

# CONSTRUCTION MANAGEMENT PROGRAMME

THE IMPACT OF THE  
ILO CONSTRUCTION MANAGEMENT PROGRAMME  
ON THE DEVELOPMENT OF  
SMALL CONSTRUCTION ENTERPRISES

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*Construction Information Paper*

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International Labour Office Geneva

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## SUMMARY

The construction sector is not only a significant source of direct employment but also contributes through its wide range of operations to the growth and development of virtually all other economic sectors. Furthermore, improved construction performance is particularly important in poor countries, where construction usually ranks second only to agriculture in its contribution to gross national product and generally represents more than half of gross fixed capital formation. These considerations, together with the special characteristics of construction management with its strong project focus, led the ILO to initiate a sector-specific Construction Management Programme (CMP) in the mid 1970s.

The CMP offers a unique service in international construction industry development, based on the application of professional engineering and management skills coupled with practical research and experience. A particular strength is the range of training methodologies that have been built up and tested in practical technical co-operation projects.

The main areas of activity are:

Technical assistance	Development of national construction industries, institution building, enterprise development, management development, technology transfer and dissemination, technical training.
Consultancy and advisory services	Sector studies, organisation studies, institution building, training needs assessments, project preparation and evaluation.
Training and management development	Based on established training methodologies and published materials including International Construction Management (ICM) textbooks for large construction firms, Inter-active Contractor Training (ICT) modules to develop basic construction management skills and Improve Your Construction Business (IYCB) handbooks and workbooks for owners and managers of small construction enterprises.

The paper is primarily concerned with the impact of the CMP on the small business sector and focuses on the evolution of the IYCB materials and methodology which are specifically designed to improve the performance of small construction enterprises. The IYCB system can be seen as a sector-specific derivative of the established ILO Improve Your Business (IYB) approach, but it takes the concept further by integrating technical and management training and

also in emphasising the importance of strong institutional support to ensure sustainability.

The pilot IYCB project was undertaken in Ghana which offered a demanding environment and was of particular interest in view of the Government's actions to secure an effective transition from a centrally planned economy to one based on enterprises within the private sector. Thus it seemed likely that if a system could be successfully developed in Ghana, it would be very likely to be suitable for replication in other countries with comparable problems and aspirations. The first step in implementing the project was to assess the problems and needs of the target group, some of which were policy issues and were accordingly discussed at a high-level workshop which gave the contractors an opportunity to initiate a productive dialogue with senior representatives of the relevant Government Departments. Although there were some problems which would not be susceptible to solution through training, there remained a list of no less than 42 topics where the respondents saw a "great need" for training.

The draft IYCB training material was developed jointly by the ILO Headquarters' team, the project team, the Management Development and Productivity Institute (MDPI) and the Civil Engineering and Building Contractors Association of Ghana (CEBCAG), and was delivered by three-person teams or "cohorts" which were formed from representatives of MDPI and CEBCAG following a "training of trainers" course. For small contractors, estimating and tendering are crucial activities, so the first handbook and workbook were entitled "Pricing and Bidding". The two priority topics of project planning and productivity are dealt with in the second handbook and workbook on "Site Management". This left the range of activities concerned with managing the enterprise as a commercial entity, including ensuring a reasonable balance between workload and resources, which comes under the general heading of "Business Management". Thus the IYCB material consists of three handbooks, three workbooks and a trainers' guide.

IYCB is now a little over two years old, and the Ghana project has shown that the concept has worked well in one country. Expansion of the IYCB approach could be geographical, since besides its relevance for developing countries in Asia and Africa it could be very helpful to small enterprises in Central and Eastern Europe that are having to cope with the transition to a market economy. It is also capable of sub-sectoral development which could take it from its original focus on building contractors into specialist sub-sectors such as the manufacture and distribution of building materials, building maintenance and labour-based road construction and maintenance. In all cases IYCB projects will continue to feature a strong institution building dimension, and will seek to tackle the policy constraints resulting from an inadequate regulatory and contractual framework as well as providing direct assistance in the form of training, coaching and consultancy.

## **1. INTRODUCTION**

Since the mid 1970s, the ILO has been in the forefront of the development of national construction capacity and in the dissemination of construction management knowledge and skills. The growth of the ILO Construction Management Programme (CMP) has been parallel to and aligned with, but separate from, a similar commitment to the development of infrastructure programmes relying on the cost-effective utilisation of locally available human and material resources.

