

**Regional seminar for labour-based practitioners in
the road sector in Sub-Saharan Africa**

**University of the Witwatersrand
Johannesburg, South Africa
16-20 January 1995**

**Labour-based Technology –
A Review of Current Practice
Volume One: Report of Proceedings**

compiled by

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**International Labour Organisation
Advisory Support, Information Services, and Training (ASIST)
Nairobi, Kenya**

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Abbreviations

ASIST	Advisory Support, Information Services and Training
EIWP	Employment-Intensive Works Programme
IHE	International Institute for Infrastructural Hydraulic and Environmental Engineering.
ILO	International Labour Organisation
IYCB	Improve Your Construction Business
KTS	Kisii Training School
MDT	Multi-Disciplinary Teams
NMT	Non-Motorised Transport
NPWP	National Public Works Programme
ROMAR	Routine Maintenance and Regravelling
SDC	Swiss Development Cooperation
UNCHS	United Nations Commission for Human Settlements
UNDP	United Nations Development Programme
UNV	United Nations Volunteers

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1 Introduction

1.1 Background of the seminar

The regional seminar for labour-based practitioners in the road sector in Sub-Saharan Africa took place over five days from 16 to 20 January 1995 in Johannesburg, South Africa. It was organised by the Research Centre for Employment Creation in Construction, Department of Civil and Environmental Engineering at the University of the Witwatersrand in collaboration with the ILO/ASIST¹ project.

The seminar was the fourth in a series of reviews of current practice in labour-based technology. The first seminar was held in Mbeya, Tanzania in 1990. The second seminar took place in Mhales Hoek, Lesotho two years later, and the third one was held in Harare, Zimbabwe in 1993².

The purpose of the regional seminars is to bring together people involved in labour-based roadworks in Sub-Saharan Africa to discuss experiences and ideas. The participants learn from problems, successes and failures experienced in the various programmes and countries, and this, in turn, stimulates further development of labour-based techniques and improves the efficiency of such techniques.

1.2 Structure of the report

The seminar report is presented in two volumes.

Volume I Chapter 2 explains the structure and the proceedings of the seminar. It also includes the comments and suggestions the participants made in the evaluation session on the last day of the seminar. The full evaluation report is in Annex 4. Chapters 3 - 6 summarise the various papers and issues that were presented in plenum. Chapter 7 reports from the field visit. The key issues identified for group discussions and the outcome of the group work are presented in Chapter 8.

¹ The acronym ASIST stands for Advisory Support, Information Services and Training. ASIST is a regional project serving labour-based road projects and programmes in Sub-Saharan Africa, and is funded by Swiss Development Cooperation (SDC), the Swedish International Development Authority and the Government of Norway.

² *Labour-based Technology – A review of Current Practice, Volumes I and II, 26-28 February 1990, Mbeya, Tanzania.* ILO Geneva.
Labour-based Technology – A review of Current Practice, 2-6 March 1992, Mhales Hoek, Lesotho. ILO Geneva.
Labour-based Technology – A review of Current Practice, 27 September - 1 October 1993, Harare, Zimbabwe. ILO Geneva.

Volume II contains the full text of the papers prepared for the seminar, including those not presented during the plenary sessions. It further contains the background information material on the Soweto's Contractor Development Programme which had been prepared for the field visit.

2 Seminar proceedings

2.1 Seminar objectives

The seminar had three main objectives:

- 1 To bring together practitioners in labour-based roadworks so that they could exchange experiences*
- 2 To update participants on policies and programmes in labour-based roadworks in Sub-Saharan Africa*
- 3 To identify and debate key issues relating to labour-based urban development and labour-based education and training.*

The first two objectives are common to all the regional seminars while the third objective includes the two main themes of this specific seminar.

URBAN DEVELOPMENT

Efforts made to introduce labour-based techniques have mainly targeted the rural areas, and in particular the rural road sector. However, in many African countries there is a growing interest in applying such techniques also in urban areas. The seminar was to provide an opportunity to review and discuss urban labour-based projects. The main questions were the extent of required adaptation of the existing techniques and the possibility of using community participation.

EDUCATION AND TRAINING

Education and training embraces aspects of planning and implementation of both private and public sector training programmes. Another central question of importance is how to integrate courses on labour-based technology into formal educational and training systems.

All of the participants found these two themes appropriate for the current seminar. Suggestions from the participants for the themes for the next seminar (see Annex 4 for details) came from seven main areas:

- contractors
- institutional and political aspects
- technical and management issues
- environment, urban, community-based and rural development
- training
- countries.

2.2 From objectives to results

To translate the objectives into practical work and results the seminar was divided into two main activities; plenary sessions and group work sessions.

PLENARY SESSIONS

The plenary sessions were based on the papers different people had been asked to write. In total 17 papers were submitted for the seminar; four on the theme of urban development and eight on education and training. A further five papers, all from South Africa, were not directly linked to either of the two themes, but provided a picture of the “state of the art” in the country. The papers were presented in plenary sessions. The time reserved for each presentation was 10-15 minutes, after which a short question and discussion session was held.

The seminar participants felt that the time allocated for each paper and for the following discussion was too short. Also many people said papers should be shorter and more focused as well as edited in advance by the ILO. Some of the papers should have been discussed directly in a group session.

Due to delayed submission of papers the participants received their copies for reading only on the same day the presentations took place. The papers ought to be distributed to the participants a couple of days prior to the seminar.

The seminar programme further included presentations concerning the role of the ILO and its ASIST project with respect to promotion of, and support to, labour-based roadworks.

GROUP WORK

In order to generate more intensive and rewarding discussions the participants were divided into five groups during the morning of the second day of the seminar. The topics agreed on during the preparatory plenary session were the following:

- | | |
|---------|--------------------------------------|
| Group 1 | Urban Infrastructure |
| Group 2 | The Contracting Environment |
| Group 3 | Contractor Support and Training |
| Group 4 | Training – Institutional Development |
| Group 5 | Training – Policy and Planning |

The participants felt afterwards that the group work sessions were very useful although the themes were too diverse for the time available and for concrete outputs. The total time for actual groupwork was three sessions totalling 4.5 hours and two sessions (3 hours) for presenting the results.

The balance between papers and group work was described as “just right” by 65.2 % of the participants. However, 88% of the participants said that the overall length of the seminar was right. Thus the only way to make group work more productive is to have more focused topics.

SITE VISIT

On the third day of the seminar the participants visited the Soweto Contractor Development Programme. This visit provided an opportunity to have a close look at urban infrastructure upgrading and contractor development in a South African context. The participants were interested in including even more than one site visit in the seminar programme.

For the detailed seminar agenda, see Annex 1.

2.3 Seminar participants

A total of 96 people from 17 different countries attended the seminar. Amongst the participants there were national and expatriate staff of government organisations, staff of educational and training institutions, consultants and ILO advisers. Participating countries were Botswana, Ethiopia, Ghana, Kenya, Lesotho, Malawi, Mozambique, Namibia, Nigeria, Norway, South Africa, Switzerland, Tanzania, Uganda, United Kingdom, Zambia and Zimbabwe. Annex 2 includes the names and addresses of all the participants.

2.4 Acknowledgments

The ILO/ASIST seminar secretariat wishes to express its thanks to the University of the Witwatersrand for hosting the seminar and for all their organisational and logistical support. We are especially thankful to Prof. Robert McCutcheon and his department as well as to Ms. Leslie Stephenson and her team for the endless hours they put in to make the seminar successful. Thanks are also extended to the Soweto Contractor Development Team who organised the one-day field visit.

We are especially thankful to Mr Sipho Shezi, the Coordinator of the National Public Works Programme in South Africa, who gave us the opening speech and presented a useful overview of what is going on in South Africa. The full text of his speech is in Annex 3.

Lastly, we should like to thank all the participants for their attendance and contribution.

3 Labour-based work — the South African context

3.1 The current context for labour-intensive construction in South Africa

Summary of the paper presented by J Croswell, James Croswell Associates, South Africa

The use of labour-intensive construction was reintroduced in South Africa some 12 years ago. The understanding about, and the acceptance of, this approach has grown as a number of pilot projects have been undertaken. With a change of government and a change in the priorities for development towards employment creating opportunities, a shift towards increased use of labour-intensive methods has gained momentum.

Most of the early projects were in a rural setting. More recently, however, labour-intensive approaches have been introduced to urban areas. While the use of labour-intensive methods is expected to expand and play an increasingly important role in rural infrastructure development, the application to urban infrastructure development is likely to be more influential and provide the greatest source of employment opportunities.

In 1993, the Framework Agreement for Public Works Projects Using Labour-Intensive Construction was developed on a tripartite basis between Industry, Labour and Civil Society with the view to establishing rules for ordering labour-intensive construction. Since that time, a new Government is in place which has different priorities. It has been agreed that the New Framework Agreement should be integrated into Government and more particularly into the Department of Public Works. In addition, the Reconstruction and Development Programme, including the National Public Works Programme Utilising Labour-Intensive Construction Methods, has been accepted as a framework for rectifying the inequities of the apartheid regime.

As part of the Reconstruction and Development Programme a series of key performance indicators has been developed to serve as a basis for project appraisals. Although the core performance indicators revolve around more conventional engineering oriented issues, there are several soft issues introduced which relate to community involvement and social issues. These performance indicators are being incorporated into the New Framework Agreement which is intended to influence all labour-intensive construction in South Africa.

There is increasing pressure to facilitate access for small-scale black contractors into the contracting arena. It is felt that the most sensible point of entry will be via labour-intensive construction works where the requirements for capital equipment are limited.

The most important barriers to entry faced by black contractors are the lack of capital, lack of relevant experience and inappropriately sized contracts. The Framework Agreement is being re-assessed to make sure that barriers to entry are either removed or reduced. Development programmes for special training which introduces the emerging contractors to business principles and technical issues are receiving special attention.

3.2 Labour-based construction and the development of emerging contractors in South Africa

Summary of the paper presented by R B Watermeyer, Soderlund & Schutte Inc, South Africa

The paper looks at some of the current trends, thinking and practices in the construction industry in South Africa. In recent years South African civil engineering projects have been examined to see if more job opportunities can be created to provide relief to the masses of unemployed.

