general lack of training in basic administrative and management skills. Project staff have since visited a number of other African countries, and it appeared that most of these could derive

very appreciable advantages from the introduction of carefully-planned, comprehensive construction industry training programmes. It is particularly important that these programmes should place overwhelming emphasis on the communication of simplified and easily-applied managerial techniques covering planning, site organisation, financial management and control. An over-theoretical approach is pointless in the context of a developing economy, and the courses should be production-oriented.

2.11

Although many Ministries of Works, Housing Corporations and public bodies could benefit from these programmes, a group which seems to suffer general neglect is the indigenous building contracting industry. Despite their crucial role in the development of their countries, and the general dependence on local contractors to complete capital investment programmes, these contractors are usually left to fend for themselves and many reel the lack of managerial expertise. This is particularly important when, as is often the case, the average contractor lacks both experience of the construction business and substantial financial backing. The IT Building study of the practices, problems and needs of the Kenyan building contractor¹ demonstrated that most contractors had either gained experience as a building supervisor with a government organisation or ministry or had secured profits from some other form of business and were attracted by the apparently high returns available on contract work. Unfortunately the skills which they have demonstrated in these other fields are not necessarily skills which are directly transferable. The ex-Building Supervisor may lack an appreciation of the need to

1 - Kenyan Building Contractors; Practices, Problems and Needs. IT Building Information Paper No. 8. ITDG London.

complete work to a target figure of profit as well as to the specified dimensions and quality, whereas the man with outside business experience may lack an appreciation of the technical problems of organising a building site and become impatient with the long period from tendering for the work, through obtaining the contract and completing the work to final release of the retention money at the end of the maintenance period.

- .12 Although a number of proprietors of contracting firms received a measure of technical training in craft schools, technical colleges or polytechnics they usually have to pick up their knowledge of project organisation and financial and office management by trial and error. This is a major restraint on the successful development of competent and resourceful indigenous construction firms.
- .13 Even in countries which have placed a greater emphasis on carrying out building work by publicly-owned organisations, or by encouraging self-help or cooperative schemes, the need for proper construction management remains. In fact, the lack of the external financial discipline imposed by competitive situations is a further major reason for applying effective managerial controls. Unfortunately cooperative and self-help schemes, set up with a reservoir of goodwill and community spirit and applying intermediate and appropriate technologies, sometimes founder as a result of loose or non-existent administrative and managerial control.
- .14 One of the roles of the project has been motivational, in the sense of increasing the awareness of agencies and government departments of the nature and scale of the construction problem which they face. As a result of this work of the project since its inception in 1969, there is an increasing appreciation of the potential advantages that can accrue from a properly-mounted and comprehensive construction industry training programme.

2.15

The project staff has built up a substantial knowledge of ways of communicating basic construction management techniques relevant to the needs of indigenous African building contractors. Their experience and research suggests that subjects which are particularly deserving of attention include:-

1. The business management of a contracting firm including marketing, book keeping and accounting, estimating and tendering, cost control, budgeting and forward planning.
2. The operational management of building projects including contract procedure, site layout and organisation, job programming, plant management and maintenance, purchasing and storing of materials.
3. Personnel and supervisory management with particular emphasis on intermediate technologies and labour-intensive techniques.

2.16

Emphasis has been placed on the need to formulate management development strategies for individuals, firms and public bodies recognising that participation in individual courses and seminars can only be fully effective in the context of an overall development path for the manager and his organisation. In the case of contracting firms, this should include practical on site operational advice as well as classroom tuition.

101

PROPOSALS ON ORGANISING LOCAL CONSTRUCTION PRODUCTION IN DEVELOPING COUNTRIES.

3.1 In framing recommendations to improve the quality and output of indigenous construction industries in developing countries, attention must first be given to the levels of resources available. This of course varies from country to country, but finance appears to be an almost universal constraint. The availability of materials also varies, and this is sometimes a failure to capitalise on a country's indigenous natural resources and a tendency to import expensive foreign substitutes at considerable cost to the balance of payments, as well as removing an opportunity for gainful employment in the indigenous building materials industry concerned. In general plant requirements are seldom a real constraint on the modernising of a construction industry, unless one defines a modern industry as a carbon copy of a typical construction industry in a developed country. The priority should be to fit the structure and nature of the industry to the social and economic needs of the country concerned. This priority is now beginning to be accepted as crucial to a country's economic development, and an instance is the following comment from the Hirsch report on possible employment and income policies for Iran.¹

"Most cost-benefit analyses should be conducted not only at the level of the individual firm but also at the country level. It may be apparently profitable for an Iranian building contractor to use costly imported earth-moving machinery, but a more careful assessment of the true prices of capital and labour in the course of feasibility studies might prove the proposition to be less interesting than appears at first sight. More

1 - Employment and Income Policies for Iran. I.B.C. 1973

"More important, however, is the fact that imports of foreign machinery cost, in this particular case, be regarded as imports of foreign labour which keep Iranian labour out of potential employment. In most cases; in terms of national value added, labour-intensive construction techniques provide higher returns. When rates of returns are calculated, the social cost of not employing available local labour is very seldom taken into account."