Drawing on the results of 20 years' research and practical experience, the CMP offers a unique service in international construction industry development, based on the application of professional engineering and management skills coupled with practical research and experience. A particular strength is the range of training methodologies that have been built up and tested in practical technical co-operation projects. Examples are the forthcoming International Construction Management (ICM) series of textbooks for large construction firms, the Inter-active Contractor Training (ICT) modules to develop basic construction management skills, and the Improve Your Construction Business (IYCB) handbooks and workbooks for owners and managers of small construction enterprises. This paper describes the origins, activities and resources of the CMP, with particular emphasis on the IYCB approach to improving the productivity of small construction enterprises.

## **2. THE ILO CONSTRUCTION MANAGEMENT PROGRAMME**

### **2.1 Origins**

In the early 1970s support by the Overseas Development Administration (ODA) enabled the United Kingdom-based Intermediate Technology Development Group Ltd. (ITDG) to pioneer management training for owners and managers of small contracting firms in newly independent developing countries. The demand for this assistance grew rapidly, and it became clear that it would be more appropriate for the work to be taken forward by a larger organisation with greater resources and more extensive international links. The ILO, with its highly reputed general Management Development Programme and special interest in the development of small enterprises, seized this opportunity and started to promote programmes to assist the development of indigenous construction industries in member states.

### **2.2 Phase I (1975-80)**

The first major activity was a training of trainers programme financed by the Norwegian aid agency NORAD, which drew upon ITDG's experience and was

held in Nairobi in 1976. The three training modules presented at that course were further developed by Intermediate Technology Publications as its "small building contractor" series.<sup>1</sup> At that stage the CMP was run on a part-time basis within the ILO's Management Development Branch, with assistance from external specialists to deal with specific events such as workshops and seminars. More significant funding became available in 1981 through two projects financed respectively by the Government of Norway and the Swedish International Development Agency, which enabled the ILO to recruit a qualified civil engineer to run the programme as full-time Inter-Regional Adviser.

### **2.3 Phase II (1980-85)**

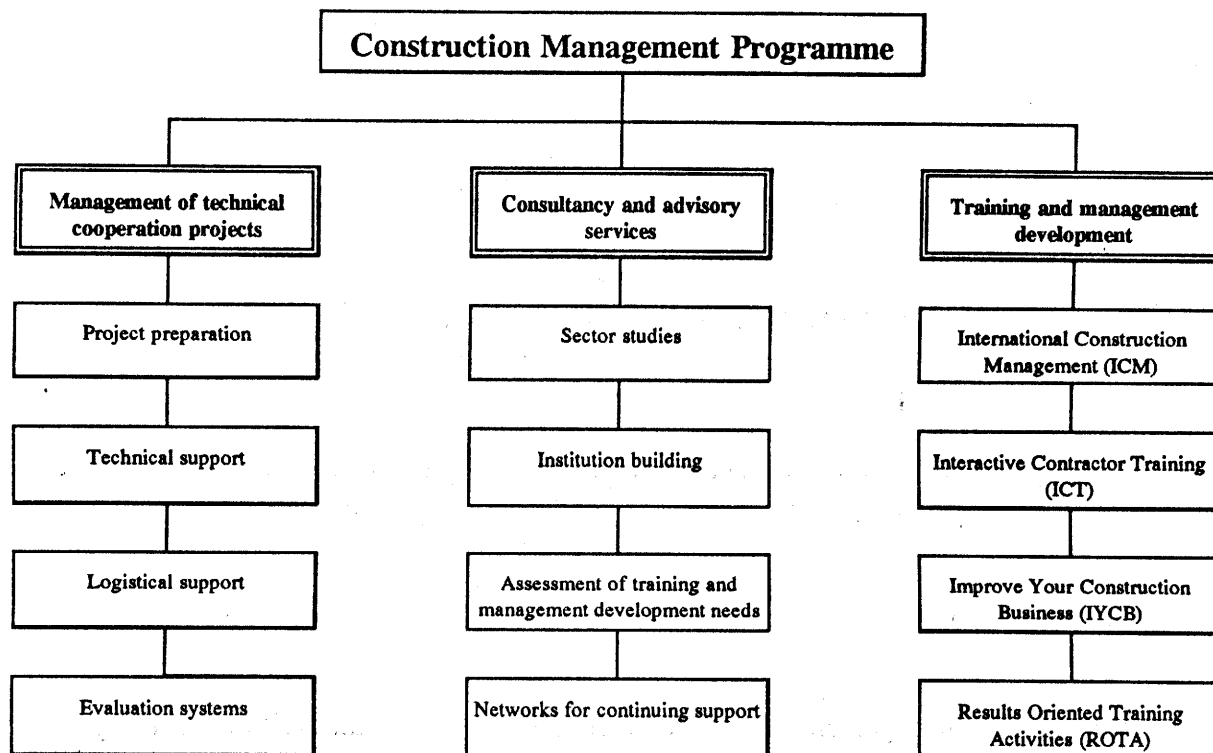
The second phase of the development of the CMP consisted essentially of the delivery of these two projects, which assisted contractors and project administrators in Africa, together with a third Danish-supported project to assist small contractors in ASEAN and neighbouring countries. This support enabled the CMP to operate as a distinctive and self-financing unit within the ILO's Management Development Branch, and to initiate various research initiatives in addition to the provision of direct training within target countries. One outcome of this practical research was the publication of a handbook entitled *Managing Construction Projects*, which was one of the first books in its field to take special account of the needs of developing countries.