Traditionally, engineering services and structures have been constructed by established contractors whose operations are highly mechanised. These contractors have all the necessary resources required to execute projects. The bulk of their labour force is normally recruited from a specific area and, as a result, the community for which the service is constructed is left with the service but with little else, since most of the money spent on the project is not retained within the community.

The practices of the industry have excluded the participation of small-scale enterprises located within local communities. Their lack of financial resources, inability to obtain credit, lack of credibility, lack of commercial, managerial, administrative and technical skills — all these prevent them from engaging in construction contracts.

Over the past few years systems have been developed to support the emergence of contractors using labour-based construction methods within targeted communities — an approach referred to as community-based. Community-based construction may be defined as the use of labour-based technologies and labour-intensive methods on projects in which the community is, in addition, involved in the commercial, managerial and administrative aspects so as to maximise the amount of funds retained by the community and to transfer skills and competencies to the community. Community-based construction has enabled the necessary development support structures to be established. This, in turn has led to contractor development programmes which enable emerging contractors to acquire and develop skills while gaining credibility in commercial circles and assuming more contractual responsibilities.

3.3 A practical application of the framework agreement

Summary of the paper presented by M Stofberg, Power Construction, South Africa

The National Coordinating Committee for labour-intensive construction works in South Africa decided in 1993 that a series of pilot projects should be initiated in various regions throughout the country. In order to identify these projects, an interim Accreditation Board was set up.

Projects to be constructed under the Framework Agreement need to be approved by the Accreditation Board. Once a project has been accredited, it is envisaged that it will receive automatic exemption from certain aspects of the existing Wage Order for Civil Engineering Projects. Such exemption will clear the way to implementing the task based system of payment and conditions of employment as set out in the Framework Agreement.

The first project to get accreditation from the Board was in Bloekombos, Western Cape, an informal settlement with some 2000 families. The aim of the project was to create job opportunities and training for some 450 people and to provide infrastructure such as streets, a water system, stormwater drainage and electricity. It was structured with full community involvement.

The project was successful in terms of achieving its objectives. However, the Framework Agreement was never really field tested, and some shortcomings created initial problems. These were in particular related to the acceptance of task based works by the workers and negotiations with the workers to determine task sizes.

3.4 Choice of technique analysis

Summary of the paper presented by S D Phillips et al, University of the Witwatersrand, South Africa

The authors of this paper have developed a methodology – choice of technique analysis – to determine the limits of technical and economic feasibility in a simple and consistent way. The methodology is developed as a decision-making tool for government bodies charged with ensuring that public owned infrastructure is provided in a labour-intensive manner.

Compared to orthodox social cost benefit analyses, the cost comparisons in this methodology have a more limited focus. It is assumed that a decision has been taken to build the infrastructure, and the analysis focuses on the relative costs and benefits of using different construction techniques.

The methodology incorporates a monitoring and feedback mechanism so that improvements in labour-intensive techniques can be taken into account. It further treats the inputs to cost calculations as variables, rather than as entities with fixed values, in order for the methodology to model a changing environment.

The tool is divided into three parts. The first part covers the part of the decision-making process which involves determining the technical limits to using labour rather than machines. In the second part, the financial and socio-economic feasibility of the set of construction techniques produced as outcome of the first part is assessed. The third part covers the implementation of the project and the subsequent monitoring and evaluation.

4 Labour-based work – the role of the ILO and the ASIST project

4.1 The role of the ILO

Presentation by J de Veen, ILO, Geneva, Switzerland

GENERAL

The ILO is a tripartite organisation, with worker and employer representatives taking part in its work on equal status with those of governments. At present the ILO has 171 member states. Its regular budget resources amount to US\$ 230 million per year, while the yearly extra-budgetary resources amount to US\$ 140 million. The ILO organisational structure is as follows:

Headquarters comprises, apart from the directorate, 13 technical and administrative departments which are charged with the overall management, policy setting, labour standards and guidance to the field structure.

Regional Offices (in Abidjan in the Africa Region) have the political and managerial responsibility within their region, which includes coordination, financial and administrative support.

Area Offices cover 4 to 8 countries each. They are in charge of developing, together with their ILO constituents (member governments, worker and employer organisations), ILO country programmes, and the country activities and programme execution.

Multi-Disciplinary Teams (MDTs) cover 8 to 12 countries each and provide technical advice and backstopping support to Area Offices and ILO constituents.

THE EMPLOYMENT-INTENSIVE WORKS PROGRAMME

The ILO has a particular interest in labour-based and local resource-based approaches through its mandate on productive employment, poverty alleviation and social concerns.

Since the mid-1970s the ILO has developed a large technical cooperation programme – the Employment-Intensive Works Programme (EIWP) – which promotes and demonstrates the use of labour-based technologies in the infrastructure sector in developing countries.

This programme enables the ILO to (1) demonstrate practical ways to alleviate poverty by job and income generation and capacity-building both in private and public sectors; (2) influence investment policies in infrastructure development and maintenance towards a greater use of locally available human and material resources, (3) promote, via training and modification of procedures in field projects, relevant international labour standards such as child labour, forced labour, equal remuneration,

and other social legislation to improve work conditions; and (4) introduce principles of organisation and negotiation into unorganised sectors.

The EIWP has three components which are: multisectoral area-based works; sectoral works (with emphasis on the road sector); and rural transport planning. The latter can be regarded as a complementary component to the other two.

The activities of the EIWP consist of a combination of upstream work such as research, policy advice and information dissemination, and downstream work including programme development and implementation, field demonstration and training. Currently, the programme has technical cooperation projects in some 30 countries, most of which are in Africa. External actors linked to the EIWP include partner governments, investment and donor agencies, social partners, educational and research institutions and specialised consultants.

A decentralisation process of EIWP project support work was initiated in 1993. While the ILO field structure and in particular the MDTs are to provide the technical and advisory support to the field projects, Headquarters is responsible for policy promotion, information dissemination and production of guidelines and training materials.

There is an increasing interest and demand in developing countries in applying labour-based approaches as a result of a deteriorating socio-economic environment combined with high rates of unemployment and sometimes social unrest. To meet the demand for using such approaches, an important task for the ILO is to assist in developing capacities external to itself in programme design and implementation.

4.2 The role of ASIST

Presentation by D Stiedl, ASIST Project, Harare, Zimbabwe

ASIST – Advisory Support, Information Services and Training – is a project of the ILO whose mandate is to support labour-based road projects in Sub-Saharan Africa. It operates from two offices; the Advisory Support component from Harare and the Information Services and Training component from Nairobi.

THE PURPOSE OF ASIST IS:

- 1 to increase the use, where appropriate, and increase efficiency in the use of labour-based methods in the road sector
- 2 to increase efficiency in labour-based road project management.

WHAT ASIST DOES

Advisory support provides services related to technical, organisational and management aspects of labour-based road projects in 11 countries in the region. In this work ASIST liaises closely with the ILO Multi-Disciplinary Advisory Team in Harare (SAMAT).

Information services gathers and synthesises general and specific information in order to disseminate it to practitioners in labour-based technology, and other interested persons and institutions.

Training develops and implements, in collaboration with Kisii Training School in Kenya, international courses for engineers and managers, senior technicians and trainers; and assists in setting up courses in national educational and training institutions.

A planned expansion of ASIST will provide for a **Rural Transport** component in Harare to advise on policies and technologies for improved rural accessibility planning.

5 Urban Development

5.1 To what extent can NMT interventions be implemented using labour-based technologies and methods?

Summary of the paper presented by Prof. T Rwebangira, University of Dar es Salaam, Tanzania

The rapid growth in urban areas in Tanzania, combined with inadequate resources, causes severe constraints on social services, including transportation. In Dar es Salaam, current estimates show that motorised transport is providing for less than half of the daily trips of the residents. Because of resource constraints such as capital, land availability and affordability of motorised vehicles, it is not possible to increase the modal share of motorised transport. For the majority of residents to take part in economic activities, it is important to increase their level of mobility. Hence the need to plan for non-motorised transport.

Within the Sub-Saharan Africa Transport Programme, studies have been carried out to address issues related to greater and safer use of non-motorised modes of transport in African cities, among which was a study in Dar es Salaam.

The study in Dar es Salaam found that the most important mobility constraints are unaffordability of transport costs, unsafe traffic conditions including high speeds of motorised vehicles and poor driving behaviour, inappropriate infrastructure for walking and cycling, and perceptions and attitudes of non-motorised transport modes. Based on the study findings, a strategy for improving mobility has been adopted. The elements of this strategy are: provision for public transport by both private and public companies on all major arterial and collector routes; movement inside residential districts to be provided by non-motorised transport, mainly walking and cycling; walking and cycling to be the main mode for accessing public transport; restriction of the private car in the Central Business District and provision of priority bus lanes.

A set of priority interventions has been developed for implementation through a proposed pilot project during the second phase of the study. It is proposed to use labour-based methods for infrastructure interventions such as road narrowing, construction of road humps, provision of pedestrian crossings, provision of separate pedestrian and cycle lanes, spot improvement of route infrastructure and construction of new network links.

5.2 Alternative strategies for the provision of infrastructure in urban unplanned settlements areas — are these strategies effective and how can they be supported

Summary of the paper presented by J Tournée, ILO Consultant and J Omwanza, ASIST Project, Nairobi, Kenya

The paper presents some case studies on community-based urban settlement projects in East Africa. It reviews the Project Urban Self-Help in Lusaka and Ndola, the Kalerwe project in Kampala, the Hanna Nassif project in Dar es Salaam, and describes more briefly some other initiatives in community-based approaches in the region.

Infrastructure services in many urban centres, and particularly in unplanned settlement areas, are in a serious need of attention. Why? The rural-urban migration coupled with population growth has over-strained the available services resulting in rapid deterioration of existing services and non-provision of new services. The laws that govern the provision of services are often too stringent and give little room for different alternatives, and those agencies responsible for providing the services are often geared to the use of traditional heavy plant-based technology. Under-financed urban authorities are often under pressure to halt the deterioration of services only in the planned sections.