3.2 In fact the one resource which is usually in abundant supply in developing countries is unskilled manpower, and many operations of the construction industry are capable of adjustment to maximise their labour content. It may appear surprising that greater use has not been made of labour-intensive methods and techniques, but there have been difficulties in the way of their ready acceptance. Most important among these is the apparently greater strain that is thrown on managerial and technical resources by these methods. Unfortunately the potential advantages are seldom fully appreciated by planning and finance ministries, with the result that the training programmes which could be formulated to meet this need are not put into operation. Thus one crucial factor in the encouragement of construction industries which accord with the needs of developing countries is the limited work that has been done on construction training schemes.

3.3 One very interesting institutional example is the Kenya National Construction Corporation Limited, mentioned earlier, which is a joint venture of N O R A D (the Norwegian Aid Agency) and the Kenya Government. The Corporation was set up in 1967 with the objective of sponsoring Kenyan contractors and encouraging them to enter the construction field, and thereby further the Kenya Government's general policy of Africanisation. This policy was promulgated after Independence, but, in general,

the African contractors were insufficiently experienced and lacked the necessary finance to handle a substantial proportion of the construction programme.

.4 The first approach of N.C.C. was to introduce a 'Loans and Supervision scheme'. This has been the subject of the several phases of modification. At the outset of the scheme any indigenous contractor was free to come to N.C.C. if he had obtained a government contract, and was very likely to receive a loan from the Corporation to enable him to finance the project. Lack of adequate administrative machinery to vet, control and recover loans, however, caused problems. The Corporation found itself faced with a series of bad debts, and it was felt that a more discriminative system would have to be evolved.

.5 From mid-1968 the Corporation was awarded, effectively as the 'main contractor', most of the grant-aided secondary school building programme of the country. Up to the middle of 1970, 230 school projects were commissioned according to this procedure. All the works were sub-contracted to selected African contractors under close supervision of the N.C.C. staff, with working capital being loaned by the Corporation where necessary. All consultancy and training services rendered to the sub-contractors have been free of charge apart from loans, on which a small interest payment is levied on the outstanding amount on an overdraft basis. An essential aspect of the whole exercise is that fair unit prices are negotiated, so that the sub-contractors are able to accumulate private working capital. This practical construction work has continued, with contracts being undertaken for a number of Government Ministries, local authorities and occasionally for private clients.

3.6

The N.C.C. have established the important principle of selection. Realising that continuous employment is of paramount importance if the contractors are to succeed in their efforts to improve and expand, the Corporation in collaboration with the Ministry of Works and the Contractors' Association formed a committee to deal with selection, classification and registration of contractors. A number of the more promising contractors have been selected for inclusion on a list, containing at present approximately 60 names, and every endeavour is made to keep these contractors at work continuously. The system, however, is not exclusive and other contractors may be awarded contracts and seek advice and assistance from N.C.C. staff, and apply for loans.

3.7

It was intended from the start that the N.C.C. also organise formal training sessions, but at first these were rather random two and three day seminars held in the provinces. In mid-1970, however, a full-time Training Section staffed by two Norwegians was commenced. IT Building were commissioned to act as educational consultants and have produced teaching material and aids for use on N.C.C. courses. Over the following twelve-month period a total of 20 three/four day courses were run in various parts of the country, with a total participation of 363 proprietors and staff of local contracting firms; subjects covered include:-