### **2.4 Phase III (1986-)**

The third phase began with a review of the experience of the second phase following the appointment of the author as manager of the CMP. Thus this phase included an examination of the policy constraints which adversely affect the performance of domestic construction industries in developing countries in the books "Foundations for change"<sup>2</sup> and "Guide-lines for the development of small-scale construction enterprises"<sup>3</sup>, while the earlier training initiatives were consolidated with the publication of three Interactive Contractor Training (ICT) modules<sup>4</sup> and an accompanying book "Training contractors for results".<sup>5</sup> It led naturally into the third phase which emphasises institution building for sustainable sectoral development, the lessons of which have been distilled in the recent book "Building for tomorrow".<sup>6</sup> The review of experience during the initial phases led to a decision to develop a comprehensive and distinctive range of products and services covering three main areas of activity:

- \* management of technical cooperation projects;
- \* consultancy and advisory services;
- \* training and management development.





The ILO was among the first international organisations to appreciate the need to develop a range of construction management training systems and methodologies to suit the special needs of its member states. These needs themselves are far from uniform, and range from large and sophisticated construction organisations employing computer-based management information systems to small contractors specialising in the construction and maintenance of rural roads using labour-based techniques. With these considerations in mind, the CMP has been engaged in a major effort to develop a range of products and services to support its technical cooperation, consultancy and advisory activities. CMP publications can be divided into five categories:

- \* Conceptual studies and information papers
- \* Practical manuals
- \* International Construction Management text books (ICM)
- \* Interactive Contractor Training modules for trainers (ICT)
- \* Improve Your Construction Business handbooks and workbooks (IYCB)

This paper is primarily concerned with the impact of the CMP on the small business sector and will therefore focus on the evolution of the IYCB materials and methodology which are specifically designed to improve the performance of small construction enterprises. However, the full range of products and services developed by the ILO Construction Management Programme is described in Annex 1, and the list of publications currently in print is attached as Annex 2.

### **3. IMPROVE YOUR CONSTRUCTION BUSINESS**

#### **3.1 Target group**

The target group for the Inter-active Contractor Training (ICT) training modules is construction enterprises of modest size, but which are sufficiently well established to employ a number of specialist managerial and supervisory staff and apply conventional construction management techniques. Its reception and use on numerous field projects confirmed its value in training the many new firms that arose in developing countries as they achieved a greater degree of economic self-sufficiency. However, the many owner/managers of much smaller enterprises, for whom the management of their enterprises is a personal and part-time activity, required a more basic approach.

#### **3.2 Improve Your Business (IYB)**

In its search for a means to assist this target group, the Construction Management Programme drew upon the experience of another ILO programme - IYB or "Improve Your Business. IYB was based on a Swedish training package "Look after your firm", which consisted of self-teaching material that introduces the user to basic management techniques such as business analysis, financial analysis (accounting, key ratios and so on) and activity and financial planning. The material is packaged neatly in the form of a "handbook" and a companion "workbook", and includes checklists and a reference guide, together with advice on how to prepare an action plan and practical suggestions on how to bring the plan to fruition.