The experience gained from field projects shows that there is greater scope for community involvement in the upgrading of unplanned settlement areas than is presently being utilised, and that the use of labour-based techniques is of a positive benefit in this type of work.

However, much remains to be done to improve on the systems for the implementation of upgrading works. Issues to be addressed in this respect include among other things: need for a closer consideration of suitable designs and technologies (this should ideally be done by a group of engineers with varying backgrounds); need for agreement with planning authorities on the alternative planning regulations which reflect the situation in the settlements and the scope of improvements that are practical; need for simplified contract documents when contractors or communities acting as contractors are used, and for formalising such documents with the relevant municipal authorities. Also the municipal authorities need support to adapt and cooperate on these initiatives.

5.3 Evaluating the benefits of implementing labour-based construction in an urban community

Summary of the paper presented by R B Watermeyer, Soderlund & Schutte Inc, South Africa

The paper describes an approach to evaluate the benefits of labour-based construction in urban communities which is based on the South African experience. This approach examines two categories of opportunities –

employment and community opportunities. In each of these categories the opportunities are examined in detail and are optimised before being combined in a formula to establish a Project Index.

The Project Index is a combination of three ratios which relate to expenditure per unit of employment generated, construction cost retained by the community and cost of construction. These ratios index employment opportunities, community opportunities and cost premiums, respectively.

Projects with a high Project Index present more development opportunities to a targeted community than those having low ones. Threshold Project Indices can be set for specific project objectives and be used as a basis to reject certain projects. The Project Index can also be used to monitor and measure the change in spending patterns on projects as levels of spending on targeted labour increase.

5.4 Labour-intensive infrastructure development in the urban informal sector: the ILO's strategies and programmes for urban poverty alleviation on an inter-regional level

Summary of the paper presented by S K Miller, ILO, Geneva, Switzerland

The paper outlines what the ILO is doing and planning on a global scale in the field of labour-intensive infrastructure development in the urban informal sector.

In many African cities infrastructure facilities are serving populations far exceeding their original designs, and improvements or extensions of these facilities are hardly undertaken. The structural adjustment programmes in Africa have had a generally negative effect on employment and living conditions for the urban poor, but at the same time, they have provided an opportunity to explore the feasibility of labour-intensive and local resource-based approaches.

In urban areas, labour-intensive and community-based infrastructure development requires different strategies and interventions than those normally applicable in rural areas. The differences are related to engineering and technical aspects as well as to techniques and forms of community participation.

Land tenure security is an important issue to address in urban labour-intensive and community-based infrastructure programmes. In rural areas this question is less important since land is less scarce and the land tenure systems usually ensure security for all segments of the population.

Urban infrastructure development is closely linked to the urban informal sector including small and micro-enterprise development. This is a field in which the ILO also has substantial experience. There is scope for improving the conceptional and operational linkages between labour-

intensive infrastructure development and programmes to promote employment in the urban informal sector.

The ILO's programme of labour-intensive urban infrastructure development has been supported by two UNDP-funded inter-regional projects. These projects are not limited to labour-intensive infrastructure development, but also include the issues of solid waste management, increasing productivity and incomes in the urban informal sector, and micro-enterprise development. The projects involve other UN agencies such as UNCHS-Habitat and the UNV organisation. Such collaboration between UN agencies would appear to avoid duplication and increase the impact by taking advantage of the specialist expertise of each agency. On the basis of these two inter-regional projects, the ILO is now designing a programme known as the Urban Poverty Partnership.

In Francophone countries in West-Africa the demand for community-based and labour-intensive works is growing. The ILO is currently exploring the possibility of creating a type of Francophone ASIST project. The mandate of such a support project would be broader than that of ASIST, by serving both urban and rural areas, and multi-sectoral and sectoral programmes. In order to further expand the ILO advisory capacity in urban labour-based works, it has been proposed to link an urban adviser to the ASIST office in Nairobi to serve the various initiatives in East Africa.

6 Education and Training

6.1 Training in labour-based roadworks for Kenya's expanding national programmes and international courses

Summary of the paper presented by B.G. Ariga and D W Jennings, Ministry of Public Works and Housing, Kenya

The Kenyan Rural Access Roads Programme and its successor the Minor Roads Programme has constructed and improved a total of 12,000 km of roads in the most agricultural areas of the country. At its height the programme was providing some 20,000 man-years of employment each year.

Since the start in four districts in 1974, the programme has expanded to cover the majority of the country. Labour-based techniques have become accepted and recognised both by engineers and politicians.

The paper looks at the role of the programme's training unit at Kisii Training School (KTS) and its contribution to the success in Kenya, and at the international courses provided by KTS.

Several factors have contributed to the success of the training programme. The most important ones are that the training staff are well trained and experienced, the training authority has been in control of a practical roadworks unit, and all levels of staff are trained by the same authority. Technology development has further been linked to the training centre.

The training unit is now facing a new challenge. A strategy known as Roads 2000 attempts to introduce a labour-based/light equipment supported maintenance system into the whole network of classified roads in Kenya. This maintenance system will require a huge amount of training.

International training courses have been run at KTS for the past ten years. The first courses were for site instructors from neighbouring countries. Later the international course programme expanded to include courses for engineers and managers, senior technicians and, most recently, for trainers. These have been run by ILO/ASIST using KTS staff, and consultants and lecturers from the ILO and Kenya. A total of 1200 person-weeks of training have been provided in these courses.

Some of the key features of the international courses at KTS are that they emphasise practical training and that course contents maintain engineering principles. KTS has a pool of experienced lecturers to draw upon for the courses.

KTS has gradually taken over the administrative responsibility for these courses, but ASIST still remains in charge of the marketing and quality control.

6.2 Training needs assessment — planning a training programme

Summary of the paper presented by J Markland, Feeder Roads Programme, Mozambique

The Feeder Roads Programme involves twenty labour-based construction brigades which are operational in nine out of Mozambique's ten provinces. There are plans to expand the programme to forty brigades over the coming three years.

Because of the proposed programme expansion and the need to integrate its training needs into an overall training programme which is being established within the National Directorate of Roads and Bridges, a review of the training needs was initiated.

The paper describes the review of the training needs, or the training needs assessment, which is being carried out. The training needs assessment is made up of a series of steps to be taken to achieve the planning of a training programme.

The first step is to define the organisational chart for the project and to produce job descriptions for all grades of staff who appear in the chart. The next step is to identify the skills required to perform the tasks listed in the job descriptions. The identification of skills necessary to perform each of the jobs enables a list of learning objectives to be produced.

A training course must be designed such that the starting point of the course corresponds to the level of the trainee. It is therefore necessary to assess the level of all staff who are to pass through the training programme.

Following the production of learning objectives and staff assessment, the different courses can be developed. While the different courses are defined by the learning objectives, the detailed course material is determined by the existing staff skills.

6.3 Training of emerging contractors in labour-based construction

Summary of the paper presented by N G Band, Project Management Techniques, South Africa

The paper presents some aspects of the training of emerging contractors in labour-based construction in South Africa. The need to train emerging contractors is in compliance with the Reconstruction and Development Programme which emphasises the development of small-scale enterprises, human resource development, and job creation.

Emerging contractors, as defined in the paper, will generally be black. They comprise those already operating as contractors but with barriers in the way of development, those operating in the informal sector with a wish to enter the mainstream of the economy, and community representatives who wish to be involved in construction projects. They must also have a will and a desire to succeed.

The most important barriers to entry of such contractors relate to finance. Lack of commercial, management and administrative skills, lack of technical expertise, tendering of rates and lack of labour only contracts are also important barriers.

Various training materials have been produced which address the training needs of emerging contractors. Some materials have obtained formal accreditation.

Emerging contractors are being trained in a number of ways in South Africa. The two main types of training are described as project-specific and non-project specific. At present training mainly falls into the first type.

6.4 Labour-based training in Ciskei — problems and pitfalls of providing training with non-accredited institutions

Summary of the paper presented by W A O'Leary, Van Wyk & Louw Inc and S W van der Merwe, Department of Public Works and Roads, Ciskei Administration, South Africa

The paper discusses some of the aspects of training related to a project in Eastern Cape Province of South Africa. It highlights the problems encountered by the project manager and the client in setting up a training programme acceptable to the training providers and to the Department of Labour.

The project, for which Van Wyk & Louw Inc is the manager and the Department of Public Works and Roads the client, consists of construction of some 100 culverts and small bridges using labour-based methods.

The objective of the project manager as regards training was that all persons employed for construction work should receive accredited training, which means recognition by the Civil Engineering Industry Training Scheme. Of the two training institutions which were available to provide training for the project, only one was accredited. However, the non-accredited institution was based within the region, which was highly desirable, and had relevant experience for the job. The solution was to share the training between the two institutions.

The involvement of the Department of Labour in the project had the advantage that funds were allocated for training purposes from the National Economic Forum. However, it also created additional problems,

for example the requirement to use the Department's courses which were not relevant for the training requirements in this project.

For the client, the organising of training was very time-consuming and caused considerable delays in the construction programme. It was not possible to please all the different actors and still remain within budget.

6.5 Small-scale contractor training programme in Lesotho

Summary of the paper presented by C E Berentsen, Contractor Training Programme, Lesotho

The Contractor Training Programme in Lesotho started in 1993 with financing from the World Bank and technical assistance from the ILO. It falls under the Labour Construction Unit of the Ministry of Works.

So far, 12 trainees have obtained certificates in labour-based routine maintenance, and eight of those have later each received a regravelling certificate. At present the programme is at the point of training a second batch of 12 contractors.

The paper deals with three aspects of the contractor training, notably the selection procedure of trainees, training programme and material, and work after course completion.

The programme has developed a systematic procedure for selection of trainees (future contractors). The procedure consists of course advertisement on radio and in newspapers, an initial screening of all applicants, a second screening based on test results, and a final selection based on personal interview and verification of information. This procedure was used for the second course and took some four months.