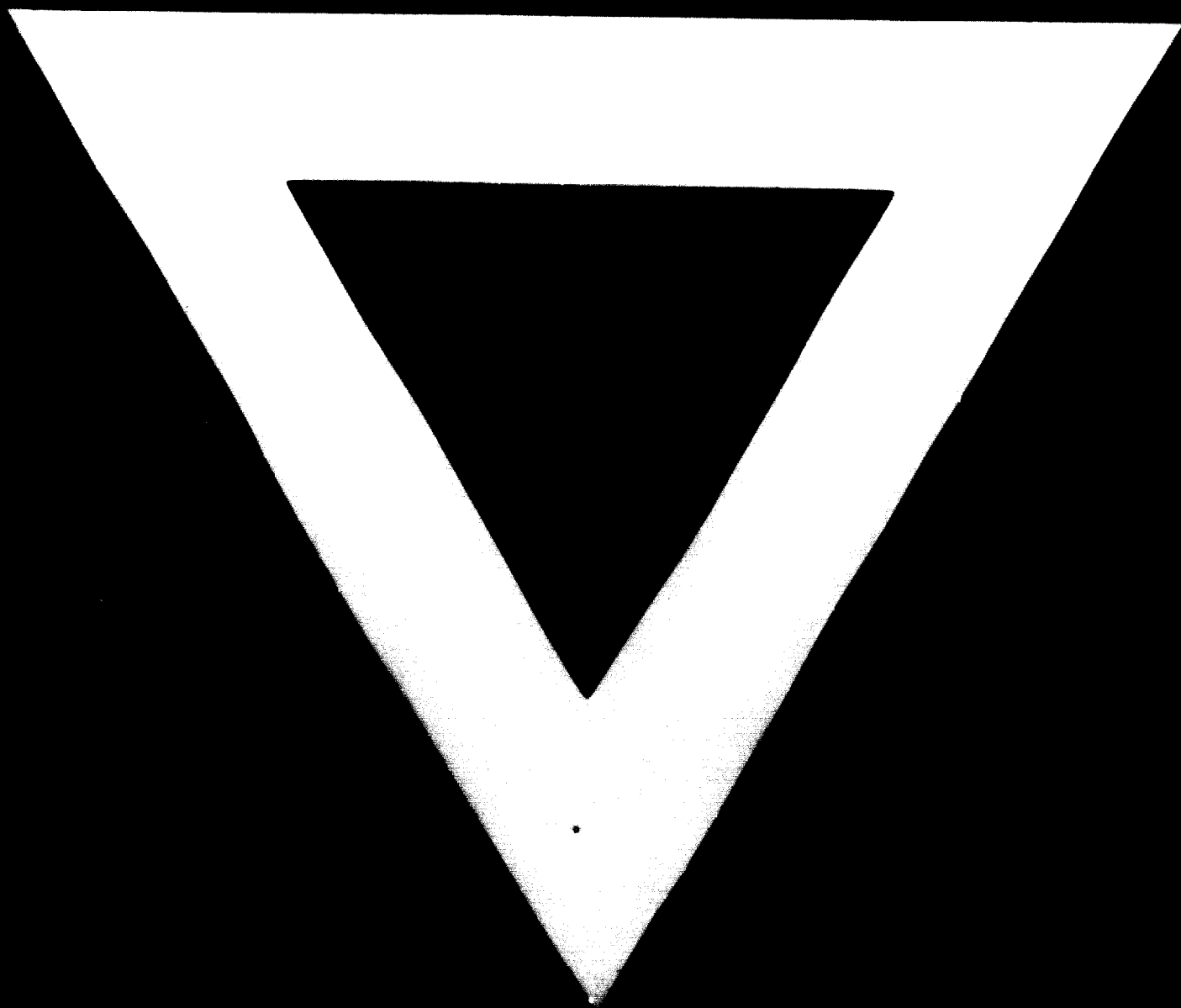
- Book keeping
- Cost recording
- Purchasing and ordering of materials
- Labour scheduling and progress charts
- Plant costing and estimating
- Credit transactions and loan procedures
- Cash flow transactions
- Site organisation and site records
- Office organisation

It is of course difficult to draw firm conclusions from courses run over such a short period, but this work by the N.C.C. represents an important advance in systematic contractor training. An assessment of the development of the National Construction Corporation in its first four years is given in IT Building Information Paper No. 7. However, more research is required to find ways of measuring the effectiveness of a training institution of this kind, as well as on the relevance of the curricula and the most effective methods and media for its presentation. The pioneering work of institutions such as the A.N.C.C. and the initiatives of the U. N. Economic Commission for Africa in running pilot courses in construction management and technology should be used as a foundation for a series of construction training centres in the many developing countries which urgently need to build up their construction capacities.

A first step would be a series of studies of the particular problems that face small firms in the building industry. Perhaps the most singular to the construction industry is the nature of the transaction that a proprietor of a building firm enters into whenever he signs a contract. A typical small/medium sized building contract may take 6/9 months to execute, and will be followed by a 6 month maintenance period while the contractor waits for the release of the remainder of his retention money. To give a true measure of this time span it is fair to assume that, in a typical case, a fixed price tender will have been prepared and submitted some two or three months before commencement on site. It is true that interim payments will be received as the work proceeds, but the fact remains that the eventual success or failure (in terms of profit or loss) of each individual transaction cannot be accurately determined until 15-18 months have elapsed from the date of the original commitment. Furthermore, each individual transaction involves a

substantial sum of money, often involving a quarter or even a third of the firm's annual turnover. This question of the nature of the transaction is one which poses particular problems in accounting and managerial control, and becomes more severe as the business grows and takes on more and larger contracts; the I.T. Building study of Kenyan Building contractors yields a number of instances of promising firms neglecting the long-term potential of their businesses and instead seeking quick profits by buying materials of lower than specified quality and hiring unskilled labour in the hope that the client will accept inferior standards. Meanwhile other contracting firms are run by proprietors with a genuine desire to succeed and progress in the industry, but who need training in the managerial aspects of their business. There is a need to determine selection criteria for those contractors who would repay a sustained training programme.

3.10 There are of course many other aspects of construction industry development that deserve attention, particularly methods of encouraging entrepreneurs in the building materials industry who are prepared to use intermediate technology techniques. It is also important to formulate policies covering tender procedure, contract finance and administration most likely to encourage the development of a capable, self-reliant building industry and to ensure that these are co-ordinated within the overall development strategy of the country concerned.



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