IYB had proved very successful in assisting small traders and manufacturers of simple products, but it was not sufficient to integrate the improvement of technical and specialised managerial skills which CMP experience had shown was necessary to help with specialised needs of small construction enterprises. All small businesses are specialised to some extent, and there is no role in small business for people with no other skills than "pure" management (except perhaps in a management consultancy practice). A useful definition of a small business is that it is one in which the manager or owner spends much of his or her time actually carrying out the function of the business<sup>7</sup>, so it follows that there are disadvantages in separating management from technical training. Indeed ILO

thinking on small enterprise development now emphasises the importance of a sectoral approach to training and consultancy.<sup>8</sup> This thinking has been extended to the development of an integrated four stage approach comprising:

1. A survey of needs.
2. The development and delivery of modular training.
3. Technical and managerial consultancy services to support the modular training.
4. The promotion of measures to remove policy constraints.

### **3.3 Improve Your Construction Business**

The answer seemed to be for the CMP to draw upon the experience of the IYB programme and develop a system which would meet the specific needs of small contractors called IYCB or Improve Your Construction Business. Rather than attempt to produce a generalised version and then test it in field conditions, it seemed best to develop the system in one country so that it would be possible to work practically with both the beneficiaries and the individuals and organisations who could provide training, advice and continuing assistance.

Luckily this idea coincided with a request to prepare a technical cooperation project to improve the performance of local construction enterprises in Ghana, which certainly offered a demanding environment and was of particular interest in view of the Government's actions to secure an effective transition from a centrally planned economy to one based on enterprises within the private sector. Thus it seemed likely that if a system could be successfully developed in Ghana, it would be very likely to be suitable for replication in other countries with comparable problems and aspirations.

### **3.4 The Ghana IYCB project**

Many small-scale contracting firms in Ghana claim to be capable of implementing basic building and infrastructure projects, but fail to deliver quality work at reasonable cost within designated completion periods. Clients, consultants and the contractors themselves all appreciated that these enterprises needed help, and the Government of the Netherlands was approached to support an ILO-executed Improve Your Construction Business project. In view of the ILO's emphasis on institutional support to ensure sustainability, the enthusiastic support of the Civil Engineering and Building Contractors Association of Ghana (CEBCAG) and the existence of a well-established management training institution in the Management Training and Productivity Institute (MDPI), the Netherlands Government decided to give its backing to the proposal and the planning of project implementation started in early 1990.

The duration of this first IYCB project was two years and the promised outputs were somewhat optimistic for such a short project:

- 10/15 trainers/counsellors to be trained;
- owners/managers of 120-150 small-scale construction enterprises in selected secondary towns in Ghana to be trained;
- development of IYCB handbook, IYCB workbook and trainers' guide.

### **3.5 Assessing problems and needs**

The initial step was to determine the problems, practices and needs of the target group.<sup>9</sup> This was done by circulating a questionnaire asking for a statement of problems and suggesting 42 possible topics for training in six broad categories. This was supplemented by face-to-face discussions with individual owners and managers at fact finding workshops in all ten provinces, and raised a shopping list of no less than 44 problems. Some of these problems are of the entrepreneurs' own making, and some are questions of attitude (contractors, like farmers, are great grumblers), but many are real and also susceptible to solution. The sessions at which these problems arose were effectively "small-scale construction enterprise clinics", and the project team collected the problems into ten compatible groups, and offered their explanations and possible solutions (see Table 1 below).

Only part of the ten sets of problems is caused by inadequate management skills, and only part of that inadequacy can be made good by training. However, the respondents saw a "great need" for training in all 42 suggested topics, and there was general agreement that inadequate (or non-existent) construction management training was at the root of many of their problems. For example, contractors complained that "bank financing is difficult to obtain and is very expensive at 30 per cent interest". Following discussion, the complainants admitted that contractors generally have a poor repayment record and few have the skills to keep accurate accounts and make reliable forecasts of costs and cash needs. Thus it was decided that the training workshops should include discussion of the accounting needs of the small contractor, training in basic book-keeping and accounting, and advice on how to prepare a simple cash flow projection for a small building contract.

Another serious problem was that "bureaucratic delays in public sector client organisations drastically affect payments and cost the building contractor a lot of money in non-recoverable overheads". This issue was analysed in some detail, and it became clear that the contractors' complaints were fully justified. Every claim for payment following monthly measurement of work done on a contract has to go through no less than 30 separate stages before the cheque eventually

**Table 1. Ghana building contractors: Problems and training needs**

Problems	Training needs
Contractual procedures	Estimating and tendering
Inadequate market opportunities	Project planning
Financing the work	Productivity
Obtaining performance bonds	Book-keeping/money management
Site operations	Contract law (including claims)
Quality control	Business management
Availability of plant	
Lack of skilled labour	
Manufacturer's problems	
Getting paid	

reaches the contractor, and the whole process never takes less than 14 weeks (and often a good deal more). Although training alone would not solve this problem, it was accepted that the workshops could help by developing the skills that contractors need in order to prepare certificates in a form that enables them to be rapidly and easily checked by the officials (50 or more!) through whose hands they pass.