The selected candidates go through a 12 months training course. In the first course the ILO-produced Improve Your Construction Business series was used as training material together with additional material tailored for road contractors. Based on the experience from the first course, the preparation of a new training manual for routine maintenance and regravelling (ROMAR) was initiated. The draft of this manual is being tested in the second course.

The prospects of future work for the graduated contractors are positive as far as road maintenance requirements are concerned. On the other hand, future work also depends on the amount of funds made available for road maintenance. So far, routine maintenance contracts have been financed by local funds, while external funds have been made available for regravelling contracts.

6.6 Sustaining labour-based technology in Ghana — the contribution of the School of Engineering

Summary of the paper presented by Dr S K Ampadu and Dr Y A Tuffour, University of Kumasi, Ghana

The paper reports on the activities that the School of Engineering of the University of Science and Technology in Kumasi is undertaking under a collaboration agreement with the Department of Feeder Roads and the ILO. The collaboration agreement was established in 1992 with the ultimate objective of incorporating labour-based road engineering into the engineering courses of the University.

The agreement comprises three main components, which are contractor studies, short-term studies and studies at post-graduate level.

The objective of the contractor studies has been to monitor the performance of small-scale labour-based contractors executing standard contracts. For these studies, recent graduates of the under-graduate civil engineering programme have stayed in contractors' camps to observe and record their mode of operation. The results of these studies are being used by the Department of Feeder Roads as a basis for a review of existing rates for labour-based contracts.

Short-term studies have comprised evaluation of the technical quality of roads built by labour-based contractors.

A two-year Master of Philosophy study on comparison of labour-based and equipment-based technologies started in 1994. This post-graduate study seeks to provide input for establishing a rational basis for selecting between labour-based and equipment-based road technology. The study does this through a comparison of the two technologies in different agro-ecological zones in the country in terms of technical, financial, socio-economic and institutional factors.

In addition to these activities, the University has arranged a seminar involving the technical leadership and contractors, and field visits by students and lecturers to get exposure to labour-based technology.

6.7 Is training enough?

Summary of the paper presented by R C Petts, Intech Associates, UK

The paper discusses some of the aspects that are important to consider to achieve successful training for road authority personnel. Very often insufficient consideration to the operational environment of the trainees restricts the effectiveness of training. Training is only one component of manpower development, and must be carried out in conjunction with the development of road authority operations.

African road authorities are often confronted with a number of problems and constraints. The paper limits itself to a discussion of technical, systems and manpower problems. The problems related to manpower status, development and motivation are viewed as the most difficult ones to overcome. Limited impact of training is often a result of these problems being overlooked. In this respect, the issue of appropriate remuneration level is highlighted. The remuneration of African engineers, technicians and other skilled staff in the civil service sector has declined considerably over the past 25 years. This has severely affected the motivation and 'availability' of staff to perform their official tasks.

7 Field visit to Soweto's Contractor Development Programme

PROGRAMME OBJECTIVES

The Soweto Contractor Development Programme was initiated in 1987 by the Soweto City Engineer's Department. Its objectives are to structure and execute construction projects using labour-based techniques in such a way that (1) employment and entrepreneurial opportunities are created for the Soweto residents, (2) skills and competencies in technical, managerial and administrative areas are transferred to the participants, and (3) as much as possible of the expenditure is retained within the community.

PROGRAMME STRUCTURE

The programme uses a development team approach to address the constraints which preclude local, community-based contractors from participating in construction projects.

The development team comprises a number of firms of consulting engineers and a large well established civil engineering contractor. Apart from providing conventional consulting services, the development team advises, trains and assists contractors in the administration and execution of their contracts. At the same time, the team employs and trains community members to run stores facilities, assist with administration, etc.

The contractors enter into a contract directly with the client and is the main contractor. The development team is separately appointed by the client. Under this programme, contract documentation which suits Level 1 to Level 3 contracts (see below) and the approach used have been produced. Moreover, a standardised specification for this type of contract and a model form of agreement for the appointment of a development team have been developed.

The programme is structured in levels of contract to enable emerging contractors who have different experience and aspirations the opportunity to enter and exit the programme at various stages. There are five levels of contract comprising: (1) labour only; (2) labour and transport of materials to site; (3) labour, transport and materials (assisted); (4) labour, transport and materials (unassisted); (5) labour, transport, materials and full surety.

Access to levels of contract is on the basis of open tender and is not linked to attendance at and passing of courses. Certain rules have been established to ensure that participants have an incentive to progress to higher levels and not 'camp' at a particular level. The duration of a contract is usually between three and six months.

In the development team approach specific functions are carried out by the design engineer, the engineer, the construction manager and the materials manager. The responsibilities of the design engineer and the engineer are similar to those of a consulting engineer for the design and tender stage, and the construction stage, respectively, for conventional contracts.

The support provided by the construction and materials engineers is flexible and varies depending on the contractors' needs. The role of the construction and materials manager is reduced as the contractors become more competent and can assume greater contractual responsibilities and risks.

At the lowest level of contract the construction manager provides advice, practical assistance, and training; ensures provision of plant other than small tools; arranges for specialist work; arranges for payment of wages and for transport of materials to site. The materials manager procures, stores and issues all material. The training is a combination of on-the-job training and formal training. The programme has not yet advanced beyond Level 2. Between mid-1988 and January 1994, 87 Level 1 and 9 Level 2 contracts were awarded. A few contracts have been terminated because of unsatisfactory performance.

CURRENT PROJECTS

Township roads Some 30,000 m² of road have been constructed (surfaced), and construction of a further 21,000 m² has commenced (waterbound macadam and concrete block paving roads). The work also includes provision of kerbing, and where necessary, installation of underground stormwater drains.

Water house connections and upgrading of secondary water mains: The work involves construction of secondary mains in the road reserves and their connection to the existing plumbing installation on erven³. The target is to lay some 560 km of secondary water mains and replumb 56,000 erven. To date some 290 km of secondary mains have been laid and 30,000 erven have been replumbed.

The estimated cost per man-hour is R17-18⁴ for all the above projects. The average cost per man-hour in the civil engineering industry is reported to be R37-50. The percentage of construction cost retained by the community is nearly 40%, with the exception of housing connections which reach 50%.

The construction costs of the projects, except those of road construction, are expected to be less than or equal to conventional or plant-based costs. Road construction is expected to be about 15% more expensive than plant-based construction.

³ An erf is equivalent to a plot.

⁴ 1 USD = 3.54 Rand (January 1995)

8 Group work

8.1 Identification of key issues

During a plenary session following the various presentations, the participants identified key issues and questions that should serve as a starting point for group discussions. At this stage no screening of issues took place. The issues were grouped under five main headings as shown below.

GROUP 1: URBAN INFRASTRUCTURE

- What are the main differences between urban and rural infrastructure?
- Are local by-laws favourable for labour-based works?
- Are current practices suitable for labour-based methods?
- How to adapt design standards?
- How to adapt engineering standards to be affordable in informal housing?
- How do we upgrade urban infrastructure to accommodate appropriate means of transport?
- Labour-based methods for bitumen roads
- What should the level of intervention be in unplanned settlement areas?
- Should interventions be focused or broad?
- How to quantify social benefits?
- Land compensation
- Safety requirements
- Are labour-based methods based on economics or politics?
- Best speed — labour-based or machine-based methods?
- How to find the best balance between the use of machine and labour
- What should be the involvement of NGOs?
- How should urban infrastructure be maintained?
- Who maintains — public or private?
- How will the public pay for infrastructure services?
- How to share community and local authority responsibilities?

GROUP 2: CONTRACTING ENVIRONMENT

- What are the changes required by the client when moving from force account to private sector operations?
- Classification of contracts.
- How should labour-based tenders be evaluated?
- Does user-friendly contract documentation exist?
- What quality of management exists for labour-based works?
- How do we streamline contractor payments in a government system?
- What is an appropriate remuneration system for labour-based works?
- How do we reconcile the task rate system with government legislation?
- What measures can be taken to avoid exploitation of workers?
- How do we take into account safety requirements?
- What is the role of ILO conventions vis-à-vis labour-based works?
- Define market share for plant/labour contracts.
- Are there areas where labour-based contracts are not appropriate?

GROUP 3: CONTRACT SUPPORT AND TRAINING

Contractor support

- How to identify labour-based contractors; what if they don't exist?
- How to transform force account staff into contractors?
- How to support emerging contractors?
- How to encourage emerging contractors to enter civil works?
- How to encourage contractors to change to labour?
- How do we support the small contractor in the big contracting market?
- Capitalising small-scale non-capitalised contractors.
- How to organise contracting for routine maintenance?
- Should we make advanced payments?

Contractor training

- Who should initiate labour-based contractor training?
- What criteria to use in the selection of contractors to be trained?

GROUP 3: CONTRACT SUPPORT AND TRAINING (continued)

- Should contractor training stop at some stage, and if so, at what stage?
- Are contractor training programmes addressing client management responsibilities?
- Who should pay for training?

GROUP 4: TRAINING - INSTITUTIONAL DEVELOPMENT

- How to bring labour-based technology into mainstream engineering?
- How can we get universities to agree on a common curriculum?
- What are the requirements for accreditation?
- Are existing formal institutions failing to meet the training needs in labour-based technology and management?
- How do we improve the effectiveness of counterpart training?
- What is the role of technology providers?

GROUP 5: TRAINING - POLICY AND PLANNING

- Does the existence of government training institutions hinder or foster the growth of private training institutions?
- Regional vis-à-vis national training
- Are more/different international training courses needed?
- What can be done to standardise labour-based training manuals?
- Are there training materials and courses for unplanned settlement areas?
- At what level to start training to get immediate effect?
- Incentive pay during training for self-help
- Should we train for community level skills in the absence of long-term work?
- How to train casuals for short-term work?
- Selection criteria for trainees in surplus and illiterate labour force
- How do we measure success in transfer of technology?

The groups were given the following guidelines for their work:

- 1 Use the issues raised during the plenary session as reference
- 2 Regroup the questions and issues to focus on a small number of issues
- 3 Formulate some definite actions or recommendations
- 4 Indicate which actions should be taken up by the ILO in general and ASIST in particular.