### **3.6 Result-oriented training**

The preliminary discussions gave the project team a clear insight into the way in which these contractors run their businesses and the type and nature of the training required. What they were seeking was practical advice on how to improve the performance of their businesses, so it was decided that the IYCB workshops should be strongly result/action oriented with little formal lecturing, and heavy use of "action learning" groups to discuss problems and tackle them as case studies.

The sessions on estimating and tendering, for example, should enable each participant to produce a model of the bidding process to suit his or her own business environment, so the training was planned in eight successive steps (see following box).

1. The participants take measurements and notes during a site visit, then:
2. Prepare their own simple working drawings and site layout, then:
3. Produce a basic set of standard specifications, and:
4. Design a simple contract, then with the working drawings:
5. Prepare a list of quantities which allows them to:
6. Calculate direct project cost, and then to:
7. Estimate indirect project costs, and finally:
8. Prepare a quotation or bid.

### 3.7 Project strategy

With the training priorities identified, the project team faced three main tasks before the workshop programme could commence:

- \* preparation of training material;
- \* formulation of a strategy for training delivery, and;
- \* planning a 3-week training of trainers course.

In keeping with the findings of the training needs survey, the original versions of the handbook and workbook were each divided into six sections. It quickly became apparent that the result would either be to omit or gloss over matters of essential importance, or to end up with books that were too bulky to be readily used by the target group. The only answer seemed to be to split up topics into three broad subject areas, each with their own handbook and workbook, which would have the additional advantage that readers could start by tackling those areas of their business which were in most urgent need of improvement.

For small contractors, estimating and tendering are crucial activities. Construction is a fiercely competitive industry; profit margins are often low and a small mistake on pricing a tender document can make all the difference between a worthwhile profit and a serious loss. Furthermore each individual project is taken on at a fixed price and represents a significant proportion of the contractor's annual turnover, so one serious error in pricing a single project can undermine

the stability of the enterprise as a whole. Yet many small contractors lack even the most elementary grasp of cost accounting, and estimates could frequently be more accurately described as "guesstimates". Thus the first handbook and workbook were entitled "Pricing and Bidding". The two priority topics of project planning and productivity are essentially site activities, so the second handbook and workbook covered "Site Management". This left the range of activities concerned with managing the enterprise as a commercial entity, including ensuring a reasonable balance between workload and resources, which comes under the general heading of "Business Management".

### **3.8 Selection of training cohorts**

Reaching the target of 10/15 trainers/counsellors to be trained proved to be no problem. In fact it was with some difficulty that the number of participants at the training of trainers course was kept down to the figure of 18, which is the maximum for the kind of highly participative sessions that were judged necessary to achieve the project's team building objectives. The figure of 18 was significant, since all ten CEBCAG Regional Committees demanded that they should participate in project activities and the manufacturers of building materials also sought assistance. The answer seemed to be to form six three-person teams or "cohorts", one of which would work with the manufacturers while the other five should each be responsible for delivering training and consultancy advice to contractors in two adjoining regions.

The building materials' cohort was made up of manufacturing specialists and the five contractors' cohorts were well balanced, each containing one MDPI or central CEBCAG trainer together with one CEBCAG member from each of the two participating regions. Preliminary enquiries showed that the demand for training far exceeded the provision in the project document; the CEBCAG regional members requested that the proposed 8-10 workshops of 1-2 weeks duration should be increased to 6 workshops of one week in each of the 10 regions, or 60 workshops altogether. In response to this request the Government of the Netherlands agreed to support a 6-month project extension which would permit this increased output, and would also increase the number of owners and managers of construction businesses who would benefit from the programme from between 120 and 150 to more than 200.