8.2 GROUP 1: Urban Infrastructure

ARE LABOUR-BASED METHODS APPROPRIATE FOR URBAN WORKS?

The technical principles of using labour for rural works are also applicable to the urban environment. Labour is more flexible than machines, and more precise working procedures can be applied. This is a major advantage where existing cables or pipes have to be accommodated during construction.

However, there are more prerequisites for success in the urban environment than in rural areas. Preparation, for example, will include assessing the suitability of in-situ soils for hand excavation and estimating the depth of drains or the need for buried services, because there are situations more suitable for machine work. A later switch from labour-based to machine based methods is undesirable.

The local community has to be involved from the very outset of the intervention to ensure that the real needs of the residents are addressed. Project designs need to be flexible so as to accommodate necessary changes based on inputs from the community. In view of narrow tolerance, and space and access limitations, a more sophisticated level of supervisory skills than for rural works may be required.

HOW TO ENSURE SUSTAINABILITY AND MAINTENANCE OF URBAN INFRASTRUCTURE?

Maintenance has an undesirable low political priority in situations of limited funds. Where funding levels are low, it is often desirable to relax the requirements of municipal by-laws. In general, specifications dictate a too high level of infrastructure in relation to affordability.

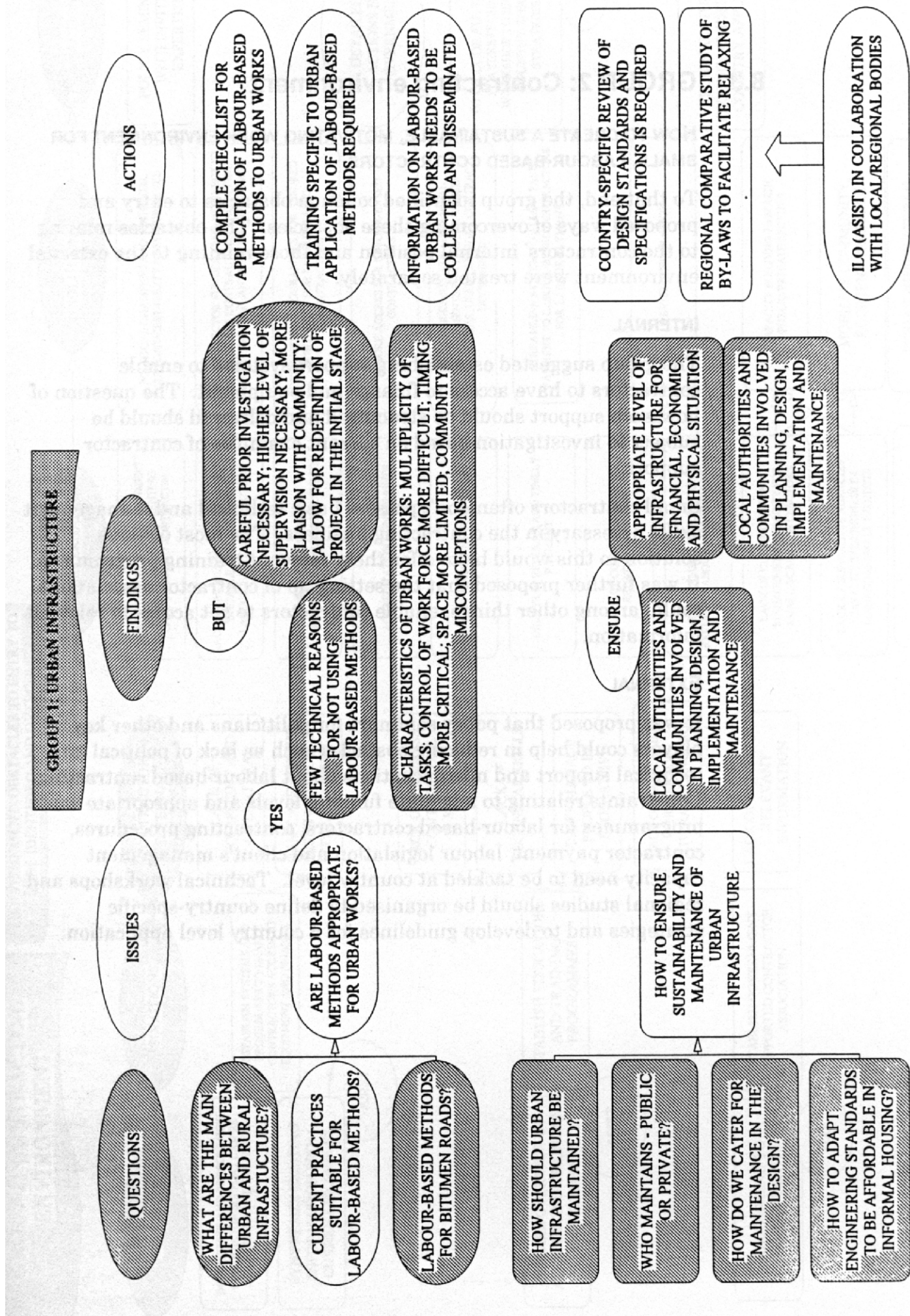
It is important to strike a balance between initial capital investment and subsequent maintenance costs. Community resources and skills will have an influence on the decision whether to focus on a certain level of construction or rather on a more maintenance demanding option which will generally be less costly to construct.

The value of jobs and the need to relocate families are important where politics drive a decision. Involvement of the local authorities and

residents during all phases of a project will facilitate decisions on the trade-offs between short- and long-term goals and sensitive issues such as wages, relocation and even relaxation of by-laws.

A country-specific review of design standards and specifications was recommended. A regional comparative study of by-laws may help local authority officers to relax requirements.

Practitioners in the region will benefit from learning more from each other's experiences in solving problems peculiar to the urban areas. To that end, relevant information should be made available, and it would further be useful to have a technical checklist incorporating all municipal services. Training courses and materials on urban works are also needed.



8.3 GROUP 2: Contracting environment

HOW TO CREATE A SUSTAINABLE, MOTIVATING WORK ENVIRONMENT FOR SMALL, LABOUR-BASED CONTRACTORS

To that end, the group identified common obstacles to entry and proposed ways of overcoming these obstacles. The obstacles relating to the contractors' internal position and those relating to the external environment were treated separately.

INTERNAL

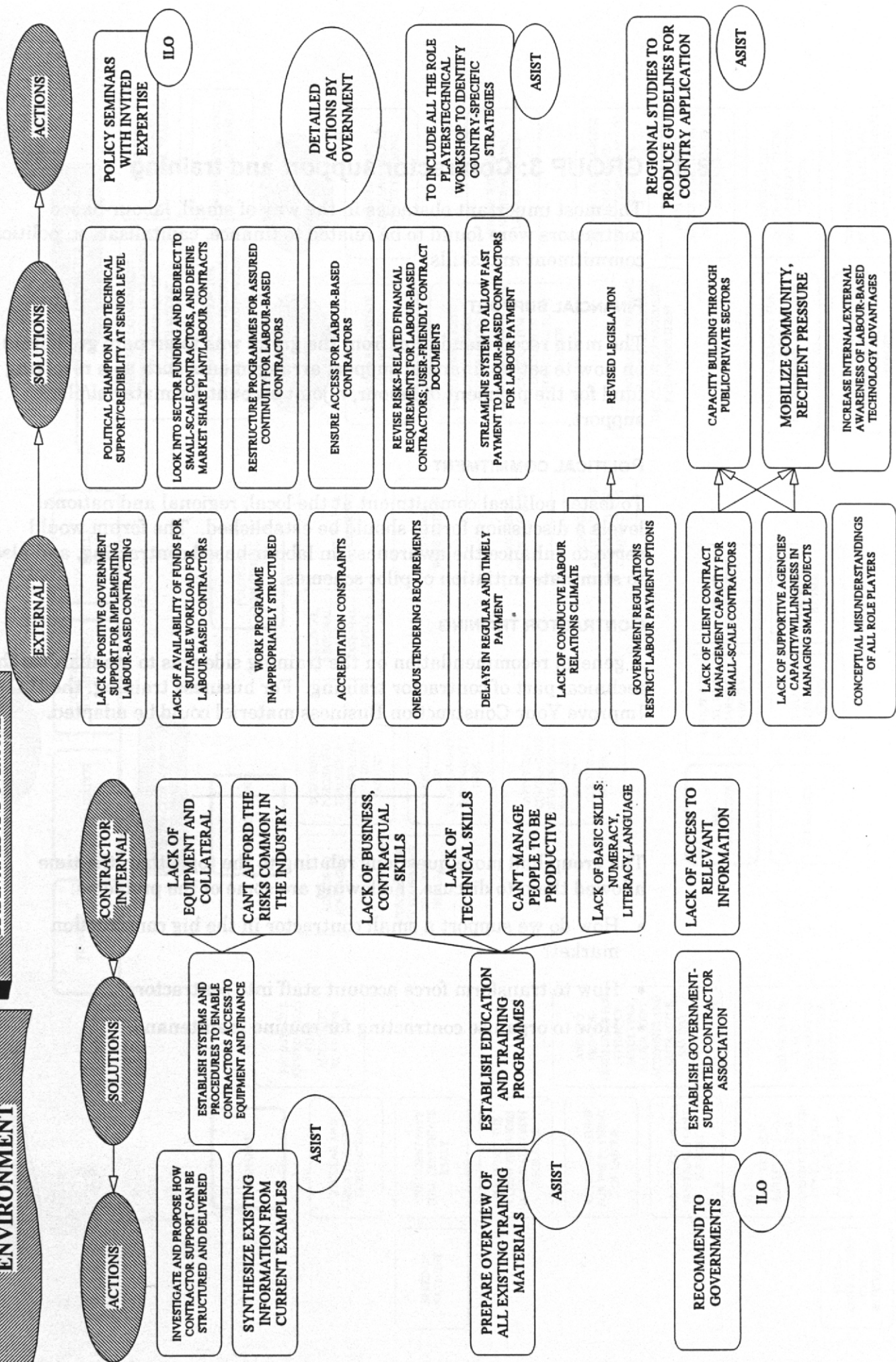
The group suggested establishing support systems to enable contractors to have access to finance and equipment. The question of how such support should be structured and delivered should be subject to investigation based on current examples of contractor support.

Small contractors often don't possess basic technical and management skills necessary in the contracting business. The most obvious solution to this would be to offer them relevant training programmes. It was further proposed that the setting up of contractor associations could, among other things, enable contractors to get access to relevant information.

EXTERNAL

It was proposed that policy seminars for politicians and other key players could help in reducing obstacles such as lack of political and technical support and misconceptions about labour-based contracting. Constraints relating to adequate funding levels and appropriate work programmes for labour-based contractors, contracting procedures, contractor payment, labour legislation and client's management capacity need to be tackled at country level. Technical workshops and regional studies should be organised to define country-specific strategies and to develop guidelines for a country level application.

CREATING SUSTAINABLE CONTRACTING ENVIRONMENT- OBSTACLES TO ENTRY TO BE IDENTIFIED AND OVERCOME



8.4 GROUP 3: Contractor support and training

The most important obstacles in the way of small, labour-based contractors were found to be related to finance, capitalisation, political commitment and skills.

FINANCIAL SUPPORT

The main recommendation from the group was to prepare guidelines on how to set up financial support arrangements such as a revolving fund for the payment of labour, a joint account for material/plant support.

POLITICAL COMMITMENT

To foster political commitment at the local, regional and national levels a discussion forum should be established. The forum would serve to enhance the awareness on labour-based contracting, and also to stimulate initiation of pilot schemes.

CONTRACTOR TRAINING

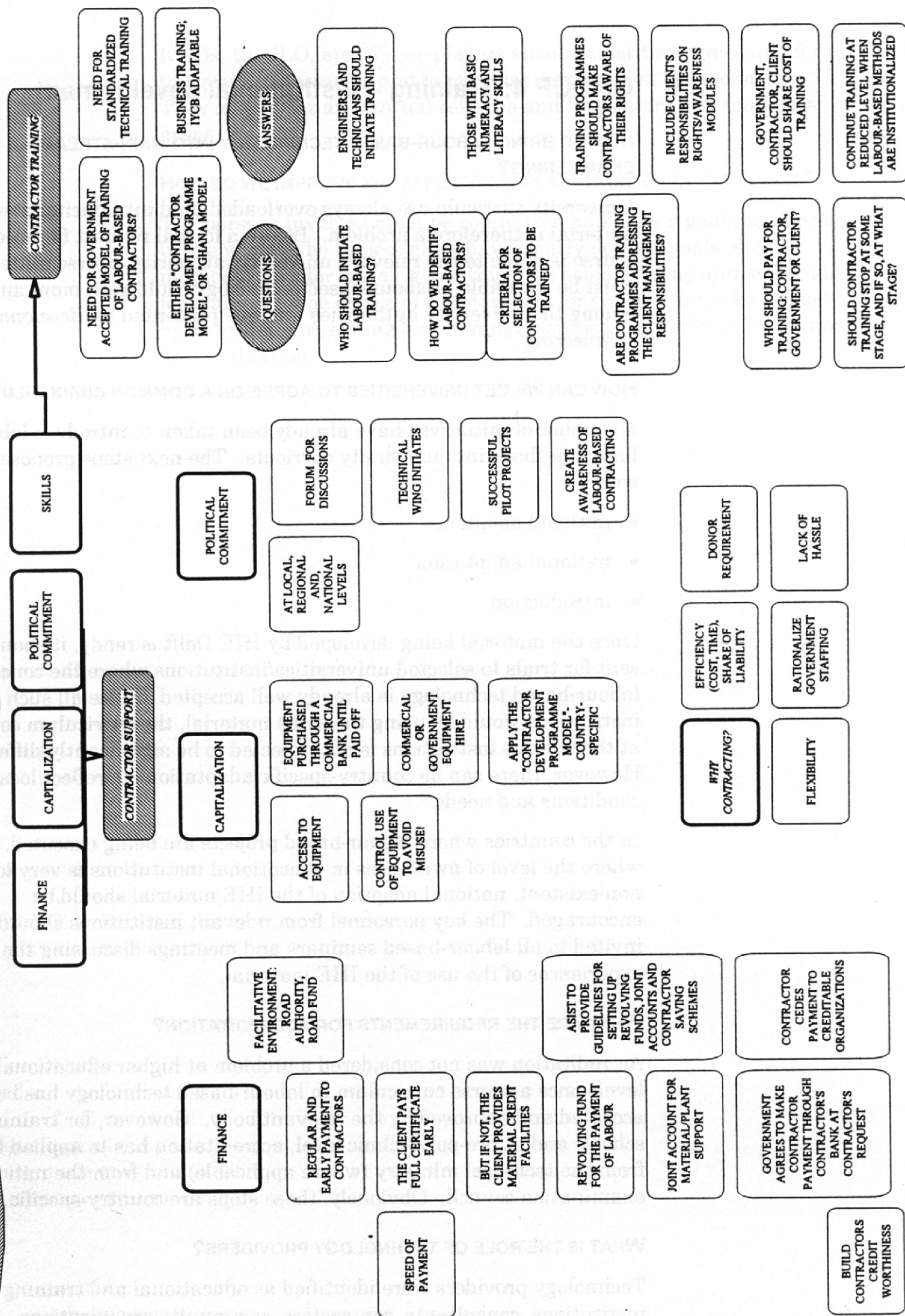
A general recommendation on the training side was to standardise the technical part of contractor training. For business training, the ILO Improve Your Construction Business material could be adapted.

The group had more questions relating to the topic than the time allowed them to discuss. Following are some of the problems:

- How do we support a small contractor in the big construction market?
- How to transform force account staff into contractors?
- How to organise contracting for routine maintenance?



OBSTACLES



8.5 GROUP 4: Training – institutional development

HOW TO BRING LABOUR-BASED TECHNOLOGY INTO MAIN-STREAM ENGINEERING?

University curricula are always overloaded, and introducing new material is therefore a problem. Before a formal request for a new course is made to the relevant university authority, course material must be available. Labour-based technology could gain more appeal among the university authorities if it was presented as *'development engineering'*.

HOW CAN WE GET UNIVERSITIES TO AGREE ON A COMMON CURRICULUM?

A number of initiatives have already been taken to introduce labour-based methods into university curricula. The next steps proposed were

- national adoption
- national adaptation
- introduction.

Once the material being developed by IHE Delft is ready, it should be sent for trials to selected universities/institutions where the concept of labour-based technology is already well accepted. Since all such institutions would be using the same material, the curriculum content at the various institutions is not expected to be significantly different. However, there can be country-specific adaptations to reflect local conditions and needs.

In the countries where labour-based projects are being executed, but where the level of awareness in educational institutions is very low or non-existent, national adoption of the IHE material should be encouraged. The key personnel from relevant institutions should be invited to all labour-based seminars and meetings discussing the experiences of the use of the IHE material.

WHAT ARE THE REQUIREMENTS FOR ACCREDITATION?

Accreditation was not considered a problem at higher educational levels once a course curriculum in labour-based technology has been accepted and approved by the relevant body. However, for training schools and at pre-polytechnic level, accreditation has to be applied for from the technical ministry (where applicable) and from the national examination council. Obviously, these steps are country-specific.

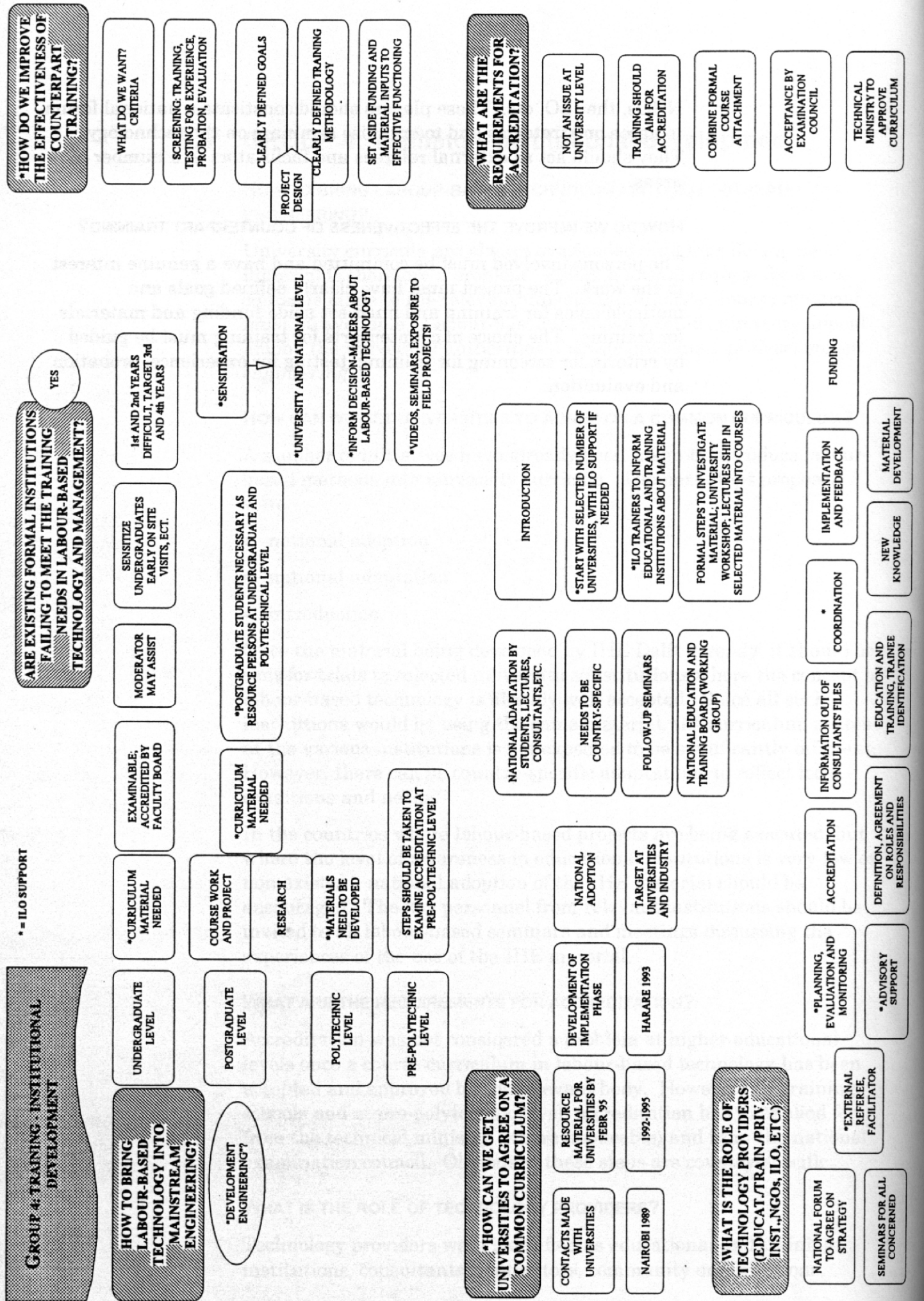
WHAT IS THE ROLE OF TECHNOLOGY PROVIDERS?