### **3.9 A policy workshop**

In an attempt to initiate policy measures that would lead to the easing of regulatory and contractual constraints (particularly relating to delayed payment by clients), the project promoted a high level workshop in December 1991. Although this did not lead to instant solutions, it did initiate a more constructive dialogue between the representatives of the contractors and the relevant Government departments which is an essential prerequisite to step-by-step improvements. One particular concern which affects many contractors is limited

access to plant and equipment. In this case they are in a position to help themselves, and the project has supported a survey of plant availability and needs, with a view to proposing some form of cooperative plant hire arrangement.

### **3.10 Project outputs**

In Ghana the IYCB project is an indisputable success. The formal project outputs have been substantially exceeded:

- 18 trainers have been trained (10/15 promised),
- 200 contractors trained (120/150 promised);
- 3 handbooks, 3 workbooks and a trainers' guide developed (one of each promised).

The new interest in contractors and their potential contribution to national prosperity cannot be measured by statistics alone; CEBCAG and its members feature regularly in the local press and members of training cohorts are generally proud to be part of the national IYCB team. The IYCB symbol appears on project publications and publicity material, while the trainers are often seen wearing Improve Your Construction Business T-shirts! The sustainability of improvements can never be guaranteed, but the training cohorts seem confident that they will continue to receive the strong support of MDPI as a management development institution and CEBCAG as an employers' association. The support from the donor went well beyond the provision of project funds; the Royal Netherlands Embassy took a positive interest in project activities and contributed to the general feeling that the efforts of the project team had an international significance.

### **3.11 Applying the IYCB system**

IYCB is now a little over two years old, and the Ghana project has shown that the concept has worked well in one country. Expansion of the IYCB approach could be geographical and could also take it from its original focus on building contractors into specialist sub-sectors such as the manufacture and distribution of building materials, building maintenance and labour-based road construction and maintenance. In all cases IYCB projects will continue to feature a strong institution building dimension, and will seek to tackle the policy constraints resulting from an inadequate regulatory and contractual framework as well as providing direct assistance in the form of training, coaching and consultancy.

A project to apply the IYCB concept to the development of labour-based road maintenance contractors is now underway in Lesotho, and a number of other African countries have shown interest in using it to increase the productivity of their local industries. The concept also has potential for application in a number



of Asian countries. However, the potential field of application is not limited to developing countries. Many - if not most - countries throughout the world are appreciating the potentials for achieving savings through greater involvement of private enterprises in infrastructure construction and maintenance.

In particular it seems that the IYCB concept could well have potential for application in Central and Eastern Europe, since:

- the target group of small building contractors is numerous in most countries, but has only recently arisen in Central and Eastern Europe due to the previous emphasis upon central planning and control;
- the management problems faced by the target group do not differ significantly from country to country;
- the IYCB material has benefited from the earlier experience of its two parent programmes, and seems to be neither too complex nor too simplistic for the needs of the target group;
- many of the problems faced by building contractors in Central and Eastern Europe stem from a lack of commercial and financial knowledge and experience, so the emphasis of the IYCB material on these aspects is very relevant.

## **ILO CONSTRUCTION MANAGEMENT PROGRAMME PRODUCTS AND SERVICES**

### **1. Conceptual studies and information papers**

The five conceptual studies produced by the CMP are intended to provide policy-makers with ideas and suggestions on new ways of improving the competitiveness and performance of national construction industries.

**Foundations for change (1984)** examines the patterns of organization of construction industries in developing countries, and shows how the institutional framework could be adapted to make better use of local human and physical resources.

**Guidelines for the development of small-scale construction enterprises (1987)** distils and analyses the extensive experience of the ILO in devising and implementing management development and training programmes for small-scale construction enterprises.

**Training contractors for results (1987)** provides guide-lines for the assessment of the management training needs of contractors, and delivering integrated training programmes to enhance technical, managerial and financial skills.

**Building for tomorrow (1991)** is a handbook of ideas, methods and techniques to help national construction industry development institutions to improve performance. It is based on four case studies of successful institution building, and offers a 12-point action plan that will have an immediate impact on the performance of the institution.

**Training on tap (forthcoming)** examines the scope for applying modern distance learning techniques to provide cost-effective training for construction managers and supervisors.

The Construction Information Papers (CIP/-) are the outcome of practical research on issues of international interest. The series was started in 1991, and current titles are:

**CIP/1 Small-scale construction enterprises in Ghana: Practices, problems and needs (1991)**

**CIP/2 The construction industry in Nepal: Practices, problems and needs (1991)**

CIP/3 **Women can build: Women's participation in the construction industry in Sri Lanka (1991)**

CIP/4 **A strategy for the China International contractors' Association: CHINCA (1991)**

CIP/5 **Room for improvement: A study of women building workers in Bombay (1992)**

## 2. **Practical manuals**

These four manuals provide succinct advice for practising construction managers, and take special account of the needs of managers in developing countries.

**Managing construction projects (1984)** is a fully illustrated guide to planning and controlling the construction process from briefing through to commissioning, and is based on internationally accepted procedures.

**Construction management and technology: A bibliography for developing countries (1987)** provides a selection of relevant, useful and readily-available literature in a hitherto neglected area.

**Building maintenance: A management manual (1987)** is a comprehensive guide for developing countries, divided into three sections "Maintenance strategy", "Maintenance management" and "Maintenance methods".

**Improving site productivity in the construction industry (1987)** provides a practical and readable introduction to the application of work study techniques in the construction industry.

## 3. **International Construction Management (ICM)**

This series of text books (all forthcoming) has been written to assist engineers and other construction professionals who will be involved in bidding for, negotiating and managing major international construction projects. The titles are:

- \* **International project accounting**
- \* **International bidding case study**
- \* **Project finance**
- \* **Bid preparation techniques**

- \* Technology transfer
- \* International project marketing
- \* Managing international construction projects (Management guide for senior management)

#### **4. Interactive Contractor training (ICT)**

This range of training modules for upgrading the management skills of construction managers and owners of small and medium-scale construction firms contain learning texts together with worked examples, exercises and simulations. They also provide a model of how learning-effective material for construction managers should be structured.

**Module 1 : Estimating and tendering (1987)** provides the basis for a simple, but comprehensive, introduction to the calculation of quantities and pricing techniques.

**Module 2: Project planning (1987)** describes how enterprises can improve profitability through effective planning, the preparation of schedules for labour and materials, and the forecasting of cash flow throughout the project. It also contains sections on network analysis, and offers advice on putting the plan into action.

**Module 3: Site productivity (1987)** describes specific ways of improving productivity including better site layout, more effective supervision, measuring site activity and reviewing work methods.

#### **5. Improve Your Construction Business (IYCB)**

The Improve Your Construction Business system (forthcoming) consists of **three handbooks** and **three workbooks** covering all the essential aspects of managing a small construction enterprise. They can be used for self-study or in training courses in conjunction with the **Trainers' guide**. The titles are:

- \* **Pricing and bidding**
- \* **Site management**
- \* **Business management.**

## CONSTRUCTION MANAGEMENT PUBLICATIONS CURRENTLY IN PRINT

***Building maintenance: A management manual***, by Derek Miles and Paul Syagga (London, Intermediate Technology Publications for the ILO).

1987 - 213pp.  
ISBN 0 946688 92 3

***Construction management and technology: A bibliography for developing countries***, compiled by R.H. Neale (Aldershot, United Kingdom, Gower for the ILO).

1987 - 122pp.  
ISBN 0 566 05379 9

***Foundations for Change: Aspects of the construction industry in developing countries***, by G.A. Edmonds and D.W.J. Miles (London, Intermediate Technology Publications for the ILO).

1984 - 143pp.  
ISBN 0 946688 00 1 hb

***Guide-lines for the development of small-scale construction enterprises*** (Geneva, ILO).

1987 - 136pp.  
ISBN 92-2-105695-3

***Improving site productivity in the construction industry***, by A. Heap (Geneva, ILO).

1987 - 124pp.  
ISBN 92-2-105694-5

***Managing construction projects: A guide to processes and procedures***, edited by A.D. Austen and R.H. Neale (Geneva, ILO).

1984 - 158pp.  
ISBN 92-2-103553-0

***Training contractors for results: A guide for trainers and training managers***, by Tor Hernes; edited by Derek Miles (Geneva, ILO).

1988 - 114pp.  
ISBN 92-2-2106253-8

***Building for tomorrow: International experience in construction industry development***, by Derek Miles and Richard Neale (Geneva, ILO).

1991 - 238pp.  
ISBN 92-2-107284-3

### **Training Manuals**

***Inter-active Contractor Training (Module 1: Estimating and tendering; Module 2: Project planning; Module 3: Site productivity)***, by Tor Hernes; edited by Derek Miles (Geneva, ILO).

1988  
ISBN 92-2-105994-4

### **Construction Information Papers**

***CIP/1 Small-scale construction enterprises in Ghana: Practices, problems and needs***, by Derek Miles and John Ward (Geneva, ILO).

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