Technology providers were identified as educational and training institutions, consultants, contractors, community organisations, NGOs, the ILO, etc. These players should constitute a national forum to agree

on strategies and to organise seminars on the technology. They should act as external referees and facilitators in a number of areas.

HOW DO WE IMPROVE THE EFFECTIVENESS OF COUNTERPART TRAINING?

The persons involved must be committed and have a genuine interest in the work. The project must have clearly defined goals and methodologies for training and must set aside funding and materials for training. The choice of counterparts for training must be guided by criteria for screening for training, testing for experience, probation and evaluation.



8.6 GROUP 5: Training –policy and planning

INSTITUTIONAL COOPERATION IN TRAINING

More international engineers, managers and trainers courses are required. The reason for this need is the deficit of expertise at higher technical, management and trainer levels. Such staff are necessary for technology transfer and for the training of lower cadres of technical staff. Although a small number of national engineers might have the technical know-how of labour-based methods, international courses are needed since the teaching capacity is rarely available at a national level.

A module on contract management should be added to the engineer and manager courses. In general, the exposure to contractor training methods should be increased. Particularly, senior management staff should be sent on study tours to national and private institutions.

Regional vis-à-vis national training For the training of technicians, courses should be conducted at national level due to the nature of their responsibilities at work. It also costs less than international training. It was suggested that more international staff should be made available to initiate national training courses for technicians.

The group further proposed to standardise training manuals and collect information on country-specific standards and conditions. This would reduce the time and cost spent by many projects on material development. To simplify modifications of the material by the users, it should be available in a computer-readable format.

TRAINING APPROACH

The community should be involved in the selection of trainees from a surplus and illiterate labour force. Recruitment of trainees could be done through balloting on a group basis so as to give priority to different groups. On the question of incentive payments during training for self-help, it was recommended not to pay the trainees, since the training and community development is an incentive itself.

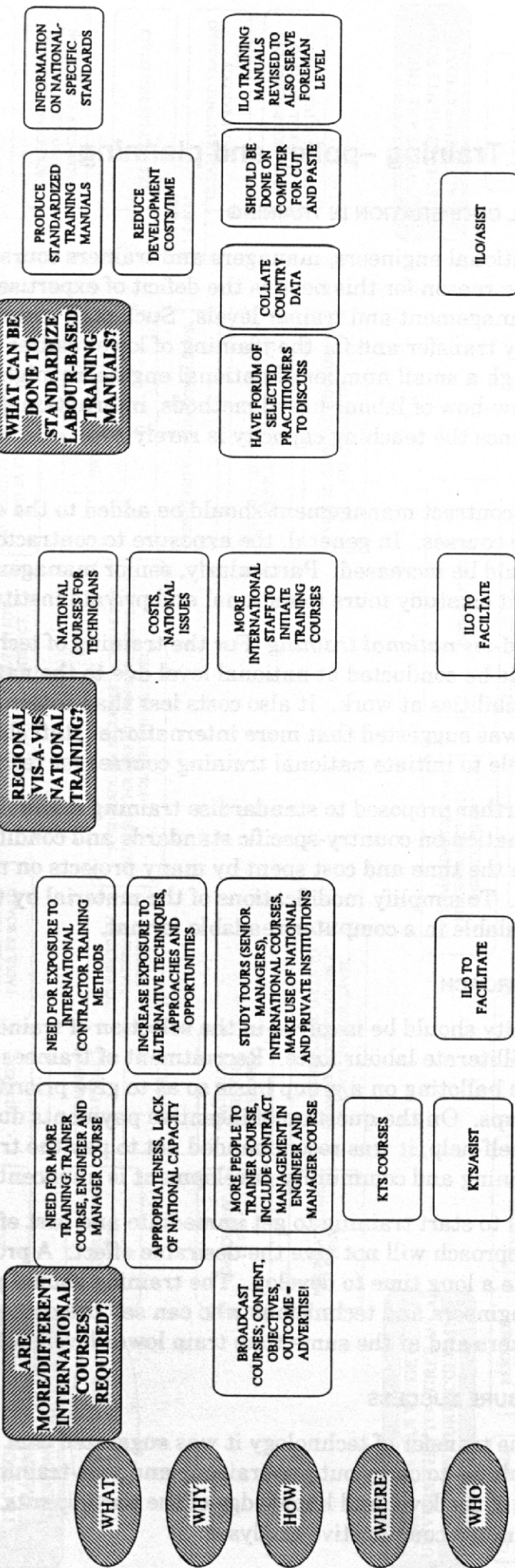
At what level to start training to get immediate and best effects? A bottom-up approach will not give the desirable effect. A programme will then take a long time to develop. The training should preferably start with engineers and technicians who can sell the concept to the decision-makers and at the same time train lower level staff.

HOW TO MEASURE SUCCESS

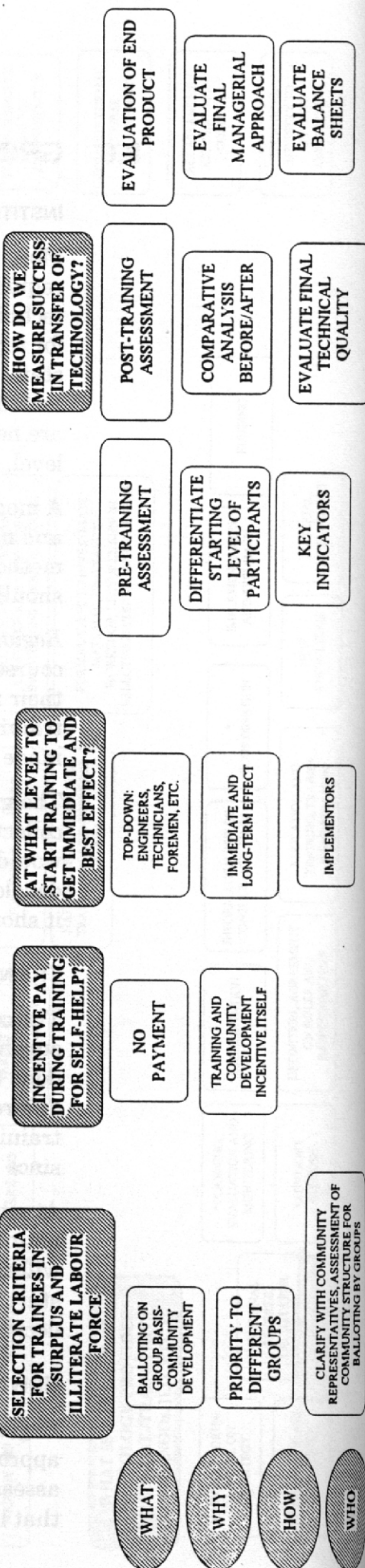
Regarding the transfer of technology it was suggested that one approach could be to carry out pre-training and post-training assessments of the level and knowledge of the participants, and on that basis conduct comparative analyses.

GROUP 5: TRAINING - POLICY AND PLANNING

INTERNATIONAL COOPERATION IN TRAINING



TRAINING APPROACH



Annexes

9 Annexes

9.1 Annex 1: Regional Seminar Agenda

MONDAY 16 JANUARY

0900-1030 Registration.

1030-1130 **Session 1: Welcome and introduction.** Chairperson Prof. R.T. McCutcheon, University of the Witwatersrand, South Africa.

Opening address by Sipho Shezi, Coordinator of the National Public Works Programme, South Africa.

Administrative arrangements and seminar conduct by David Mason, Training and Information Services Manager of ASIST, Nairobi, Kenya.

1130-1230 **Session 2: Presentation of papers related to labour-based works in South Africa.** Chairperson Prof. R.T. McCutcheon, University of the Witwatersrand, South Africa.

The current context for labour-intensive construction in South Africa by James Croswell, James Croswell Associates, South Africa.

Labour-based construction and the development of emerging contractors in South Africa by R.B. Watermeyer, Soderlund & Schutte Inc, South Africa.

A practical application of the Framework Agreement by M. Stoffberg, Power Construction, South Africa.

1230-1400 Lunch.

1400-1500 **Session 3: Scene setting.** Chairperson Prof. R.T. McCutcheon, University of the Witwatersrand, South Africa.

The role of the International Labour Organisation by Jan de Veen, ILO, Geneva, Switzerland.

The role of ASIST by David Stiedl, Programme Director of ASIST, Harare, Zimbabwe.

Objectives of the seminar by David Mason, ASIST, Nairobi, Kenya.

1500-1530 Refreshments.

- 1530-1730 **Session 4: Presentation of papers related to urban development.** Chairperson Jan. de Veen, ILO, Geneva, Switzerland.
- To what extent can NMT interventions be implemented using labour-based technologies and methods?* by Prof. T. Rwebangira, University of Dar es Salaam, Tanzania.
- Alternative strategies for the provision of infrastructure in urban unplanned settlements areas: are these strategies effective and how can they be supported and developed?* by Jane Tournée, ILO Consultant and John Omwanza, ASIST, Nairobi, Kenya.
- Evaluating the benefits of implementing labour-based construction in an urban community* by R.B. Watermeyer, Soderlund & Schutte Inc, South Africa.
- Labour-intensive infrastructure development in the urban informal sector: ILO's strategies and programmes for urban poverty alleviation on an inter-regional level* by S.K. Miller, ILO, Geneva, Switzerland.
- Choice of technique analysis* by S.D. Phillips, University of the Witwatersrand, South Africa.
- 1730-1830 *Cocktail party* hosted by Prof. A.R. Kemp, Deputy Vice Chancellor, University of the Witwatersrand, South Africa.

TUESDAY 17 JANUARY

- 0800-1000 **Session 5: Presentations of papers related to education and training.** Chairperson David Stiedl, ASIST, Harare, Zimbabwe.
- Training in labour-based roadworks for Kenya's expanding national programmes and international courses* by B.G. Ariga and D.W. Jennings, Ministry of Public Works and Housing, Kenya.
- Training needs assessment — planning a training programme* by James Markland, Feeder Roads Programme, Mozambique.
- Training of emerging contractors in labour-based construction* by N.G. Band, Project Management Techniques, South Africa.

Labour-based training in Ciskei — problems and pitfalls of providing training with non-accredited institutions by W.A. O'Leary, Van Wyk & Louw Inc and S.W. van der Merwe, Department of Public Works and Roads, Ciskei Administration, South Africa.

Small-scale contractor training programme in Lesotho by C.E. Berentsen, Contractor Training Programme, Lesotho.

Sustaining the labour-based technology in Ghana — the contribution of the School of Engineering by Dr. S.K. Ampadu and Dr. Y.A. Tuffour, University of Science and Technology, Kumasi, Ghana.

Is training enough? by R.C. Petts, Intech Associates, UK.

1000-1030 Refreshments.

1030-1230 **Session 6:** *Identification of key issues arising from the papers.* Moderator D.W. Jennings, Ministry of Public Works and Housing, Kenya.

Operating rules for group discussions by David Mason, ASIST, Nairobi, Kenya.

1230-1400 Lunch

1400-1530 **Session 7:** *Group discussions conducted by moderators.*

1530-1600 Refreshments.

1600-1730 *Group discussions (continued).*

WEDNESDAY 18 JANUARY

0830-1730 **Session 8:** *Field visit to Soweto's Contractor Development Programme* hosted by the Soweto's Contractor Development Team.

THURSDAY 19 JANUARY

0830-1000 *Group discussions (continued).*

1000-1030 Refreshments.

1030-1200 *Group discussions (continued).*

1200-1330 Lunch.

1330-1530 **Session 9:** *Presentation and discussion of group work in plenum.*

1530-1600 Refreshments.

1600-1730 *Presentation and discussion of group works in plenum (continued).*

FRIDAY 20 JANUARY

0830-1000 **Session 10: *Summary, conclusions and action plan.*
Chairperson Prof. R.T. McCutcheon, University of the
Witwatersrand, South Africa.**

*What new strategies and technologies can we adopt as a
result of the seminar discussions?* by Jan de Veen, ILO,
Geneva, Switzerland.

1000-1030 *Closure* by Prof. R.T. McCutcheon.

9.2 Annex 2: List of participants in alphabetical order of surname

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9.3 Annex 3: Opening remarks to the ILO regional seminar for labour based experts in the road sector held on the 16th to the 20th January 1995

*Presented by Mr Sipho Shezi
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Thank you Chairperson

On behalf of the South African Government, in particular the Ministry of Public Works, I would like to extend our warmest greeting to all the delegates attending this important seminar. Indeed, it is with great pride and satisfaction we welcome people of your calibre and commitment to our country.

Chairperson, honourable delegates, distinguished representatives of the International Labour Organisation, members of the Department of Civil Engineering of the University of the Witwatersrand, — the importance of this seminar cannot be overemphasised in the context of a newly unfolding democratisation process in our country.

In particular, the importance of this seminar should be located within the context of the concerted effort of the new government to redress the legacy of the Apartheid System in the majority of our people.

To this extent, the government has adopted the National Public Works Programme as an integrated economic development programme which serves as a catalyst for transforming public and private sector infrastructure provision. It is through this approach that the new democratic state in our country intends to influence the mainstream policies of government and the Public Sector in the manner that would:

- increase the job creation ability of the economy
- reduce dependency
- increase community involvement and empowerment
- develop capacity through training
- create jobs
- reduce poverty, conflict and alienation by promoting participation in the economy.

These are all noble goals and objectives that the democratic State has set for itself in order to sustain the democratisation process, as well as to put South Africa on a firm basis for the role that it is expected to play in the international economy. In essence the National Public Works Programme (NPWP) consists of a process of labour-

intensification and increased training and capacity building in the provision of infrastructure. The NPWP is a key component of the Government's Reconstruction and Development Programme. Labour-intensive methods will be used for the construction and maintenance of urban and rural public infrastructure (water supply, sewerage, roads, stormwater drainage, erosion control, irrigation, electricity supply, waste disposal, clinics, schools, public and social buildings). An intrinsic part of the NPWP is the development of individual and institutional capacity (community, local, regional and national): extensive training is envisaged.

It is therefore for this reason that the initiative that has been undertaken by the University of the Witwatersrand's Department of Civil Engineering in collaboration with the ILO is viewed with such high enthusiasm by ourselves.

This initiative offers us a unique opportunity to immediately tap into the skills and expertise that have been tried and tested regarding labour-intensive construction and maintenance and the implementation of Public Works Programmes throughout the world. We value such an opportunity, and I have no doubt that it will have immense impact in our endeavour to develop appropriate strategies to enhance the implementation of the National Public Works Programme for the country.

I would therefore Mr Chairman, like to extend a warm welcome to all participants of this seminar. Please, take note of the fact that you are not just the guests of this prestigious academic institution, but rather, you are equally the guests of the whole country.

As a country, and in particular the Ministry of Public Works, we value your presence here. We hope you will have a fruitful stay and productive deliberations for the duration of this seminar.

Finally Mr Chairman, I would like to stress to all the honourable delegates, that there is nothing as encouraging as to know that South Africa continues to be an important factor to the International Community, in the same manner that it used to be, during the terrible days of apartheid rule in our country. I have no doubt that your presence in such great number is both intentionally and unintentionally meant to demonstrate this point. Indeed, this is a source of inspiration to reconstruct and develop our country in a manner that will have positive impacts for the rest of the Southern Africa Region.

Thank you

9.4 Annex 4: Results of the evaluation questionnaire

On the last day of the regional seminar for labour-based experts in the road sector in Sub-Saharan Africa the participants were asked to evaluate the seminar and make suggestions for the future regional seminars. Out of 96 participants 73 answered the questionnaire. The following general conclusions can be drawn from the comments and suggestions received.

SEMINAR PRESENTATIONS

Seminar Themes

All of the participants found the two themes - urban development and education and training - appropriate for this seminar. Suggestions for the next seminar came from seven main areas which are listed in the following including specific suggestions. The greatest interest was shown in the first three themes.

Contractors

- Contractor development for labour based works (7 proposals)
- Development and management of labour based contract works/contractors (3 proposals)
- Training and evaluation of contractors (3 proposals)
- Labour-based contracting in a rural setting
- Labour-based contracting: progress and prospects
- Use of labour-based contractors in routine maintenance
- Standards, private sector participation
- Simplified contract documents

Institutional and political aspects

- Donors role in labour-based programmes
- Financing for labour-based construction
- Economic evaluation for labour-based works
- Institutional development for labour-based works as referred to contractors and government institutions
- Follow up - Swiss Development Co-operation (SDC)
- Institutionalisation
- Technology transfer
- Execution and institutional aspects of labour-based works
- Wages and conditions of employment (task & piece work) (2 proposals)
- Long term job creation
- Pumping labour-based technology to political heads

Technical and management issues

- Executing road maintenance
- Appropriate materials for civil works
- Alternative pavements
- Routine maintenance

- Maintenance and gravelling
- Setting the correct balance between machine and labour-based construction and maintenance methods (2 proposals)
- Level of equipment and sustainability for labour-based road construction
- Appropriate design considerations for labour-based projects
- Planning and organisation of labour-based construction work
- Planning, monitoring and evaluation systems

Environment

- Environmental impact assessments for labour-based programmes
- Technology choice to enhance environmental protection

Urban development/Community based development/Rural development

- Community based labour-intensive works
- Urban infrastructure (2 proposals)
- Community Development and project facilitation
- Appropriate design standards for low income urban areas
- Rural infrastructure and development using labour-based methods
- Labour-based rural public works, including all the sectors of infrastructure

Training

- Training for labour-based methods - expansion and institutionalisation
- Training management development
- The potential of labour-based construction training as part of holistic career & educational system

Countries

- Case studies for different countries
- Establishment of labour-based projects in countries where they are not existing
- Discussion of problems the participants normally encounter in their day to day duties

The maximum number of themes per seminar should be two.

Seminar papers

The time reserved for each paper presentation in plenum was 10-15 minutes, after which a short question and discussion session was held. The participants felt that the time allocated for each paper was too short. Also many people said that the papers should be fewer and more focused as well as edited in advance by the ILO. Some of the papers should have been discussed directly in group sessions.

Due to delay in the submission of papers the participants received their copies for reading only on the same day the presentations took place. The papers ought to be distributed to the participants prior to the seminar.

SEMINAR ORGANISATION

The participants felt that the group work sessions were very useful although the group work themes were too diverse for the time allocated and for concrete outputs. The total time for actual group work was three sessions totalling to 4-5 hours and two sessions (3 hours) for presenting the results.

The balance between papers and group work was described “just right” by two thirds of the participants. However, most of them said that the overall length of the seminar was right. Thus the only way to make group work more productive is to have more focused topics.

SEMINAR VENUE

The participants were generally satisfied with the venue. However, many people stressed that the rooms for group work needed to be small and easy to adapt for group discussion (e.g. an auditorium does not provide intensive discussion possibilities) and that the audio-visual equipment has to be of good standard.

With regard to the venue for the next seminar, Ghana received the strongest support.